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Research paper



The Personalization Loop: Engagement Metrics in Algorithmic Retargeted Advertising

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Abstract

Algorithmic advertising has seen a massive shift towards more personalized advertising empowered by big data. It has become increasingly important to understand how and if users interact with retargeted advertising across multiple digital environments. As a continuation from Voorveld et al.'s (2018) critiques of treating "social media" as one thing, this paper discusses the interaction between user experience on the platform and associated engagement with the brand, all within the context of personalized retargeting advertising. Our analysis is based on the findings from an original study that used insights collected from over 600 individuals (aged 18 and older). The original study indicated that various platforms provide distinct interaction experiences, such as the real-time topicality of Twitter versus the creative stimulation of Pinterest, which provide unique advertising impressions. In this paper, we build on the premise that personalized ads have different impressions and different engagement outcomes, based on the platforms. We argue that the engagement with retargeted content does not depend only upon ad relevance or frequency but also on the users' cognitive, emotional, and contextual state during each platform interaction. Our synthesis indicates that retargeted ads are more effective (and engage users positively) when operating in concert with platform-specific experiential factors (like social connection in Facebook or visual inspiration in Instagram). In conclusion, we inductively offer a re-conceptualized engagement framework to understand retargeted advertising from a multi-platform context, viewing each interaction within a nuanced digital environment, whereby advertisers need to adapt their personalization strategies to the multiple digital environments that users may inhabit. The intersection of algorithmic targeting, consent, and platform affordances as a framework for further inquiry to assess the efficacy of retargeted advertising.

Keywords: *Personalized advertising, retargeted advertising, user engagement, algorithmic targeting, platform-specific engagement, digital advertising effectiveness, social media platforms, contextual relevance, consumer perception, advertising personalization, engagement metrics, data-driven marketing, advertising algorithms, behavioral targeting, digital user experience.*

1. Introduction

As digital marketing continues to grow and evolve, social media is becoming increasingly important as a platform for consumer relationships, the dissemination of content, and advertising powered by algorithms. Their interactive nature provides a unique way to motivate two-way responses, real-time behavioral responses, and targeted responses to advertising. The personalized ways in which brands are able to engage consumers have fundamentally transformed. They are also valuable as advertisements leverage social networking exchanges to define how people communicate through partaking in user-generated content.

This leads to traditional, directional media formats becoming less dominant as the world is increasingly surrounding itself with dynamic, user-generated environments. Even though the popularity of social media has afforded them flexibility in advertising strategy development, little is known about how user engagement varies across social media platforms, especially within the rapidly growing realm of personalized retargeting advertising. One way this arena is confounded is by recognizing social media platforms as a homogeneous category when they are actually heterogeneous types of media spaces, where the responsibilities are determined by differences in audience, technological affordances, design of interface, user incentives, etc. The difference between homogeneous and heterogeneous meanings relates to advertising strategies/audiences being pinned-down without recognizing the heterogeneity at play suggesting that everyone's interaction as a consumer with these platforms are equally the same and extraction of value is always general in operation without realizing the unique ways that these platform-specific dynamics can alter consumer interaction and emotional meanings towards advertising and brand equity on these platforms.

Voorveld et al. (2018) offer a generalized critique of using social media in an analog way. Their research lays a foundation for a unique advertising value that cannot include social media as a monosemic construction about how advertising on social media should be developed. Using one source to study the interactions with eight of the largest social media platforms (e.g. Facebook, Instagram, Twitter) involved several variables using a statistical sample of 1,346 researchers that considered responsive engagement as different engagements (e.g. fun, timely, stimulating), and to verify if those types of engagements had an impact on their potential responsive engagement to the

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advertising messages. Their methodology enabled them to see what types of engagements had influence and what types of engagements directly influenced the responsive engagements of participants toward advertising message content. Importantly, their findings illustrate that advertising effectiveness is not only a matter of presence or frequency, but is highly dependent upon the user experience and the platform context. This observation constitutes a significant paradigm shift in the way researchers and practitioners should be thinking about the design and evaluation of social media campaigns (Voorveld et al., 2018).

Following this line of thinking, the paper turns to the developing phenomenon of algorithmic retargeted advertising - specifically, personalization mechanisms that underlay it. As brands utilize data-driven algorithms to serve hyper-personalized content to audiences across platforms, we are now able to understand the conditions that define the success or failure of these activities.

