# Online behavioral advertising: a systematic literature review of 6 years and future research agenda

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Cite as: Sikó Beáta (2023), Online behavioral advertising: a systematic literature review of 6 years and future research agenda. *Proceedings of the European Marketing Academy*, (117219)

Paper from the EMAC Regional Conference, Athens, Greece, September 27-29, 2023



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# Abstract

As advancements in technology have enabled unprecedented accuracy in targeted advertising, rapidly changing consumer attitudes have become increasingly important. Despite ongoing research in this field, there remains a lack of common understanding and comprehensive knowledge of behavioral advertising. This study sought to address this gap by conducting a systematic literature review using the SPAR-4-SLR protocol and the TCCM organizing framework. 26 high-quality research articles from the past 6 years were evaluated based on their theories, contexts, constructs, and methodologies to answer questions about what and how we know about behavioral advertising and where should research on it be heading. Besides providing an overview of the current literature on the topic, this review identified gaps and future research directions.

Keywords: online behavioral advertising, systematic literature review, TCCM framework

#### **1. Introduction**

Over the past decades, advertising became highly driven by data and technology, enabling marketers to target ads with unprecedented accuracy. As the popularity of behavioral advertising continues to grow, new regulations are emerging, and customers' attitudes and perceptions toward this type of advertising are constantly evolving.

While previour literature reviews have been conducted in this field (Boerman et al., 2017; Varnali, 2019), none of them applied such rigorous protocol (SPAR-4-SLR) and framework (TCCM) used in this review. This study offers a relevant and current perspective on the rapidly advancing field of behavioral advertising since the publication of the previous studies.

# 2. Methodology

The purpose of the study is to obtain a comprehensive understanding of the literature on online behavioral advertising over the past six years. To achieve this goal, a framework-based review method (Paul & Criado, 2020), known as the TCCM framework (Paul & Rosado-Serrano, 2019), was utilized to address three main questions: what knowledge do we have about behavioral advertising, how do we gain knowledge about it, and what is the future direction for behavioral advertising research (Lim & Rasul, 2022). The adoption of the framework enables a deeper understanding of the topic, leading to more impactful insights (Paul et al., 2021). The TCCM framework sheds light on new connections by examining ,,the theoretical background, the main variables explored in the article, the characteristics of the study, and the main methods used" (Loose et al., 2022, p. 2).

To ensure the reproducibility and transparency of the research, it is inevitable to adopt a protocol (Paul et al., 2021). The most recent and widely accepted protocol in the field of marketing is the Scientific Procedures and Rationales for Systematic Literature Review (SPAR-4-SLR) protocol (Çelik et al., 2022; Paul et al., 2021). The study followed this protocol, which is based on the three key stages of assembling, arranging, and assessing information (Çelik et al., 2022; Paul et al., 2021) Using this protocol ensures that the research is conducted in a rigorous and transparent manner, making it easier to reproduce the findings (Paul et al., 2021).

#### 2.1 Assembling

The first stage of the SPAR-4-SLR protocol involves assembling, comprising of two sub-stages: identification and acquisition (Paul et al., 2021). During the identification process, the domain of the research was defined as online behavioral advertising. Afterward, the three primary research questions were formulated: What do we know about behavioral advertising (RQ1), how do we know about behavioral advertising (RQ2) and where should research on behavioral advertising be heading (RQ3)? This analysis exclusively considered peer-reviewed journal articles as a source type since they are considered to be the most appropriate source for conducting literature reviews (Paul et al., 2021). Because of the space limitations of this study, the articles selected were strictly limited to those published in journals ranked on SCImago in the field of marketing to ensure their high quality.

During the acquisition phase, Web of Science's WoS Core Collection was used for material acquisition due to being one of the most essential electronic databases. To ensure the literature's comprehensiveness and validity, the keywords used in prior relevant review (Boerman et al., 2017) were applied in different variations. The following keywords were

searched using the Boolean OR operator in the article's title, abstract, the author keywords, and keywords plus: "behavio?r\* ad", "behavio?r\* ads", "behavio?r\* advert\*", "behavio?r\* target\*", "personali?ed ad", "personali?ed ads", "personali?ed advert\*", "personali?ed target\*", "customi?ed ad", "customi?ed ads", "customi?ed advert\*", "customi?ed target\*", "online profiling". An additional "online" keyword was added with AND operator to narrow the irrelevant findings down. The search period was limited from 2017 to 2023 due to the aim of the current review. At the end of this stage, 594 papers were listed.

