Decision (September 2024) 51(3):303–319
https://doi.org/10.1007/s40622-024-00398-9

RESEARCH ARTICLE

I know what you browsed last night! role of creepiness and persuasion knowledge on click intention of online behavioral advertising

Ajay Kumar · Daruri Venkata Srinivas Kumar · R. U. Megha

Accepted: 11 August 2024 / Published online: 19 August 2024

Abstract The Internet has become an integral part of almost every individual's life. People look forward to the Internet for almost every possible requirement, whether shopping, business, knowledge, entertainment, social interaction, sports, or anything else. One of the most pertinent aspects of the internet is tracking and recording activities that occur online. This tracking allows advertisers to show ads based on individuals' online behavior. Online behavioral targeting is termed online behavioral advertising (OBA). Existing studies have identified the predictors of customers' behavioral intentions toward OBA attempts based on perceived costs and perceived benefits. This study examines the moderating effect of consumer awareness on OBA acceptance or rejection. The researchers applied a structural equation modeling (SEM) approach with SPSS AMOS to test the model fit, construct reliability and validity, and proposed research hypotheses with field data gathered with the help of a structured questionnaire. The researchers found OBA relevance and OBA credibility to be the significant factors that affect customer acceptance of OBA. Privacy concerns and creepiness were identified as the factors affecting OBA avoidance. The study also established that subjective persuasion knowledge positively moderates the relationship between OBA relevance and OBA acceptance.

Keywords Online behavioral advertising · Creepiness · Privacy concern · Subjective persuasion knowledge · Digital consumer · Consumer behavior

A. Kumar (✉) · D. V. S. Kumar · R. U. Megha
School of Management Studies, University of Hyderabad, Hyderabad 500046, India
e-mail: ajoykummar24@gmail.com

D. V. S. Kumar
e-mail: dvsrinivas@uohyd.ac.in

R. U. Megha
e-mail: rumegha28@gmail.com

Introduction

Since the beginning of the twentieth century, the advertising business has undergone rapid changes due to changes in advertising medium (Helberger et al. 2020). Mass advertising emerged with the development and expansion of mass media, such as newspapers, radio, television, etc. Mass media avenues, such as radio and television, started expanding in Western countries during the 1930s, and later, mass media expanded to developing countries, such as China, India, Pakistan, etc. In marketing activity, segmentation and targeting are the key components that provide advertisers with different sets of markets to push information to various consumers. However, the reach and effectiveness of mass media are difficult to measure (McDonald and Cranor 2010).

With the proliferation of the internet, advertisers got a new communication platform (Das and Mishra 2022), enabling them to measure and monitor their

reach and effectiveness. Marketing through the Internet can be collectively termed online marketing. Search engines, websites, social media, OTT platforms, and live-streaming platforms are critical avenues advertisers utilize for online advertising. Live streaming platforms allow advertisers to influence consumers' attitudes and perceptions. Live streaming platforms deliver value to consumers and advertisers (Chou et al. 2022). Online advertising has become an essential type of advertising mix (Ahlluwalia and Singh 2023).

One such system of online advertising is online behavioral advertising (OBA). It is also known as remarketing, behavioral retargeting, and behavioral advertising (Varnali 2021). Academic researchers have defined OBA as tracking users' online behavior and delivering customized messages based on the tracked information (Boerman et al. 2017; Varnali 2021). This definition consists of two critical aspects, i.e., monitoring internet users' digital behavior and utilizing the collected data to show customized, i.e., individually tailored, advertisements. Online behavior includes web browsing, social media surfing, online shopping, etc. OBA allows advertisers to use the pull strategy of advertising effectively. The pull strategy of advertising works by providing content based on consumers' requirements, effectively targeting internet users.

The dimension of advertisement has changed from mass advertising to behavioral advertising due to OBA (Helberger et al. 2020). A changing ecosystem requires more consumer involvement. The customer acceptance aspect of OBA is essential for advertisers to benefit from creating value in the new advertisement ecosystem.

Several studies are available in the literature on different aspects of OBA (Boerman et al. 2017). According to marketing research firms like eMarketers and Statista, the expenditure on online advertising is increasing rapidly (Boerman et al. 2017). The academic literature provides evidence that the targeted advertising is superior to the non-targeted advertising. Advertisers consider OBA to be one of the most effective ways of future advertisement (Boerman et al. 2017; McDonald and Cranor 2010). The aspect of customer acceptance or rejection of OBA has been explored in many academic studies. Boerman et al. (2017) gave a comprehensive OBA acceptance or rejection framework, outlining three critical factors in OBA research. The three factors are advertiser-controlled factors, customer-controlled factors, and outcomes. Aiolfi et al. (2021) have developed and tested a framework for customer acceptance of OBA. They have suggested that future researchers enlarge the study sample and incorporate other factors like consumer knowledge of OBA into the framework. A study by McDonald and Cranor (2010) found that creepiness was one of the significant psychological responses to OBA.

Most of these previous studies focused on consumer acceptance of OBA by considering privacy concerns, OBA relevance, OBA credibility, the usefulness of OBA, etc. These studies did not focus on the role of creepiness (an uneasy feeling experienced by consumers when they feel that they are being monitored through their web browsing history). The other important factor is the role played by consumer awareness of OBA (the consumer being aware that the advertisers are trying to convince them). Consumer awareness can be measured through subjective persuasion knowledge (SPK) and objective persuasion knowledge (OPK). OPK was found to be a significant factor affecting OBA through previous studies, but the influence of SPK has been less explored (Zhang et al. 2023). Some studies have taken SPK into account, but they have taken the perceived negative aspect of SPK (consumers consider SPK as a manipulative attempt), and SPK can be associated with OBA avoidance (Ham 2017). Several researchers, such as Arli (2024), Lim et al. (2023), Loureiro et al. (2023), and Voorveld et al. (2023), have considered persuasion knowledge to be an enabling factor of OBA avoidance. If consumers take their goal pursuit into account, they consider SPK to be the cooperative intent of the advertiser, and SPK can be associated with OBA acceptance (Friestad and Wright 1994; Ham 2017; Kirmani and Campbell 2004). We use the perceived cooperativeness aspect of persuasion knowledge for this research. This study incorporates these two main factors, namely creepiness and SPK, into the OBA adoption model of Aiolfi et al. (2021). Adding SPK to the model of Aiolfi et al. (2021) is essential because the whole OBA process is a set of persuasion attempts through which advertisers try to persuade internet users by sending tailored content, so it is crucial to consider the role of persuasion knowledge while determining users' intentions related to OBA. Adding creepiness is essential since the

literature has identified creepiness as a critical factor affecting user perception related to OBA (McDonald and Cranor 2010). Nevertheless, researchers have ignored this topic when conducting empirical studies on OBA adoption. Creepiness arises when any technology or process seems to violate social norms. Individuals usually expect to be entitled to privacy, but OBA seems to breach that norm.

This research extends OBA adoption's academic and practical conversation by adding creepiness and SPK.

Theoretical background

There are several studies on OBA. Initial studies focused on defining OBA. OBA may be defined as a technology-driven, personally tailored advertising technique that allows marketers to deliver highly customized and relevant ad messages to users. Tracking users' online activities (including their present and past surfing) enables advertisers to send personalized ad communications (Boerman et al. 2017; Ham and Nelson 2016; Smit et al. 2014).

In the changing advertising ecosystem, advertisers are responsible for educating consumers regarding their rights. Research is needed to determine the level of knowledge advertisers can provide to consumers (Huh et al. 2023). This is the age of big data analytics. If internet users know the processes involved in providing targeted messages, they will feel empowered and consider themselves essential stakeholders rather than targets (Voorveld et al. 2023)**.** Persuasion knowledge is among the several understandings that consumers can gather regarding the OBA. Through this study, we attempt to conceptualize persuasion knowledge as an enabler of OBA adoption.