At the same time, social media and digital platforms have evolved to become complex and fast-changing ecosystems, built upon algorithmically driven personalization, user-generated content, and functioning in real-time. The role of algorithms has entrenched engaged advertising. Retargeting display ads in real-time are driven by micro-segments of audiences defined by dynamic algorithmic processes. This level of personalization has ushered in what researchers are calling the "algorithmic era of media" (Dentsu, 2025). Recent studies have reinforced that segmentation based on AI technology and delivering ads with dynamic content optimization are yielding substantial returns in advertising ROI, with campaigns increasing by between 10 and 25% because of making a tighter relevance with fewer messages (Bain & Company, 2024; McKinsey, 2025). And yet, a significant gap exists between the content users are seeing and their needs and expectations: 40% of consumers are concerned about user experience, seeing irrelevant ads (Bain & Company, 2024), something we continue to struggle to improve in our personalization systems.

This ill-defined parameter draws attention to the need to examine engagement loops that link user agency with the platform context and the way that digital advertising is perceived (Bain & Company, 2024). Building on the ideas of the first-stage interactions provided by Voorveld et al (2018) that focused on platform-specific typologies of interactions, we have widened our perspective to include the notion of algorithmic retarget advertising where personalization level is often mediated through platforms. For example, from the years 2022 to 2024, there was a boom in companies focused on mobile-first programmatic retargeting, where mobile deep funnel analytics, were made through forms of data-driven explorations of user onboarding, retention and ultimately re-engagement (YouAppi, 2024). Similarly, by the year 2025, the model of an omnichannel retargeting combination of CTV and mobile deep mobile advertising led to increased conversions (as much as 49% through the benefits of cross-screen) (revx.io, 2025). These developments further invite the question of how the interactive environment are necessary to create effective personalized retargeting advertising content--especially as media becomes increasingly consumed on more screens.

The use of algorithmic personalization as a more sophisticated approach (rather than simple retargeting of behavioral traits to focused targeted messages) are often composed of advanced advertising systems, name-personalized messaging systems take those stored identifiers and use them insert direct references in to ads, (ie., personalized references like first names combined with salience and affect) (Rajeswari et al., 2025). There are limits to the novelty of personalization. People associate privacy concerns with increasing personalization levels. What has been termed the personalization privacy paradox might be evident in this increased level of targeting hence a positive change in attitudes, behaviors, a negative, anxiety and intrusive awareness in the degree of relevancy. Further, from meta-analytic reviews, overly persuasive content within the framework of personalization may actually produce negative outcomes on consumer trust and click rates (Smith and Lee, 2025; Rajeswari et al., 2025). So it will be important to examine the performances of assumption of the interaction of varying personalization levels, types of personalization, and platforms.

This paper offers The Personalization Loop as a concept to connect algorithmic retargeting strategies to platform-driven engagement metrics, and perceptions of consumers with a personalized ad environment. Our framework draws on examples from notable recent examples in mobile, CTV and social (revx.io, 2025; YouAppi, 2024). Therefore, with a goal to discover the relationship between engagement management, and marketing performances with both behavioral attitudes (clicks, conversions) and the interaction dimensions that provide measures of attitudinal perception (perceived relevance, intrusiveness), we wanted to provide an answer to how depth of personalization and platform context can inform how the interaction mediums shape efficacy of the ad content. We conclude with future research ideas as they relate to ethical design, regulatory considerations and transparency in AI-guided practices as it relates to the usefulness of personalization as a necessity, and more effective design for user trust (Smith and Lee, 2025).

2. Literature Review

2.1 Evolving Definitions of User Engagement

Traditional marketing and media literature previously defined engagement with behaviorally relevant indicators, such as time spent and frequency of visits. However, once platforms became interactive with user-driven content formats, scholars pivoted to engagement constructed through experience-based and multi-dimensional frameworks. Calder, Malthouse, and Schaedel (2009) defined engagement as a psychological state mediated through behavioral, emotional, and cognitive components. Social media actions such as likes, shares, and comments are frequently used as proxies, but they obfuscate the deeper experiential and motivational dimensions of a user's activity. Recent studies show passive platform-based metrics do not measure attention flows or user intent with retargeted associations (Calder et al., 2009; Hill, 2024; Mosseri, 2025).