# 2.2 Arranging

The next stage of the protocol is arranging, which involves organizing and purifying the data (Paul et al., 2021). At this point, the database was screened using exclusion criteria such as language (English), document type (article), and source quality (SCImago ranked in marketing). The remaining articles were coded as either "relevant" or "irrelevant". To eliminate irrelevant articles, the definition of behavioral advertising as "the practice of monitoring people's online behavior and using the collected information to show people individually targeted advertisements" (Boerman et al., 2017, p. 364) was used, and the following guidelines were applied. The article must include an empirical study that examines consumers (rather than companies), and the conceptual model must contain online behavioral advertising in some form. Finally, the snowball sampling method (Çelik et al., 2022) was applied in the case of relevant articles to identify further studies. A total of 22 peer-reviewed articles remained in the dataset complemented with 4 findings from the snowball sampling.

# 2.3 Assessing

The final step of the SPAR-4-SLR protocol is the assessment stage, consisting of the evaluation and reporting stages (Paul et al., 2021). In the evaluation phase, a thorough content analysis of the included articles was conducted using the TCCM framework (Paul et al., 2021), which summarizes various aspects such as the author(s) name, article title, journal title, publication year, citation number, antecedents, mediations, moderations, outcomes, theories, contexts, and methodologies. For the reporting stage, all findings were synthesized highlighting the key research areas as well as gaps that exist within the literature.

### 3. What do we know about behavioral advertising?

To provide a thorough response to RQ1, all the constructs in the articles were analyzed and categorized as either antecedents, moderators, mediators, or outcomes (Çelik et al., 2022). Based on Çelik et al. (2022), the majority of the constructs were sub-categorized as ad-related factors, platform-based factors, and user factors (see Figure 1). The subsequent sections will introduce the most frequently (more than twice) mentioned constructs.

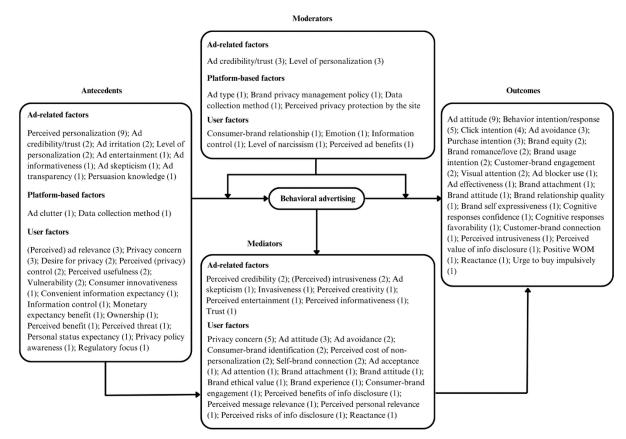


Figure 1 Conceptual framework of behavioral advertising (own illustration based on Çelik et al., 2022)

### 3.1 Antecedents of behavioral advertising

The antecedents are the fundamental drivers of a phenomenon that impact behavioral advertising in this context. Among the articles reviewed, a total of 27 antecedents were identified, with 9 being related to advertisements, 2 related to the platform, and 16 related to users. Among the revealed constructs, perceived personalization was the most commonly mentioned (n=9), followed by perceived ad relevance (n=3) and privacy concern (n=3).

Perceived personalization is not only a significant aspect of behavioral advertising (Aiolfi et al., 2021), but it also has a noteworthy impact on enhancing brand attitude, click intention (De Keyzer et al., 2022), visual attention and attitude towards personalized ads (Bang et al., 2019). Moreover, it positively affects various brand-related outcomes, including consumer brand engagement and attachment (Shanahan et al., 2019; Tran et al., 2023), as well as brand equity (Tran et al., 2020).

Ad relevance has been recognized as a factor that enhances the acceptance of behavioral advertising (Aiolfi et al., 2021). The effectiveness of behaviorally targeted ads is increased when customers are exposed to ads that are tailored to their needs, as this reduces ad avoidance (Brinson & Britt, 2021) and serves as a robust predictor of responses to behavioral advertising (Kim & Huh, 2017).

Finally, privacy concerns have a negative impact on both attitudes (Brinson et al., 2019; Kim & Huh, 2017) and behavioral responses toward targeted advertising (Aiolfi et al., 2021; Kim & Huh, 2017).

#### 3.2 Moderators and mediators of behavioral advertising

During the analysis, 11 moderators were identified that influence the relationship between the antecedents and the outcomes, with 2 being ad-related, 4 platform-based, and 5 user factors. Among these moderators, perceived credibility/trust and the level of personalization were mentioned the most (n=3 each). Study shows, that if customers trust a social media platform, ad transparency can enhance the effectiveness of targeted ads (Kim et al., 2019). Additionally, when customers are skeptical, trust can moderate the attitude toward personalized advertising (Brinson & Britt, 2021). Furthermore, the level of personalization moderates the impact of consumers' regulatory focus on attitude toward targeted advertisements (Zarouali et al., 2019), among other factors.