McDonald and Cranor (2010) performed an extensive study on OBA; they interviewed several internet users in the United States of America (USA) regarding their knowledge and perceptions of OBA techniques. The study revealed that more than half of the respondents understood that their web presence was tracked and that they received tailored advertisements. Regarding the perceptions of internet users, privacy concerns and creepiness are some of the aspects identified among the respondents. Although privacy concerns have been incorporated as a construct in several studies related to OBA, the concept of creepiness is untouched, as far as we know. Therefore, our study includes creepiness in the factors affecting customer acceptance/rejection of OBA. The inclusion of creepiness in the model of OBA adoption will enhance the link between privacy concerns and OBA avoidance.

Boerman et al. (2017) redefined OBA by observing two essential aspects of OBA, i.e., tracking consumers' web behavior and using collected data to deliver personalized ads. Apart from the definition of OBA, they have outlined a research framework for the research community to explore different aspects of OBA. Their framework consists of three types of factors. It starts with advertiser-controlled factors, such as the level of personalization and privacy statements, followed by customer-controlled factors, such as OBA knowledge, privacy concerns, perceived usefulness, etc. In the end, they have proposed outcomes such as OBA acceptance, advertising avoidance, click intention, and behavioral intention; some prominent empirical articles that address the customer acceptance aspect of OBA are briefly described below.

Aiolfi et al. (2021) proposed and validated a framework for OBA acceptance and avoidance with the help of technology acceptance, psychology, and consumer behavior theories. They established that ad relevance, ad credibility, and the perceived usefulness of ads are the immediate antecedents of OBA acceptance and that privacy concerns are the antecedents of OBA avoidance. They have recommended adding other factors, such as consumer awareness, to the model. They have also recommended increasing the sample size.

Ameen et al. (2022) investigated the privacy-personalization paradox in bright shopping malls, where the service is provided based on consumers' personal information. They found a positive connection between personalization and shopping mall loyalty. However, they have also advised marketers to address the issue of privacy concerns for better consumer engagement. The personalization-privacy paradox is quite applicable in the context of OBA. Privacy concerns are maintained in the current study model because of their importance in OBA acceptance/rejection.

The theoretical background of OBA acceptance is vastly fragmented (Aiolfi et al. 2021; Boerman et al. 2017). Various theories on technology acceptance, psychology, and consumer behavior

are being utilized to conceptualize studies related to customer acceptance of OBA. In our study, we used references from several theories. Some theories will be briefly discussed in the following paragraphs, and some will be explained briefly in the hypothesis development section to avoid redundancy.

Among the theories utilized for the study, three major theories referenced for model development are the theory of planned behavior (TPB), the privacy calculus theory, and the persuasion knowledge model.

TPB states that attitude and social norms are two antecedents of the behavioral intentions of individuals, and behavioral intention leads to actual behavior (Ajzen 1985). In the TPB, perceived behavioral control has been added as an additional exogenous variable for determining actual behavior; the TPB has been used as a theoretical base for understanding consumer decision-making in various contexts (Mishra 2018). In the case of OBA, behavioral intention is determined by several exogenous variables, such as ad relevance, perceived usefulness of the ad, ad credibility, and privacy concerns (Aiolfi et al. 2021), which are part of attitudes and subjective norms.

Privacy calculus theory assumes privacy concerns in economic terms; users perform a subjective cost–benefit analysis before providing personal information as a cost and expecting customized products and services as benefits (Culnan and Armstrong 1999; Jozani et al. 2020). In the context of OBA, privacy concerns and creepiness are psychological costs, and ads' relevance, usefulness, and credibility are benefits. A consumer only accepts the ads when the perceived benefits outweigh the perceived costs in any psychological tradeoff.

The persuasion knowledge model explains how consumers deal with advertisers' attempts to persuade them. Over time, consumers understand persuasion techniques and subsequently develop strategies to respond to targeted attempts (Friestad and Wright 1994). Consumers' understanding of OBA techniques is one of the aspects that may be included in the model of customer acceptance of OBA (Aiolfi et al. 2021). Our study included SPK as a moderator while determining the factors affecting the behavioral intentions of internet users while responding to OBA.

Conceptual framework and hypothesis development

With the extensive literature review, we have found that there is a need to study creepiness and SPK in determining the behavioral response of web users to OBA. The basic premise of the structure of the conceptual framework of this study is based on three previously explained theories. The cost and benefit aspects of privacy allowed us to categorize constructs such as OBA relevance, OBA credibility, and OBA's perceived usefulness into the benefits basket. Similarly, privacy concerns and creepiness are categorized into the cost basket. The benefits and cost constructs are categorized based on privacy calculus theory. The TPB helps us to link the relationship between perceived usefulness and behavioral intentions. The moderating relationships are drawn based on the persuasion knowledge model.

Creepiness, privacy concerns, and OBA avoidance

Creepiness can be defined as an unpleasant response to uncertain situations, unknown people, and new technology. Creepiness can be experienced not only in interpersonal situations, such as when interacting with a stranger but also when interacting with new technology (Langer and König 2018). In a technological context, creepiness occurs when the behavior of technology contradicts socially acceptable norms or if it is perceived beyond the control of an individual. In the setting of OBA, the unexpected use of users' data is increasing creepiness and privacy concerns (Langer and König 2018; Tene and Polonetsky 2013). Technology-based surveillance has not been taken positively by any population, even if it is performed for military and strategic purposes. Even during the COVID-19 pandemic, technology-based surveillance has depended on several sociocultural aspects, and policymakers are advised to be very careful when tracking the activities of individuals (Georgieva et al. 2021). OBA is a system that is fully based on technology-based surveillance.

The social norm in any civilized society is that individuals have private space, and no one is allowed to invade their privacy. However, in the case of internet usage, every activity of individuals is monitored, and their online behavior ads are shown to them. The perception of creepiness is being studied in

psychological contexts, and a scale of creepiness has been developed (Rajaobelina et al. 2021). To the best of our knowledge, no study has incorporated the scale of creepiness for the determination of the behavioral intentions of users regarding OBA. Examining the role of creepiness is crucial to understanding the consumer response to OBA and acceptance of OBA. Hence, this study has incorporated creepiness as one of the constructs for understanding customer acceptance of OBA.

Privacy concerns are a set of beliefs of individuals about the perils and anticipated adverse outcomes affiliated with the collection, utilization, and sharing of private information (Malhotra et al. 2004). The collection of personal information by AI-based personal intelligent assistants is a primary concern for users (Manikonda et al. 2018).

In OBA, that is, advertising based on tracking online activities, privacy concerns are a significant factor in determining consumers' behavioral intentions (Tene and Polonetsky 2013). McDonald and Cranor (2010) found that many Americans consider behavioral advertising creepy. According to the privacy-personalization paradox, internet users accept behavioral advertising based on its costs and benefits. According to the privacy cynicism perspective of the privacy-personalization paradox, users feel uncertain about using their personal information. They also feel powerless regarding the use of their personal information when advertisers use their personal information to show personalized ads (Hoffmann et al. 2016) (Fig. 1)

Khatoon and Rehman (2021) emphasized the importance of emotion in consumer behavior related to customer-brand interaction. In their future research agenda, they have outlined a stimulus−organism−response framework. A lack of privacy and intrusiveness are a few stimulus factors leading to organism factor irritation, subsequently leading to response factors such as rejection and avoidance. In the context of OBA, privacy concerns, creepiness, and OBA avoidance may be maintained in the previously mentioned sequence.

We propose the following hypotheses based on the abovementioned literature and theoretical base.

H1: Privacy concerns are positively associated with creepiness in the context of OBA.

H2: Creepiness is positively associated with OBA avoidance.

OBA relevance, OBA credibility, OBA's perceived usefulness, and OBA acceptance.