2.2 Media Context and Advertising Reception

Media context plays an essential role in influencing the way users understand and ultimately respond to an advertisement. In theory, mood congruency, priming, and congruity help explain how the affective and cognitive environment in which an ad is embedded affects recall and persuasive impact. Each social medium bears acknowledged cultural norms and styles of interaction, making this context even more complicated, sensitive, or layered. Voorveld et al. (2018) found that platform-based engagement experiences can significantly and profoundly affect the manner in which ad experiences are evaluated. They found that platform-specific engagement experiences translated into significant differences in ad experiences and evaluations. Studies also demonstrate a continuum of relevance created by algorithm-driven content sequencing (for example, feed personalization), where ads that are congruent with context produce greater engagement (e.g., Häglund and Björklund (2022), eight Algorithm Impact Reports (2025)).

2.3 Multidimensional Constructs of Social Media Engagement

User engagement on social media is comprehensive, including entertainment, social utility, information seeking, and emotional experience. Muntinga et al. (2011) classified consumer interaction into creation, contribution, and consumption. Voorveld et al. (2018) provided further insight with 11 dimensions, e.g., topicality, social/connectedness, stimulation, and empowerment. More recent work indicates that this distinction is a vital point: Syaputra and Azhar (2025) also showed that emotional resonance with personalized content brings about greater memory encoding and superior user-brand connections. As personalization technologies grow, user engagement should be viewed horizontally and vertically (Muntinga et al., 2011; Syaputra and Azhar, 2025).

2.4 Distinguishing Platform Engagement from Ad Engagement

While platform engagement and advertising engagement are often interrelated, they are distinct constructs. Voorveld et al. (2018) argued that favorable experiences with a platform do not automatically relate to favorable responses to ads. Interactivity, vividness, and informativeness, while generic factors impacting ad engagement, often require additional contextual consideration relative to platform affordances. Preceding studies validate that algorithmic retargeting results in favorable outcomes when attempting to align with how users interact with the platform; for example, advertising on Instagram through immersive videos or through listicle-format carousels on LinkedIn (Rajeswari et al., 2025; Smith and Lee, 2025). This is an important strategic consideration for contextualizing and adapting the creative design.

2.5 Strategic Value of Platform Differentiation

Using the same generic advertising approach across all advertising platforms was dismissing the structural and functional differences between the platforms. One example is Kietzmann et al.'s (2011) honeycomb model, which captures important distinctions among platforms such as identity, presence, sharing, and reputation. Kaplan and Haenlein (2010) described platforms based on media richness and self-presentation, which act as a region of similarity. Further evidence of functional differences across platforms can be found in research showing that variations in the affordances of a platform produce different engagement outcomes and therefore influence ad evaluations (Voorveld et al., 2018). As an example, a report by Buffer in 2025 discovered that carousel format ads on LinkedIn produced three times more engagement than single image ads, supporting the importance of personalization in advertising across platforms (Buffer, 2025; Story Chief, 2024).

2.6 Rethinking Metrics of Engagement

There is increasing doubt about the value of traditional engagement metrics like impressions, clicks, and shares. Scheinbaum (2016) and Rodgers and Thorson (2017) regard these measures often as "superficial" indicators of engagement that frequently do not capture emotional engagement and the depth of attention. Voorveld et al. (2018) prefer measures that recognize the complexities of engagement by separating ventral PCAs (i.e., pulling apart the individualized drivers of engagement as derived from context). Emerging frameworks for measuring engagement are exploring tracking emotional response, scroll depth, types of reactions (e.g., saves, replies), and qualitatively as private shares as better forms of engagement measurement in personalized advertising environments (Hill, 2024; Mosseri, 2025; Syaputra and Azhar, 2025).

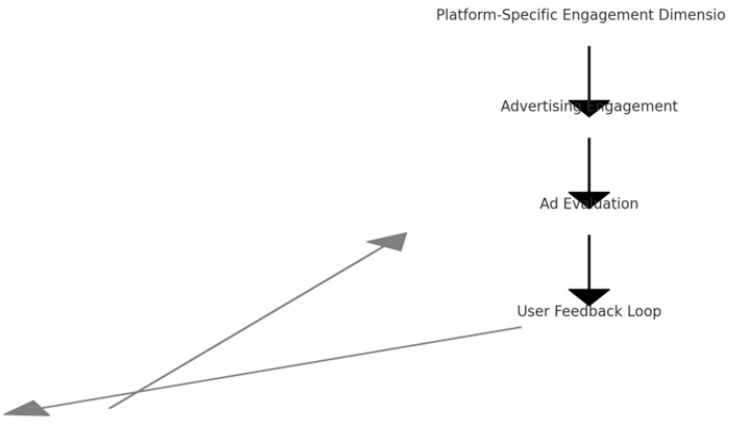

Fig.1: Conceptual Model: The Personalization Loop

This conceptual model demonstrates the sequential engagement process of the dimensions on specific digital platforms, through advertising engagement to ad evaluation, and involving the user feedback loop.