The analysis of the reviewed articles revealed that there are 8 ad-related and 18 userrelated mediators that can be influenced by the antecedents mentioned above. Among these mediators, privacy concern (n=5) and attitude toward the targeted ad (n=3) were the most widely analyzed. Privacy concern has been found to mediate the relationship between information control and the perceived intrusiveness of targeted advertising (Morimoto, 2021). Privacy concerns also mediate the effect of perceived privacy control on click-through intention (Gironda & Korgaonkar, 2018) and behavioral ad avoidance (Mpinganjira & Maduku, 2019). Meanwhile, the effect of ad relevance on ad avoidance can be mediated by customers' attitudes toward personalized advertisements (Brinson & Britt, 2021). The effect of such dimensions of behavioral advertising as informativeness, entertainment, and irritation on ad responses is also mediated by attitude (Ozcelik & Varnali, 2019).

#### 3.3 Outcomes of behavioral advertising

Outcomes are variables that are influenced by behavioral advertising. In this review, a total of 24 outcomes were identified mainly connected to different forms of cognitive or behavioral responses with several variables connected to brand-related outcomes. The reviewed articles often refered to ad attitude (n=9), behavior intention/response (n=5), click intention (n=4), ad avoidance (n=3) and purchase intention (n=3) as on outcome of targeted ads.

Studies show that overt data collection generates more positive attitudinal responses to advertisements than covert methods (Grigorios et al., 2022). If perceived ad relevance is high, behavioral advertising enhances attitudes toward the ads (Kim & Huh, 2017), while perceived personalization is proved to improve click intention (De Keyzer et al., 2022). Taking regulatory focus into consideration, highly personalised advertisements increase both attitude and purchase intention among the adolescents with promotion focus (Zarouali et al., 2019).

### 4. How do we know about behavioral advertising?

The TCCM framework suggests that RQ2 can be answered by summarizing the theories, contexts, and methodologies used in the reviewed articles (Paul & Rosado-Serrano, 2019).

#### 4.1 Theories

Upon synthesizing the theories utilized, it became evident that the theoretical foundation of behavioral advertising is highly fragmented and lacks a dominant theory. Out of the 26 articles reviewed, only 5 did not rely on any theories, while 13 drew on more than one theory, indicating a theoretical advancement compared to prior research on the topic (Boerman et al., 2017). In total, 41 theories were referenced in the articles, with the psychological reactance theory being the most widely accepted (n=5), followed by privacy calculus (n=4) and communication privacy management theory (n=3).

According to the psychological reactance theory, customers try to avoid situations that might threaten their freedom and autonomy (Brehm & Brehm, 1981; Brinson et al., 2018; Jung & Heo, 2021). This is particularly relevant in the current context, where privacy concerns have become increasingly prevalent. As more personal information is required to be disclosed, the privacy calculus theory is often referenced to explain customers' decision-making process (Gironda & Korgaonkar, 2018; Hayes et al., 2021; Zarouali et al., 2019). This theory suggests that customers weigh both the perceived benefits and the risks of sharing their data, ultimately making a decision based on this cost-benefit analysis (Culnan & Armstrong, 1999; Laufer & Wolfe, 1977). Additionally, the communication privacy management theory emphasizes that customers generally desire privacy, so they carefully consider the type of information that needs to be shared (Brinson et al., 2018; Brinson & Britt, 2021; Mpinganjira & Maduku, 2019; Petronio, 1991).

### 4.2 Contexts

To properly analyze the contexts of the reviewed articles, it is important to take into account the various platforms on which the studies were conducted. The 26 reviewed articles introduced 39 studies which used Facebook (n=17), website banner ads (n=6), Twitter (n=2), Instagram (n=2), LINE (n=1), MySpace (n=1), Snapchat (n=1), Linkedin (n=1), health and fitness devices (n=1), and social media in general (n=12) as either actual or mock platforms for the ads.

Of the reviewed studies, only 13 specified the countries where they were conducted, revealing a significant bias towards the United States (n=7). Other countries were examined to a lesser extent, indicating a lack of multiculturalism in the research conducted in this field and the dominant role of the United States in this area of study.

The studies included a diverse range of participants in terms of age, with adolescents aged 14-18 (n=3), undergraduate students (n=4), young adults aged 20-30 (n=14), and adults (n=18) being examined. However, it should be noted that in many cases only one age group was included, making it difficult to draw conclusions about differences between these segments.