OBA relevance can be the degree to which users perceive a tailored ad to help them attain their behavioral goals and how valuable these ads are (Celsi and

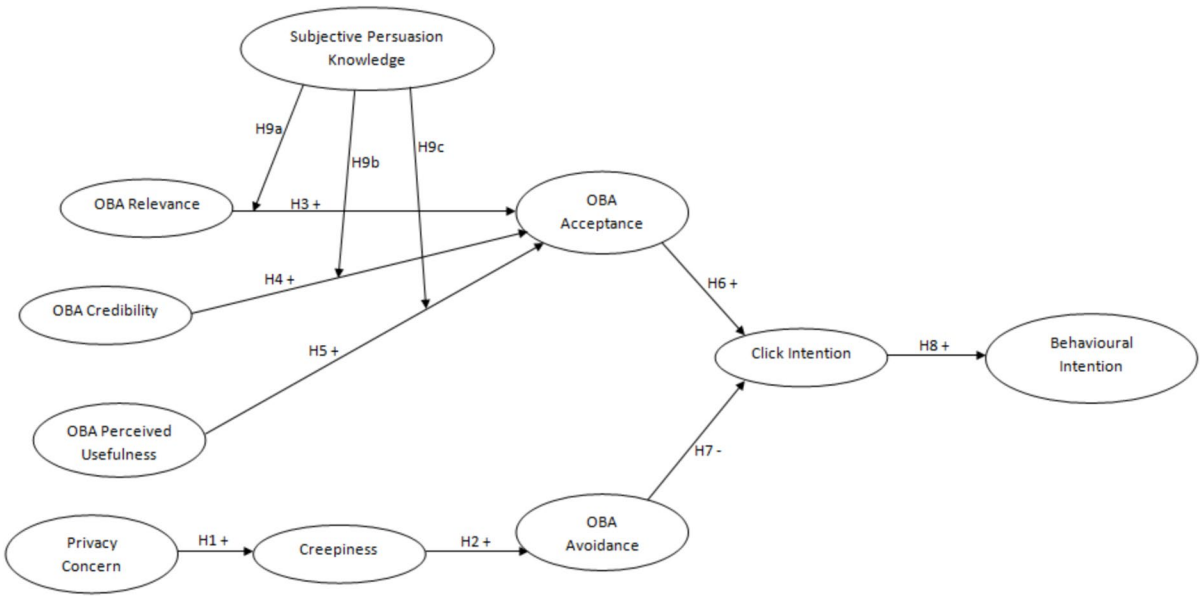

Fig. 1 Structural Model

Olson 1988; Kim and Huh. 2017). OBA ads will be considered relevant if the users perceive the ad to be worthy of attention (Schumann et al. 2014). Ad relevance has been influential in achieving ad outcomes such as click-on ads, purchase intentions, and other desired responses (Aiolfi et al. 2021; Muehling and McCann 1993). Changes in the ad's relevance affect users' attention (Bellman et al. 2013). According to the elaboration likelihood model, an ad is more likely to be noticed if it is more tailored and relevant (Petty et al. 1983).

Credibility can be explained as believability. In simple terms, the credibility of anything is trustworthiness (Fogg and Tseng 1999). The credibility of the ad source is critical for the communication of customized ads. Compared with non-targeted advertising, OBA is more effective. However, the effects depend on user- and advertiser-controlled factors, which are information used for ad customization and transparency. Transparency is nothing but the credibility of the ad (Aiolfi et al. 2021; Boerman et al. 2017). Greater transparency leads to a greater likelihood of ad acceptance (Aguirre et al. 2015).

In the context of OBA, a user's belief that a relevant and credible ad will help enhance the shopping journey is consistent with TAM, which asserts that usefulness and ease of use are the major determining factors of the behavioral intention of a user in accepting/rejecting a particular system or technology (Davis 1989).

Users provide personal information and accept targeted advertising, which is in accordance with social exchange theory, which affirms that people examine social exchanges concerning cost and benefit (Roy et al. 2023). Therefore, individuals participate in social exchanges only if their anticipated benefit exceeds the cost of participation (Thibaut and Kelley 2017). In the context of OBA, relevance, credibility, and perceived usefulness are the expected benefits leading to the acceptance of OBA, and the corresponding cost is a privacy concern, leading to the avoidance of OBA (Aiolfi et al. 2021).

We propose the following hypotheses based on theories, empirical research, and logical arguments.

H3: OBA relevance is positively associated with OBA acceptance.

H4: OBA credibility is positively associated with OBA acceptance.

H5: OBA's perceived usefulness is positively associated with OBA acceptance.

Acceptance and avoidance-Click Intention.

The concept of real-time mass media advertising came into existence with national radio and television networks. Advertisements became national and international. Mass media advertisers know that their advertisement is reaching their target population, but knowing what percentage of the population is being tapped by the mass media advertisement is nearly impossible. As an old advertiser once asserted, they know they are wasting half of their dollars; they do not know which half. Online advertisements can be evaluated not only because of the number of people seeing and clicking on the advertisement but also because of the people to whom the advertisement was shown by monitoring the online behavior of internet users. Click intention in OBA is the willingness to click OBA ads popping up on internet user devices such as smartphones, computers, and tabs.

One of the most important components of behavioral advertising is keeping track of individuals' digital behavior, which is called click intention response to ads (Boerman et al. 2017). Among the user responses to OBA, click intention is a significant determinant of OBA avoidance or acceptance (Aiolfi et al. 2021).

OBA acceptance appears to favorably influence click intention due to the perceived usefulness and relevance of ads and the credibility of the ad source (Aguirre et al. 2015; Aiolfi et al. 2021; Boerman et al. 2017; Tucker 2014). If users have privacy concerns regarding their data being misused, they tend to avoid OBA, which ultimately negatively influences click intention (Aguirre et al. 2015; Boerman et al. 2017).

The above arguments align with the SOR theory of consumer behavior, which posits that consumers' decision-making involves three factors. These factors include stimulus sector factors, organism sector factors, and response sector factors. Stimulus sector factors include external stimuli such as brands, logos, and ads; organism sector factors include consumer experiences such as knowledge, beliefs, intentions, and attitudes; and response sector factors include behavioral responses such as acquisition, storage, usage, etc. (Jacoby 2002).

Therefore, we propose the following.

H6: OBA acceptance is positively associated with click intention.

H7: OBA avoidance is negatively associated with click intention.

Click intention–Behavioral intention.

Behavioral intention is the aim of individuals to execute a particular task (Ajzen 1985). In the context of OBA, behavioral intention is the likelihood of clicking on a finely tailored ad for the purpose of buying. If the ad fits the user's requirements, then the association between the intention to click and the behavioral intention is more operative (Van Doorn and Hoekstra 2013).

According to the literature mentioned above, the behavioral intention to buy a product or service is determined by click intention, which is consistent with the stimulus as mentioned above−organism−response model since purchase (response factor) is favorably influenced by click intention (organism factor), which is ascribed to the relevance, credibility, and usefulness of intended ads (stimulus factor) (Aiolfi et al. 2021). The association between click intention and behavioral intention is also consistent with the theory of planned behavior (TPB).

Hence, we propose the following.

H8: Click intention is positively associated with behavioral intention in the context of OBA.

Subjective Persuasion Knowledge.

Persuasion knowledge refers to individuals' understanding of the persuasion techniques used by advertisers. Understanding consumers' persuasion knowledge includes the persuasion mechanism and the cookie system. It also includes consumers' beliefs related to advertisers' strategies, tactics, and motives behind persuasion attempts and the utility of persuasion attempts from the perspectives of both advertisers and consumers (Campbell and Kirmani 2000; Friestad and Wright 1994).