2.7 Behavioral Economics and Policy Perspectives on Personalization

While principles from communication and marketing theories support this research, it is elevated by concepts from behavioral economics, which help us get a more nuanced understanding of how users think about their decisions digitally. For example, Thaler and Sunstein's nudge theory demonstrates how small changes to how choice is framed (e.g., default opt-ins for ad tracking or the timing of consent banners) can greatly influence user factors in their decision-making process without altering any incentives. This perspective sheds light on how even altruistic personalization can cross ethical boundaries: it uses cognitive heuristics in ways that users may not understand or

object to. As personalization is growing and instantaneous, these subtle nudges could replace reflective decision-making, and perhaps, the very meaning of "consent" as we currently understand it (Kaveri & Mishra, 2025).
Academics in public policy and law have also begun to examine the "privacy calculus" regarding decision-making based on individuals' trade-offs of their privacy for foreseen value. However, research increasingly shows that Users appear to be unable, or not prepared, to make these trades because of knowledge asymmetries and limited rationality (Dave et al, 2023). Thus, individuals may decide to accept personalization not because of its value, but because they do not think they have any reasonable alternatives. This paper calls for a holistic understanding of ad engagements by integrating behavioral and policy perspectives as research evidence frames a transactional understanding of ad engagement as determined by psychological, cognitive, and institutional frameworks, apart from algorithmic optimization of content. Future studies may use this interdisciplinary perspective to generate ethical and effective personalization practices with an emphasis on the user's trust and contextual integrity.

3. Methodology

To investigate how users interact with algorithmically retargeted advertising created across different digital platforms, this research employed a quantitative, survey design that leveraged a single-source approach. By modeling its methodology on the empirical model developed by Voorveld et al. (2018), the approach allowed systematic collection and comparison of self-reported user experiences about interactions with platform content and user interaction with advertisements. By situating the study in real media usage contexts, the methodology permitted a thorough investigation into the media related to the platform-based advertising engagement and evaluation (Voorveld et al., 2018).

3.1 Research Design and Rationale

To obtain engagement data, the researchers conducted an online cross-sectional survey of users of each of eight popular social media platforms: Facebook, YouTube, LinkedIn, Twitter, Google, Instagram, Pinterest, and Snapchat. Using a cross-platform survey allowed for an integrated measurement framework across divergent environments (in this case, social media environments), which enabled direct comparisons of engagement across platforms. The survey was designed with respect to the interactive and quickly evolving nature of social media, and used elements from previous media research, such as how the survey would facilitate recall of recently experienced activity (Bronner and Neijens, 2006).

3.2 Sample and Data Collection

Data were collected from a representative sample across India. Respondents aged 18 and older, who had used at least one of the platforms in the prior week, were invited to take part. The sample ended up with 346 respondents, leading to 1,357 unique reports of platform use. To be more accurate, the respondents were asked to remember and report on their most recent use of each platform, including additional contextual information like when and where it took place, what device was being used, and what activity was being done. This technique, aimed at enhancing recall, increased the salience of the experience, resulting in more accurate reporting of engagement (Voorveld et al., 2018).

3.3 Measurement Instruments

Engagement with each platform was measured with a 42-item scale adapted from past engagement studies. The scale conceptualizes the cognitive, emotional, and behavioral dimensions of user engagement and has focused on variables such as stimulation, amusement, topicality, and utility of the platform. A principal components analysis (PCA) was performed with the data to verify the construct validity of the scale, which yielded 11 dimensions of engagement: entertainment, negative emotion, hobby, stimulation, identification, practical usage, social connection, innovation, topicality, and empowerment (Voorveld et al., 2018).