None of the studies focused solely on analyzing one gender. Instead, 26 out of the 39 studies worked with an equal gender division, but none of them attempted to compare the genders. In five cases, the number of female participants outnumbered the number of male participants. Amazon's Mechanical Turk was widely used as the data collection method (n=12), however, it was also heavily criticized for its limitations.

#### 4.3 Methodologies

The reviewed articles exhibited a considerable degree of methodological homogeneity, with only one qualitative research study consisting of three focus groups (Kelly et al., 2017) identified, suggesting a predominance of quantitative research in this field. Among the quantitative methodologies, three primary data collection techniques were utilized. Surveys (n=26) and experiments (n=8) were the most commonly used techniques, with only two instances of simultaneous application within an article (Kim et al., 2019; Zarouali et al., 2019), which many authors regarded as a limitation. Eye-tracking methodologies were used in only two studies (Bang et al., 2019; Jung & Heo, 2021).

In terms of data analysis, the most frequently used methodologies were the (partial least squares) structural equation modeling (n=19) or other less complex statistical equations such as regression analysis (n=8), ANOVA (n=7), t-test (n=4), cluster analysis (n=3), content analysis (n=3), multi-group analysis (n=3), factor analysis (n=2) that were often applied in combination.

#### 5. Where should research on behavioral advertising be heading?

Based on the TCCM framework, RQ3 can be addressed by identifying future research directions on behavioral advertising (Paul & Rosado-Serrano, 2019), which will be discussed in the following section in accordance with the framework's components.

# 5.1 Theories

As previously discussed, the theoretical foundation of behavioral advertising is fragmented, with only three out of the 41 theories used appearing more than twice. To further advance this field from a theoretical perspective, it may be necessary to clarify the complex interconnectedness of these theories and identify only those that are directly relevant, thereby excluding the indirectly relevant ones. This could lead to a common theoretical approach to behavioral advertising, with only the most explanatory and dominant theories gaining prominence.

## 5.2 Constructs

When it comes to the constructs of behavioral advertising, demographic variables such as gender, age, and education, which could potentially impact the relationship between the antecedents and outcomes, were lacking among the moderator factors. Furthermore, ad credibility was frequently referenced as an antecedent or moderator, but none of the articles examined platform credibility, which may also influence behavioral advertising.

Regarding the outcome variables, studying the impact of targeted advertising on not only the ads and the brands but also on the attitude toward the given platform could be beneficial. The outcome variables often showed similarity, but with different terminology, suggesting that a common understanding of the terms would be necessary for increased comparability and cohesiveness within the field. At the same time, classifying the outcomes as cognitive, affective, or behavioral could lead to a better comprehension of the topic.

#### 5.3 Contexts

While analyzing the platforms investigated, it was discovered that emerging social media platforms such as Instagram and TikTok were not explored, despite their distinctiveness, which could uncover novel aspects and connections. Conversely, website banners, a key platform for behaviorally targeted ads, were studied in a limited number.

The reviewed articles emphasized that the participants' socio-cultural background may significantly impact targeted advertising, highlighting the need to broaden the research to more countries and cultures. Future research should also concentrate on exposing potential discrepancies between genders, age groups, and even generations.

### 5.4 Methodologies

To enhance the precision of methodologies, it is recommended to combine surveys and experiment more frequently. Additionally, implementing qualitative methodologies or exploratory techniques like eye-tracking could provide new insights and improve current methodogies. Eye-tracking, for instance, could assist in distinguishing between cognitive, affective, and behavioral outcomes. Furthermore, conducting longitudinal studies would be benefitial to track changes in customer attitudes, behavior, and even the life cycle of platforms.

# 6. Conclusions and limitations

To my knowledge, this is the first framework-based systematic literature review on behavioral advertising. This review relys on 26 high-quality research articles from the past 6 years and aims to answer the questions: "What do we know about behavioral advertising? (RQ1)", "How do we know about it? (RQ2)", and "Where should research on behavioral advertising be heading? (RQ3)". Aside from several literature contributions, this review has some practical implications as well. By highlighting the most important constucts of behavioral advertising, it helps further emphasizing that such emerging issues as privacy concerns or ad irritation are needed to be addressed and taken into consideration by not just policy makers but practical marketers as well.

Despite the rigorous application of the SPAR-4-SLR protocol and the TCCM framework, this review still has some limitations. The strict quality control measures may have resulted in the exclusion of potentionally influential studies, which future research should aim to incorporate. Furthermore, the inconsistent use of terminology related to behavioral advertising in the literature might also lead to selection bias, that was mitigated by the application of the snowball sampling but might still not have provided a completely comprehensive overview.

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