Subjective persuasion knowledge (SPK) and objective persuasion knowledge (OPK) are the two types of persuasion knowledge. OPK can be defined as accurate knowledge of the persuasive aspects of OBA. SPK is what consumers feel they understand about the persuasive aspects of OBA (Carlson et al. 2007). Across various fields, studies have shown that the SPK is a stronger predictor of behavioral outcomes than the OPK (Hadar et al. 2013; Lind et al. 2020; Pieniak et al. 2010; Raju et al. 1995). Hence, through this research, we study the role of SPK in influencing the behavioral intention of consumers to buy products through OBA.

Persuasion knowledge develops with the improvement of cognitive skills and with an individual's cumulative experience (Friestad and Wright 1994). In this age of increasing internet interaction, consumers frequently encounter personalized online advertisements. Thus, consumers possess naturally developed insights or beliefs about the persuasion techniques used in OBA. Recognizing an agent's (in this case, the advertiser's) action as something that is perceived as a tactic during a persuasion attempt (which in this case is OBA) can significantly influence the aftereffects of the persuasion episode (Friestad and Wright 1994).

Most of the studies in the literature have assumed that persuasion knowledge adversely affects users' intentions related to OBA (Ham 2017; Wei et al. 2008). Although the majority of researchers consider persuasion knowledge to be an inhibiting factor when internet users encounter OBA attempts, when Internet users consider their goal pursuit, they consider OBA a cooperative attempt (Friestad and Wright 1994; Ham 2017; Kirmani and Campbell 2004). When internet users consider OBA a cooperative attempt and find the targeted messages relevant, helpful, and credible, they tend to accept OBA. With this premise, we assume that persuasion knowledge is related to relevance, credibility, perceived usefulness, and OBA acceptance.

Hence, we hypothesize the following.

H9a: SPK moderates the relationship between Relevance and OBA acceptance.

H9b: SPK moderates the relationship between credibility and OBA acceptance.

H9c: SPK moderates the relationship between perceived usefulness and OBA acceptance.

Methodology

The data collection for this research was accomplished through a structured questionnaire distributed online. Sample selection was performed using convenience sampling. We used a 7-point Likert

scale (strongly disagree to strongly agree) to record responses. The items of the constructs were adapted from previous literature.

We created and explained a scenario to prospective respondents. The scenario was a hypothetical one that required them to imagine themselves browsing for a budget smartphone on Amazon or Flipkart and then discovering afterward that most of the pop-up ads on their device were about different kinds of budget smartphones.

Initially, we distributed the questionnaire among our fellow researchers to check whether the respondents understood the wording of the questionnaire in the same way we intended. After receiving feedback from the respondents, we changed the wording of the questionnaire for clarity. Through this process, we attempted to establish the face validity of the questionnaire. After getting satisfied that the questionnaire was being understood in the same way as intended, we approached the larger set of respondents. Since our focus of the study is internet users' adoption of OBA, we did not filter who the respondents should be.

We approached our respondents through WhatsApp groups by sharing the link to the questionnaire. We have approached graduate students, research scholars, and faculty at our university, which is an Indian university. Along with the academic communities, we have also approached our friends and families to respond to our questionnaire to obtain a diverse portfolio of respondents. All the respondents were Indians in terms of their nationality.

Since the current model is a ten-factor model and some constructs have fewer than three items, the sample size was determined to be 500 (Hair et al. 2010). Thus, 500 responses were collected and analyzed. Overall, 45 items were included in the questionnaire. At the time of data analysis, some items were eliminated due to the low level of factor loadings, and 37 items were included in our study for the final data analysis. The demographic information of the respondents is presented the respondents is presented below (Table 1).

The psychometric scales of the constructs, privacy concerns, OBA relevance, OBA credibility, perceived usefulness, OBA acceptance, OBA avoidance, click intention, and behavioral intention were adapted from Aiolfi et al. (2021). The psychometric scales of the creepiness and SPK constructs were adapted from Langer and König (2018) and Ham and Nelson (2016), respectively.

Table 1 Demography of respondents

Characteristics		Count	Percentage
Gender	Male	252	50.40%
	Female	247	49.40%
	Others	1	0.20%
Age	Under 20	9	1.80%
	20–24	188	37.60%
	25–29	224	44.80%
	30–34	36	7.20%
	35–44	18	3.60%
	45–54	14	2.80%
	55–65	11	2.20%
	Over 65	0	0.00%
Education	Below 10th	1	0.20%
	10th	3	0.60%
	12th	16	3.20%
	Graduation	124	24.80%
	Post-Graduation	306	61.20%
	PhD	50	10.00%

We used SPSS AMOS to measure the constructs' reliability and validity, determine the model fit of the measurement and structural models, test the proposed hypotheses, and find common method bias.

Data Analysis

Measurement model.

Confirmatory Factor Analysis (CFA) was conducted using SPSS AMOS to determine the measurement model. Factor loadings were measured and assessed for each item. At the time of data collection, 45 items were included in the study. Certain items (R3, AC1, CR2, CR7, AV5, AV6, SPK2, and SPK6) were deleted due to low factor loadings (<0.50). The goodness of fit of the measurement model was assessed using various model fit measures, such as the CMIN/df (chi-square minimum/df), CFI, TLI, and RMSEA. The values obtained (presented in Table 2) fell within their respective common acceptance levels.

Cronbach's alpha (α) and composite reliability (CR) were utilized to determine the construct reliability. The value of α obtained for each construct

Table 2 Model fit indices for Measurement Mode

Fit Index	Recommended Value	Source(s)	Obtained Value
CMIN/df	< 5	Wheaton et al. 1977	2.043
CFI	> 0.90	Bentler 1990	0.951
TLI	> 0.90	Bentler 1990	0.944
RMSEA	< 0.05	Cudeck and Browne 1992; Fabrigar et al. 1999	0.046

exceeded the required limit of 0.70 (Nunnally and Bernstein 1994). Furthermore, CR values ranged from 0.80 to 0.92, well beyond the acceptable value of 0.70 (Hair et al. 2010). Thus, the construct reliability of all the constructs was established (Table 3).

The average variance extracted (AVE) was used to estimate the convergent validity of the scale items. The AVE values obtained for all the constructs exceeded the acceptable value of 0.50 (Fornell and Larcker 1981). Thus, we conclude that the scales used for the current research have vital convergent validity (Table 3).

The heterotrait–monotrait (HTMT) ratio was utilized to evaluate discriminant validity in this research. In this study, all the ratios that were obtained were found to be less than the acceptable limit of 0.85 (Henseler et al. 2015). Thus, discriminant validity was established, and the results are shown in Table 4.

Structural model.

The structural model for the current study was developed in accordance with the model by Aiolfi et al. (2021), with the addition of two constructs, i.e., SPK and Creepiness, as discussed previously. The structural model with estimates is presented in Fig. 2.

The structural model fit was determined through the CMIN/df (chi-square minimum/df) value (Table 5). The CMIN/df value is 3.147, which is less than 5, suggesting a good model fit (Wheaton et al. 1977). The CFI and TLI values are just greater than the recommended value of 0.90, suggesting a good fit (Bentler 1990). Although the RMSEA is 0.066, above the recommended value for a good fit, an RMSEA value < 0.08 denotes an acceptable fit (Cudeck and Browne 1992; Jöreskog and Sörbom 1993).

After the model fit was established, path estimates were computed (Table 6; Fig. 2). All the relationships among the constructs, except one, were significant, with a p value < 0.05 and a t-value between −1.96 and + 1.96. However, the relationship between the Perceived Usefulness and OBA Acceptance constructs was nonsignificant, with a p value of 0.195 and a t-value of 1.296. Hence, hypothesis H5 was rejected, which is that OBA perceived usefulness positively influences OBA acceptance.

The R^2 values for the dependent variables are shown in Table 7. All the constructs, except one, had an R^2 value greater than 0.15, suggesting that the model was fairly predictable. However, the construct "click intention" has an R^2 value of 0.136, showing that only 13.6% of click intention is explained by the predicting variables.

Moderation Analysis.