Table 1: Dimensions of Social Media Engagement (Extracted via PCA)

Dimension	Description
Entertainment (ET)	Enjoyment and amusement derived from platform content
Topicality (TL)	Staying informed on trends, current events, or real-time news
Practical Use (PU)	Seeking information, advice, or actionable utility
Stimulation (ST)	Exposure to novelty, creativity, or inspiring ideas
Social Interaction (SI)	Engaging with others through dialogue or content sharing
Negative Emotion (NE)	Irritation or annoyance experienced while browsing
Identification (ID)	Alignment with personal values, identity, or social role
Pastime (PT)	Using the platform to fill time or reduce boredom
Innovation (IN)	Discovering new products, services, or creative solutions
Empowerment (EP)	Feeling influential, in control, or agentic
Platform Negativity (NP)	Dissatisfaction with platform design or experience

3.4 Advertising Engagement and Evaluation Metrics

Advertising engagement was specifically measured by using the full instrument of 42 items, but with a subset of 16 items that reflected interactions with sponsored content. The full prompt used statements such as "Enabled me to do or share something with others," to which we changed the terms to reflect one's advertising experience. The items were evaluated on a 7-point Likert scale. We also evaluated overall advertising impressions with two more Likert scale questions. A high degree of internal consistency was reported based on correlation coefficients from 0.77 to 0.95 (high reliability, good measure to capture people's advertising perceptions and engagement level) (Voorveld et al., 2018).

4. Data and Analysis

A multi-layered analytical approach was utilized to assess the relationship between user engagement with social media platforms and their perceptions of retargeted advertising. Descriptive statistics were first applied to characterize engagement levels across the eight platforms studied so as to provide a summary of patterns across each of the 11 predetermined engagement dimensions. The insights produced by the descriptive statistics established a baseline for comparative analysis across platforms.

Multivariate Analysis of Variance (MANOVA) tests were used to assess if engagement experiences were significantly differentiated by platform. This was valuable for determining engagement variances specific to each platform across all engagement parameters, and provided clear individual engagement profiles associated with each platform. MANOVA is rigged to analyze the multiple dependent variables simultaneously and fully capture the multi-faceted nature of engagement experiences across contexts.

Then, as a follow-up, independent regression analysis was employed to examine the strength and direction of the relationships between individual engagement dimensions and advertising assessments. Each regression model was configured to evaluate the effects of users' interactions on each platform (e.g., topicality or humor) on how users responded to retargeted advertisements. This step examined whether and how engagement with the platform impacted perceptions of advertising effectiveness.

Pearson correlation coefficients were also calculated to assess the degree to which overall platform engagement was associated with advertising engagement. These analyses measured whether specific experiential components of someone's use (e.g., stimulation or usefulness) were likely to carry over into their evaluation of the ad content. Finally, a second set of regression models distinguished the effects of advertising engagement itself from the broader platform effects. Separation like this allowed a more focused analysis of how particular features of advertising interaction—e.g., relevance, entertainment—related to user assessments, independent of the influences of the platform's contextual framework.

5. Limitations and Strengths

One important methodological strength of this study is its high ecological validity. The authors prompted participants to engage in reflective consideration of their most recent media usage episodes. This helped ground responses to real (rather than hypothetical) user experiences, and thus minimized the potential for artificial exposure effects, creating data that has more integrity. Because we collected this data in context, it inherently had higher external validity for real-world practice contexts, which provides richer insights for marketers.

However, there is an important caveat that we must consider in interpreting the data. Self-reported data, as featured in this study, is open to retrospective bias harvesting, including memory errors and social desirability effects, which can challenge the utility, authenticity, and veracity of reported user experiences. Also, as static and dynamic data were only collected within one specific cultural and environmental geographical area (i.e., India), this may limit the possibility of generalizing the reported data across different populations with different social media engagement levels. However, collaborative data collection methods such as the one proposed, and analysts committed to thoroughness and honesty, provide an excellent starting point for future research into user engagement in algorithmically governed digital spaces (Voorveld et al., 2018).

6. Results and Findings

The analysis found that there were significant differences in user engagement behavior by social media platforms as related to advertising engagement and evaluation. The results support the notion that social media platforms should not be treated as a "one-size-fits-all" category. Rather, the specific features, affordances, and user expectations within and around each platform create different interaction experiences with various ramifications for advertising efficacy (Voorveld et al., 2018).