Through this research, we determined the moderating effect of SPK on the relationship between OBA Relevance (R) and OBA Acceptance (AC). Without considering the moderating effect (SPK*R), the R^2 value was 0.241. This shows that 24.1% of the variance in AC is accounted for by R only. Considering the interaction term, the R^2 value is increased to 0.244. This shows an increase of 0.3% in the variance explained by the dependent variable (AC) by including SPK as a moderator. The f^2 value for the moderation effect was found to be 0.004.

The results revealed that SPK has a positive and significant moderating role in the relationship between R and AC. ($b = 0.126$; $t = 2.780$; $p = 0.005$), supporting H9a. This shows that the relationship between OBA relevance and OBA acceptance is strengthened with an increase in SPK. A summary of the results of the moderation analysis is presented in Fig. 3.

Furthermore, slope analysis is presented to better comprehend the moderating impacts. As presented in Fig. 3, the line is considerably steeper for high SPK. This shows that at a greater level of SPK, the impact of R on AC is much stronger than that at a lower level of SPK. However, at low SPK, the line tends to straighten; this shows that at lower levels of SPK, a change in R does not lead to a similar change in AC. In conclusion, a higher SPK strengthens the relationship between OBA Relevance and OBA Acceptance.

Table 3 Factor Loading, Composite Reliability, and Convergent Validity of items and constructs

Constructs / Items		Factor Loadings	Cronbach's Alpha (α)	CR	AVE
OBA Relevance			0.905	0.902	0.571
R1	I feel that customized ads have value to me	0.752			
R2	I feel that customized ads are relevant to my needs	0.719			
R4	I think it's worth paying attention to customized ads	0.776			
R5	I think customized ads deserve to be remembered	0.754			
R6	I think customized ads are useful for me	0.855			
R7	I think customized ads are interesting	0.753			
R8	I think customized ads will probably give me new ideas	0.67			
OBA Credibility			0.814	0.826	0.615
CD1	I consider customized ads as a shopping standard (i.e., I compare other products with those that I see on customized ads)	0.706			
CD2	I trust customized ads	0.855			
CD3	Content provided by customized ads is credible (reliable)	0.784			
OBA Perceived Usefulness			0.916	0.917	0.734
PU1	Customized ads help me achieve my purchase goals faster	0.82			
PU2	Customized ads improve my shopping expedition (i.e., shopping journey)	0.87			
PU3	Customized ads increase the effectiveness of my shopping expedition (i.e., shopping journey)	0.897			
PU4	Customized ads make it easier to achieve my purchase goals	0.838			
Privacy Concern			0.928	0.926	0.716
PC1	It bothers me that companies are able to track information about my online activity	0.777			
PC2	I worry that companies have so much information about me	0.928			
PC3	It bothers me that companies are able to access information about me	0.916			
PC4	I'm worried that my information can be used in ways that I cannot predict	0.836			
PC5	I worry about how others might use the history of my online activity	0.758			
Creepiness			0.894	0.891	0.624
CR1	I have a queasy feeling (i.e., I become slightly nervous or worried) while receiving customized ads	0.729			
CR3	I have a lot of fear of customized ads	0.895			
CR4	I somehow feel threatened by customized ads	0.903			
CR5	I didn't know exactly how to behave while I was being shown customized ads	0.762			
CR6	I didn't know exactly what to expect from customized ads	0.625			
OBA Avoidance			0.845	0.848	0.587

Table 3 (continued)

Constructs / Items		Factor Loadings	Cronbach's Alpha (α)	CR	AVE
AV1	Intentionally, I ignore any customized advertisement	0.707			
AV2	I hate any customized advertisement	0.876			
AV3	It would be better if there were no customized advertisements	0.825			
AV4	I prefer to set an "ad blocker" (a program that blocks the display of advertisements on the web) to avoid customized advertisements	0.631			
Behavioral Intention			0.822	0.830	0.621
BI1	I will use customized ads to shop whenever I have the option	0.726			
BI2	I want to use customized ads to shop right after I see them	0.86			
BI3	I expect to use customized ads right after viewing them to buy products	0.772			
Subjective Persuasion Knowledge			0.796	0.805	0.511
SPK1	I know how OBA displays personalized ads for me	0.61			
SPK3	I understand how a marketer shows personalized ads to me using behavior-tracking	0.782			
SPK4	I know how online marketers offer tailored information to me	0.81			
SPK5	I can see through (i.e., detect the true nature of) ad personalization techniques used in online advertising to get me to buy products	0.636			

Table 4 Discriminant Validity of the Constructs (HTMT Ratios)

Constructs: ↓→	R	CD	PU	PC	CR	AV	SPK	BI	AC	CI
R										
CD	0.837									
PU	0.849	0.842								
PC	−0.160	−0.261	−0.162							
CR	−0.149	−0.131	−0.103	0.424						
AV	−0.585	−0.483	−0.512	0.428	0.554					
SPK	0.051	−0.022	0.032	0.272	0.153	0.145				
BI	0.687	0.748	0.717	−0.275	−0.014	−0.412	0.073			
AC	0.641	0.618	0.612	−0.260	−0.147	−0.461	0.069	0.595		
CI	0.534	0.507	0.501	−0.132	−0.061	−0.328	0.107	0.648	0.379	

The results for H9b show that the t-value and p value for the relationship of the interaction term (CD*SPK) with the dependent variable (AC) are 0.010 and 0.312, respectively. Since the t-value is in the range of −1.96 to + 1.96 and the p value is > 0.05, this relationship is nonsignificant.

Hence, our hypothesis H9b is rejected because SPK does not moderate the relationship between OBA credibility and OBA acceptance.

After analysis of the structural model, the relation between perceived usefulness and OBA