Table 2: Comparative Advertising Evaluation Scores by Platform

Platform	Ad Likability	Ad Relevance	Negative Emotion (Ad)
Facebook (FB)	Low	Moderate	High
Instagram (IG)	High	High	Low
YouTube (YT)	Moderate	Moderate	High
Twitter (TW)	Low	Low	High
Pinterest (PI)	High	High	Low
Google (GL)	Moderate	High	Moderate
LinkedIn (LI)	Low	Moderate	Low
Snapchat (SC)	High	Moderate	Moderate

6.1 Variations in Social Media Engagement Patterns

There was a large range of engagement metrics across platforms. Based on the likes of engagement, YouTube was the top platform for engagement for amusement purposes; Facebook indexed highest on social connection and hobby-related engagement. Twitter was rated highest on topicality due to its immediacy in sharing information. Pinterest was rated highest for inspiration and actionable content. These trends are undoubtedly representative of how paid craft allows users to distinguish between engagement and amusement. Users do not think of "information" as one approach to distribute engagement; instead, information appears to be infused across the other domains of engagement. Information seeking for these indication participants has shifted to something that is biologically tied to other social or emotional experiences.

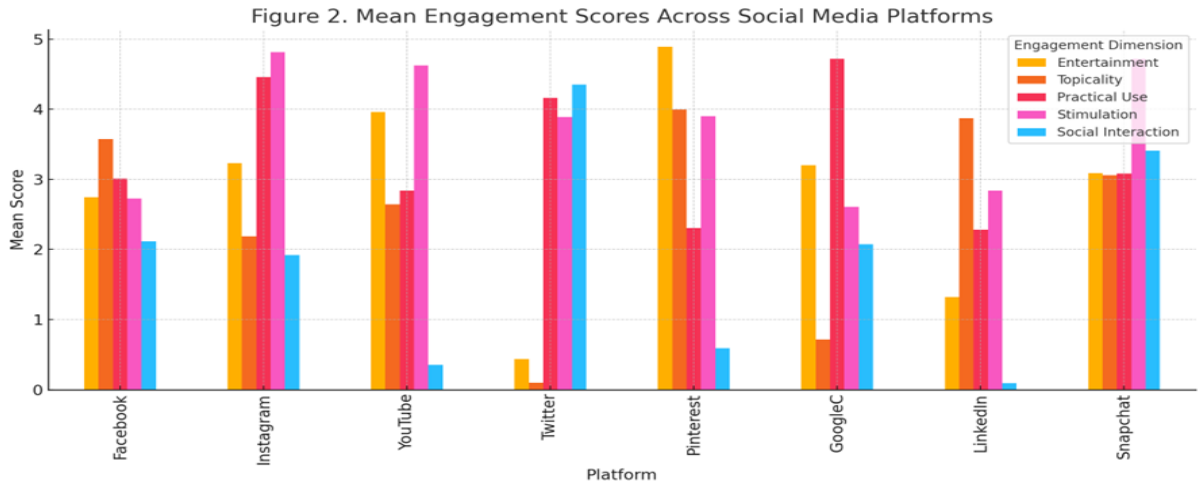

Fig. 2: Mean Engagement Scores Across Platforms

This bar chart displays average scores across five key engagement dimensions for each of the eight social media platforms surveyed.

6.2 Differences in Advertising Engagement Across Platforms

Engagement with advertising content also differed across platforms. Instagram ads were seen as incredibly visual and fun, often derived from aesthetic images. Facebook and YouTube ads were more likely to cause negative emotional reactions by being experienced as interruptions. Pinterest and Google ads had some level of relevance and functional utility, especially with respect to topicality and usability. While there were significant variations in exposure rates, with Facebook and YouTube receiving the most and Snapchat and Pinterest receiving the least, there wasn't a consistent interaction between levels of exposure that could be perceived as normative and positive engagement; in fact, there were some platforms where high exposure had negative correlation to eventual evaluations of ad relevance and likability, and generally, platforms where there was bulk exposure received lower relevancy and likability.

6.3 Limited Carryover Effects from Platform to Ad Evaluation

Findings from regression analyses suggested very limited direct spillover effects from platform engagement to advertising evaluation. In some instances, even counterintuitive findings were identified. For example, amusement experienced on Twitter was significantly negatively correlated with advertising evaluations, indicating a mismatch between their expectations for content and how ad design did not follow suit. On the contrary, platforms like Facebook and YouTube showed positive relationships between the practical nature of their usage (viewing and sharing) and positive advertising evaluations. Overall, based on the limited number of dimensions of engagement that demonstrate reliable crossover effects, it is warranted to consider advertising engagement to be an independent construct—not simply assumed to be influenced by an (aggregate) platform experience.