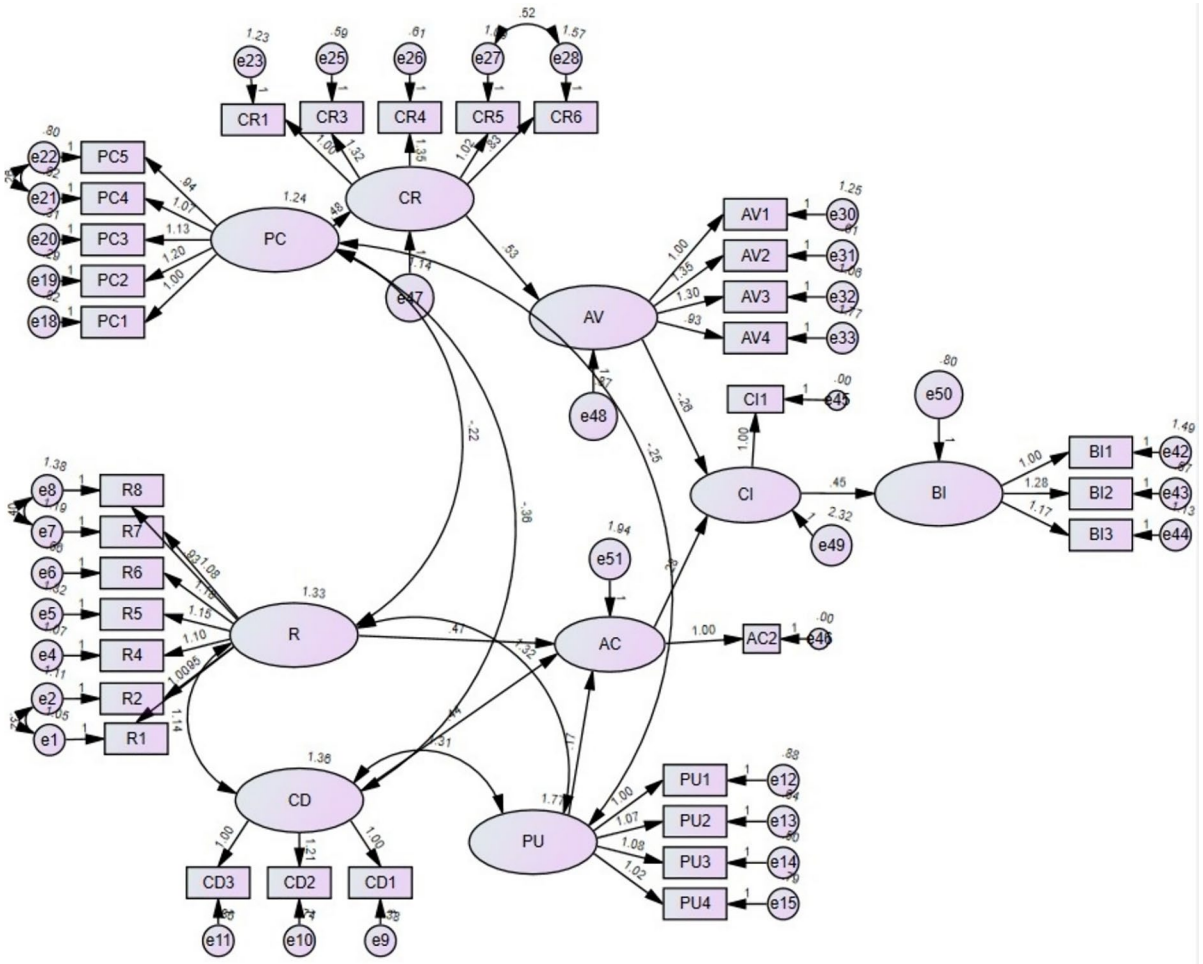

Fig. 2 Structural Model with Estimates

Table 6 Path Estimates

Relationship	Unstandardized estimates	Standardized estimates	S.E	t-value	p value
PC × CR	0.478	0.446	0.054	8.877	***
CR × AV	0.526	0.559	0.052	10.109	***
R × AC	0.471	0.293	0.162	2.901	0.004
CD × AC	0.443	0.278	0.16	2.772	0.006
PU × AC	0.173	0.124	0.133	1.296	0.195
AC × CI	0.278	0.315	0.037	7.557	***
AV × CI	−0.262	−0.179	0.066	−3.977	***
CI × BI	0.446	0.632	0.035	12.571	***

Table 7 R^2 values

Dependent Variables	R^2 values
Creepiness	0.199
OBA Acceptance	0.437
OBA Avoidance	0.312
Click Intention	0.136
Behavioral Intention	0.399

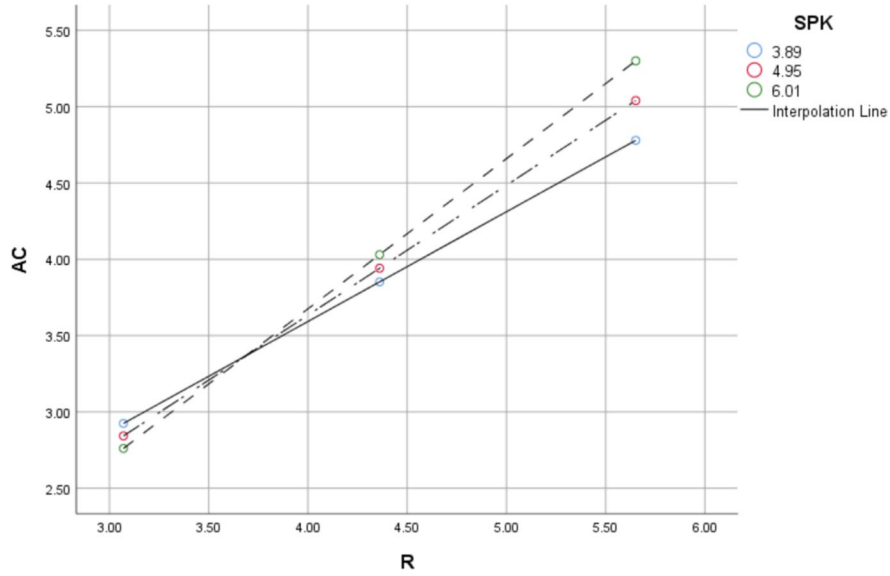

Fig. 3 Moderation analysis

acceptance was found to be nonsignificant. Hence, moderation analysis for H9c was not conducted.

Discussion and Conclusion

Boerman et al. (2017) outlined the major research theme for consumer acceptance of OBA. This study has incorporated several suggestions from the above studies into the conceptual model. Aiolfi et al. (2021) laid out a significant framework for understanding the factors influencing customer attitudes toward OBA. As digitization is growing, it is essential to understand the influence of such factors on consumers' decisions to improve their OBA experience. Hence, the current study has significant implications for advertisers and academicians regarding online behavioral advertising. The decision to accept or reject OBA depends mostly on privacy concerns, the creepiness and relevance of the advertisements, and the credibility of the advertisements.

Consistent with previous findings (McDonald and Cranor 2010), this study shows that if consumers feel that their privacy is being breached or that an advertiser or marketer is being creepy by prying on their private lives, they tend to avoid OBA.

Privacy concerns were found to be one of the significant determinants of OBA avoidance, which is in accordance with the conclusions of Aiolfi et al. (2021). On the other hand, if an online behavioral advertisement is relevant enough for consumers, they tend to accept it more readily. Similarly, if the consumer is convinced that the ad is from a credible source, it also leads to increased acceptance of the OBA. Thus, the advertisers must consider the level of relevance of the ad they put out. They must also ensure that the credibility of their ad source is made known to their consumers, lest they run the risk of low levels of OBA acceptance.

SPK significantly moderates (positively moderates) the relationship between OBA relevance and OBA acceptance, which is consistent with the arguments and results of Friestad and Wright (1994), Ham (2017), and Kirmani and Campbell (2004), who state that persuasion knowledge can have a positive association if ads are relevant to consumers. One of the possible explanations for why SPK is positively associated with OBA acceptance could be that when consumers understand persuasion attempts, they may feel that they are important stakeholders of the OBA process, not mere targets only. If consumers feel that even if OBA is trying to persuade them, it is helping them obtain what is relevant to them, they tend to be more inclined to accept OBA.

The intention to click on an OBA, in turn, positively affects the behavioral intention to purchase goods through online ads. Hence, to help more consumers purchase through targeted advertisements, advertisers need to focus on increasing the reliability and credibility of the advertisements and strive to

reduce any privacy concerns and the feeling of creepiness that the consumer might face.

Theoretical contribution.

This study enriches the theoretical framework of OBA acceptance/rejection by examining the framework through different dimensions. Some dimensions are technology adoption, cost and benefit, stimulus and response, social exchange, and the privacy-personalization paradox. Privacy concerns are one of the critical factors of OBA avoidance. Creepiness is one of the main reactions of internet users when responding to OBA (McDonald and Cranor 2010). This study integrates the concept of creepiness into the theoretical framework of OBA acceptance/avoidance. Creepiness was found to be a factor in determining behavioral intention around technology adoption through various academic studies, but a psychometric scale has recently been developed. The development of a psychometric scale allowed researchers such as Rajaobelina et al. (2021) to test the impact of creepiness on behavioral intention in a Chabot context. The addition of creepiness, as one of the psychological factors of OBA avoidance, strengthens the power of predictors of the acceptance of new technology. Through this research, we have attempted to link privacy concerns with creepiness and creepiness with OBA avoidance; future researchers could use this link to establish the mediating effect of creepiness on privacy concerns. This research could also open an avenue of research that will be useful in identifying the reasons for the creation of privacy concerns and creepiness in the context of OBA. The literature on the human perception of OBA is dominated by the negative effect of persuasion knowledge (Wei et al. 2008). The positive moderating effect of SPK on the relationship between OBA relevance and OBA acceptance adds to the scarce set of research that considers the positive aspects of the effects of persuasion knowledge while studying human perception of OBA.

Managerial implications.

Any behavioral tracking will have some privacy concerns, and creepiness is one of the factors affecting OBA click intentions. The framework provided by Aiolfi et al. (2021) for OBA considers privacy concerns to be the main aspect of OBA avoidance. This study has integrated the concepts of creepiness and SPK into the determinants of the behavioral intentions of internet users toward OBA. This research provides more input to advertisers regarding the factors to be considered when strategizing OBA. OBA relevance and OBA credibility are the major factors affecting consumer acceptance of OBA. Although we did not study the relationship between creepiness and transparency in this research with the definition of creepiness and its role in OBA avoidance, we want to convey to advertising managers that they must increase transparency by providing adequate disclosures, which will help internet users become more accustomed to OBA techniques and decrease creepiness. Advertisers are recommended to make internet users sufficiently aware of the benefits of OBA for internet users and about the persuasion attempts of advertisers since SPK has been found to moderate the relationship between OBA relevance and OBA acceptance significantly.

Limitations and Further Scope

This research has its own limitations. Apart from the constructs considered for the current study, many other characteristics or factors affect consumer behavior toward OBA, such as consumer innovativeness, emotion induction, differences in marketing channels, differences in product types, consumer habits, ad informativeness, and e-word-of-mouth (Shi 2018); as advised by previous literature, these factors can be incorporated into the model to formulate a rather holistic model. The dynamics and relationships among the constructs might change after this, and new insights could be obtained. Specific differences in attitudes among the various demographic groups from the sample collected can also be studied separately to obtain a detailed and exact outlook on how consumer behavior is influenced by age, gender, income, level of education, etc. As the demographic details shown earlier, many respondents are in the age group of 20–29 years, but it is evident that internet users are more heterogeneous (Ahlluwalia and Singh 2023). This research could not make sufficient use of demographic distribution. The lack of use of demographic distribution creates the problem of bias in the results. The skewed age group sample also creates a bias in the results.

Along with bias, a skewed sample also creates the problem of generalizing the results. Another limitation of this study is that the data were collected from only one country, but privacy concerns are a construct that can be perceived differently by people belonging to different cultures and countries. If the data can be collected from various countries, then cross-cultural comparisons can also be performed for a more nuanced interpretation.

This study followed a correlation-based research design with convenience sampling. This restricts us from making causal inferences and wider generalizations of the results. Future researchers can use an experimental design with random assignment between treatment and control groups to establish a causal relationship with greater internal validity.

Funding Institute of Eminence (IoE), University of Hyderabad, India, UoH/IoE/RC3/RC3-21-023, RU Megha

Declarations

Conflict of interest The authors do not have any financial or non-financial conflict of interest.

References

Aguirre E, Mahr D, Grewal D, De Ruyter K, Wetzels M (2015) Unraveling the personalization paradox: the effect of information collection and trust-building strategies on online advertisement effectiveness. J Retail 91(1):34–49. https://doi.org/10.1016/j.jretai.2014.09.005

Ahlluwalia S, Singh S (2023) Consumers' demographics as predictors of their perception of online advertising: are they still relevant in the e-landscape? Glob Bus Rev 24(3):417–432. https://doi.org/10.1177/0972150919897429

Aiolfi S, Bellini S, Pellegrini D (2021) Data-driven digital advertising: benefits and risks of online behavioral advertising. IJRDM 49(7):1089–1110. https://doi.org/10.1108/IJRDM-10-2020-0410

Ajzen I (1985) From Intentions to Actions: A Theory of Planned Behavior. In: Kuhl J, Beckmann J (eds) Action Control. Springer, Berlin Heidelberg, Berlin, Heidelberg, pp 11–39

Ameen N, Hosany S, Paul J (2022) The personalisation-privacy paradox: consumer interaction with smart technologies and shopping mall loyalty. Comput Hum Behav 126:106976. https://doi.org/10.1016/j.chb.2021.106976

Arli D (2024) Consumer perceptions of the ethicality of re-targeting online advertising. APJML 36(4):878–898. https://doi.org/10.1108/APJML-10-2022-0841

Bellman S, Murphy J, Treleaven-Hassard S, O'Farrell J, Qiu L, Varan D (2013) Using internet behavior to deliver relevant television commercials. J Interact Mark 27(2):130–140. https://doi.org/10.1016/j.intmar.2012.12.001

Bentler PM (1990) Comparative fit indexes in structural models. Psychol Bull 107(2):238–246. https://doi.org/10.1037/0033-2909.107.2.238

Boerman SC, Kruikemeier S, Zuiderveen Borgesius FJ (2017) Online behavioral advertising: a literature review and research agenda. J Advert 46(3):363–376. https://doi.org/10.1080/00913367.2017.1339368

Campbell MC, Kirmani A (2000) Consumers' use of persuasion knowledge: the effects of accessibility and cognitive capacity on perceptions of an influence agent. J Consum Res 27(1):69–83. https://doi.org/10.1086/314309

Carlson JP, Bearden WO, Hardesty DM (2007) Influences on what consumers know and what they think they know regarding marketer pricing tactics. Psychol Mark 24(2):117–142. https://doi.org/10.1002/mar.20155

Celsi RL, Olson JC (1988) The role of involvement in attention and comprehension processes. J Consum Res 15(2):210. https://doi.org/10.1086/209158

Chou CY, Chen J, Lin S (2022) Value cocreation in livestreaming and its effect on consumer-simulated experience and continued use intention. Int J Consumer Stud 46(6):2183–2199. https://doi.org/10.1111/ijcs.12777

Cudeck R, Browne MW (1992) Constructing a covariance matrix that yields a specified minimizer and a specified minimum discrepancy function value. Psychometrika 57(3):357–369. https://doi.org/10.1007/BF02295424

Culnan MJ, Armstrong PK (1999) Information privacy concerns, procedural fairness, and impersonal trust: an empirical investigation. Organ Sci 10(1):104–115. https://doi.org/10.1287/orsc.10.1.104

Das S, Mishra M (2022) The Role of Digital Citizenship Behavior on Digital Marketing and Consumer Buying Behavior. In: Behl R (ed) Rajagopal. Managing Disruptions in Business. Springer International Publishing, Cham, pp 207–221

Davis FD (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Q 13(3):319. https://doi.org/10.2307/249008

Fabrigar LR, Wegener DT, MacCallum RC, Strahan EJ (1999) Evaluating the use of exploratory factor analysis in psychological research. Psychol Methods 4(3):272–299. https://doi.org/10.1037/1082-989X.4.3.272

Fogg BJ, Tseng H (1999) The elements of computer credibility. In: Proceedings of the SIGCHI conference on Human factors in computing systems the CHI is the limit - CHI '99. ACM Press, Pittsburgh, Pennsylvania, United States, pp 80–87

Fornell C, Larcker DF (1981) Evaluating structural equation models with unobservable variables and measurement error. J Mark Res 18(1):39. https://doi.org/10.2307/3151312

Friestad M, Wright P (1994) The persuasion knowledge model: how people cope with persuasion attempts. J Consumer Res 21(1):1–31. https://doi.org/10.1086/209380

Georgieva I, Beaunoyer E, Guitton MJ (2021) Ensuring social acceptability of technological tracking in the COVID-19

context. Comput Hum Behav 116:106639. https://doi.org/10.1016/j.chb.2020.106639
Hadar L, Sood S, Fox CR (2013) Subjective knowledge in consumer financial decisions. J Mark Res 50(3):303–316. https://doi.org/10.1509/jmr.10.0518
Hair JF, Black WC, Babin BJ, Anderson RE (2010) Multivariate data analysis: Global edition.
Ham C-D (2017) Exploring how consumers cope with online behavioral advertising. Int J Advert 36(4):632–658. https://doi.org/10.1080/02650487.2016.1239878
Ham C-D, Nelson MR (2016) The role of persuasion knowledge, assessment of benefit and harm, and third-person perception in coping with online behavioral advertising. Comput Hum Behav 62:689–702. https://doi.org/10.1016/j.chb.2016.03.076
Helberger N, Huh J, Milne G, Strycharz J, Sundaram H (2020) Macro and exogenous factors in computational advertising: key issues and new research directions. J Advert 49(4):377–393. https://doi.org/10.1080/00913367.2020.1811179
Henseler J, Ringle CM, Sarstedt M (2015) A new criterion for assessing discriminant validity in variance-based structural equation modeling. J Acad Mark Sci 43(1):115–135. https://doi.org/10.1007/s11747-014-0403-8
Hoffmann CP, Lutz C, Ranzini G (2016) Privacy cynicism: a new approach to the privacy paradox. Cyberpsychology. https://doi.org/10.5817/CP2016-4-7
Huh J, Xu H, Abdollahi M (2023) Urgent topics for advertising research: addressing critical gaps in the literature. Int J Advert 42(1):247–260. https://doi.org/10.1080/02650487.2022.2150955
Jacoby J (2002) Stimulus-organism-response reconsidered: an evolutionary step in modeling (consumer) behavior. J Consum Psychol 12(1):51–57. https://doi.org/10.1207/S15327663JCP1201_05
Jöreskog KG, Sörbom D (1993) LISREL 8: Structural equation modeling with the SIMPLIS command language. Chicago, IL: Scientific Software International; Lawrence Erlbaum Associates, Inc
Jozani M, Ayaburi E, Ko M, Choo K-KR (2020) Privacy concerns and benefits of engagement with social media-enabled apps: a privacy calculus perspective. Comput Hum Behav 107:106260. https://doi.org/10.1016/j.chb.2020.106260
Khatoon S, Rehman V (2021) Negative emotions in consumer brand relationship: a review and future research agenda. Int J Consumer Stud 45(4):719–749. https://doi.org/10.1111/ijcs.12665
Kim H, Huh J (2017) Perceived relevance and privacy concern regarding online behavioral advertising (oba) and their role in consumer responses. J Curr Issues Res Adv 38(1):92–105. https://doi.org/10.1080/10641734.2016.1233157
Kirmani A, Campbell MC (2004) Goal seeker and persuasion sentry: how consumer targets respond to interpersonal marketing persuasion. J Consum Res 31(3):573–582. https://doi.org/10.1086/425092
Langer M, König CJ (2018) Introducing and testing the creepiness of situation scale (CRoSS). Front Psychol 9:2220. https://doi.org/10.3389/fpsyg.2018.02220
Lim RE, Sung YH, Hong JM (2023) Online targeted ads: Effects of persuasion knowledge, coping self-efficacy, and product involvement on privacy concerns and ad intrusiveness. Telemat Inform 76:101920. https://doi.org/10.1016/j.tele.2022.101920
Lind T, Ahmed A, Skagerlund K, Strömbäck C, Västfjäll D, Tinghög G (2020) Competence, confidence, and gender: the role of objective and subjective financial knowledge in household finance. J Fam Econ Iss 41(4):626–638. https://doi.org/10.1007/s10834-020-09678-9
Loureiro SM, Hollebeek L, Rather RA, Ruivo L, Kaljund K (2023) Guerreiro J. Engaging with (vs. avoiding) personalized advertising on social media. J Mark Commun 23:1–22
Malhotra NK, Kim SS, Agarwal J (2004) Internet users' information privacy concerns (IUIPC): the construct, the scale, and a causal model. Inf Syst Res 15(4):336–355. https://doi.org/10.1287/isre.1040.0032
Manikonda L, Deotale A, Kambhampati S (2018) What's up with Privacy?: User Preferences and Privacy Concerns in Intelligent Personal Assistants. In: Proceedings of the 2018 AAAI/ACM Conference on AI, Ethics, and Society. ACM, New Orleans LA USA, pp 229–235
McDonald AM, Cranor LF (2010) Americans' attitudes about internet behavioral advertising practices. In: Proceedings of the 9th annual ACM workshop on Privacy in the electronic society. ACM, Chicago Illinois USA, pp 63–72
Mishra M (2018) For Indian online shoppers, have saying and doing parted ways? Psychol Mark 35(1):5–19. https://doi.org/10.1002/mar.21067
Muehling DD, McCann M (1993) Attitude toward the ad: a review. J Curr Issues Res Adv 15(2):25–58. https://doi.org/10.1080/10641734.1993.10505002
Petty RE, Cacioppo JT, Schumann D (1983) Central and peripheral routes to advertising effectiveness: the moderating role of involvement. J Consum Res 10(2):135. https://doi.org/10.1086/208954
Pieniak Z, Aertsens J, Verbeke W (2010) Subjective and objective knowledge as determinants of organic vegetables consumption. Food Qual Prefer 21(6):581–588. https://doi.org/10.1016/j.foodqual.2010.03.004
Rajaobelina L, Prom Tep S, Arcand M, Ricard L (2021) Creepiness: its antecedents and impact on loyalty when interacting with a chatbot. Psychol Mark 38(12):2339–2356. https://doi.org/10.1002/mar.21548
Raju PS, Lonial SC, Glynn Mangold W (1995) Differential effects of subjective knowledge, objective knowledge, and usage experience on decision making: an exploratory investigation. J Consum Psychol 4(2):153–180. https://doi.org/10.1207/s15327663jcp0402_04
Roy G, Basu R, Ray S (2023) Antecedents of online purchase intention among ageing consumers. Glob Bus Rev 24(5):1041–1057. https://doi.org/10.1177/0972150920922010
Schumann JH, Von Wangenheim F, Groene N (2014) Targeted online advertising: using reciprocity appeals to increase acceptance among users of free web services. J Mark 78(1):59–75. https://doi.org/10.1509/jm.11.0316
Shi Y (2018) The Impact of Consumer Innovativeness on the Intention of Clicking on SNS Advertising. Mod Econ 9(2):278–85

Smit EG, Van Noort G, Voorveld HAM (2014) Understanding online behavioural advertising: user knowledge, privacy concerns and online coping behaviour in Europe. Comput Hum Behav 32:15–22. https://doi.org/10.1016/j.chb.2013.11.008

Tene O, Polonetsky J (2013) A theory of creepy: technology, privacy and shifting social norms. Yale JL & Tech 16:59–102

Thibaut JW, Kelley HH (2017) The Social Psychology of Groups, 1st edn. Routledge

Tucker CE (2014) Social networks, personalized advertising, and privacy controls. J Mark Res 51(5):546–562. https://doi.org/10.1509/jmr.10.0355

Van Doorn J, Hoekstra JC (2013) Customization of online advertising: the role of intrusiveness. Mark Lett 24(4):339–351. https://doi.org/10.1007/s11002-012-9222-1

Varnali K (2021) Online behavioral advertising: an integrative review. J Mark Commun 27(1):93–114. https://doi.org/10.1080/13527266.2019.1630664

Voorveld HA, Meppelink CS, Boerman SC (2023) Consumers' persuasion knowledge of algorithms in social media advertising: identifying consumer groups based on awareness, appropriateness, and coping ability. Int J Adv 26:1–27

Wei M-L, Fischer E, Main KJ (2008) An examination of the effects of activating persuasion knowledge on consumer response to brands engaging in covert marketing. J Public Policy Mark 27(1):34–44. https://doi.org/10.1509/jppm.27.1.34

Wheaton B, Muthen B, Alwin DF, Summers GF (1977) Assessing reliability and stability in panel models. Sociol Methodol 8:84. https://doi.org/10.2307/270754

Zhang D, Voorveld H, Boerman SC (2023) Privacy concerns matter, knowledge does not: investigating effects of online behavioral advertising among chinese and dutch adults. J Curr Issues Res Adv 44(3):392–410. https://doi.org/10.1080/10641734.2023.2199812