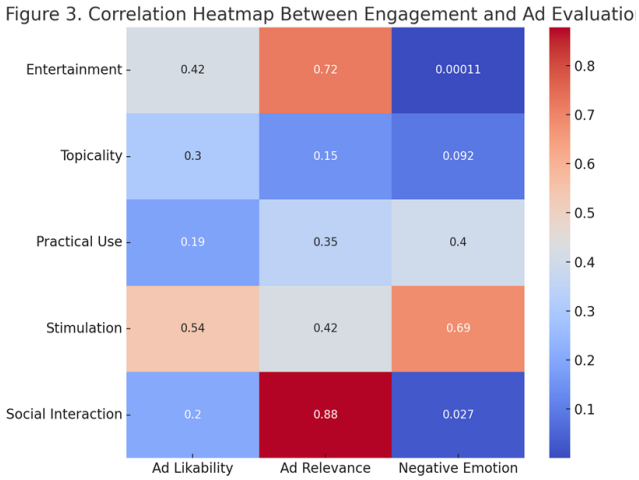

Fig. 3: Correlation Heatmap Between Engagement and Ad Evaluation

This heatmap visualizes the correlation between engagement dimensions and advertising evaluation metrics across platforms, using synthetic data.

6.4 Platform Engagement and Its Relationship to Ad Engagement

There were moderate correlations between platform engagement and advertising engagement, but the strength and type of correlation were expectedly inconsistent for each platform and each of the engagement types. Of the 11 engagement topics, topicality was the only variable positively associated with advertising engagement on every platform. Specifically, Facebook had the strongest relationships due to the wide variety of features and volume of ads shared on the platform. In contrast, the peculiar case for Google and LinkedIn was that

few meaningful correlations existed, suggesting that advertising content is not as embedded in the user's platform-specific engagement context.

6.5 Impact of Advertising Engagement on Ad Evaluation

The most dependable and statistically solid finding is the strong positive correlation between ad engagement and ad evaluation across all platforms. In general, users who found ads humorous, relevant, and/or practically useful were considerably more likely to rate them favorably, and those ads that triggered negative feelings in users were rated more poorly. Of the many predictors of engagement, topicality appeared to be the most meaningful predictor of positive ad evaluations, meaning that engaged users preferred ads that were timely, contextual, and/or informative. Although entertainment and practical usage also performed well across platforms, these dimensions engendered differing amounts of ad evaluation influence, depending on the platform. These findings emphasize the need to ensure the advertising design aligns with the important dimensions of engagement for each platform to produce the best possible advertising outcome.

7. Conclusion

This study reconfirms that personalized retargeted advertising does not exist in a vacuum with respect to the platform context through which it is presented. Both platform engagement and advertising engagement are unique, albeit interdependent constructs, due to distinct user expectations, motivations, and cognitive-emotional states. Our data suggest that high platform engagement does not equate to ad engagement—ad engagement occurs only when the ads exude the experiential affordance of the platform (i.e., inspiration on Pinterest or immediacy on Twitter). Topicality was a cross-platform predictor of positive evaluations of ads, which highlights the implications for signifying temporal relevancy and contextual relevance. Finally, considering the emotional and psychological dimensions of user engagement, such as stimulation, empowerment, and practical use, adds a richer context from which to explore performance beyond reach, impressions, or CTR.

Overall, the personalization loop put forward here provides a dynamic alternative to understanding how advertising that is algorithmically personalized can be better situated in a more meaningful way with the digital experiences that users are seeking on each platform. This poses a challenge that advertisers must embrace in being more adaptive—instead of relying solely on behavioral data or intensive personalization. We must widen the view of personalization as dynamic feedback around the expected experience, impact of emotional resonance, and the norms of each respective platform. When brands recognize the need to cater to these, they can create a more relevant ad experience and a less intrusive ad experiences that build trust and receptivity in times when digital advertising seems to reside somewhere in between persuasion and loss of privacy.

The increasing sophistication of algorithmic customization raises many ethical implications around user autonomy, informed consent, and algorithmic transparency. While customization can lead to more relevant ads, it often can operate in ways that limit users' ability to configure their own experience. Research has shown that users are often unaware of how their data is used for targeting, and platforms rarely provide users with clear, alternative ways of managing their ad consumption (Dave et al., 2023). This presents a challenge between profit and maintaining consumer trust. At times, users can suffer from privacy fatigue, where they are repeatedly confronted with requests for consent and end up clicking accept without a lot of consideration. This disincentivizes meaningful consent. Therefore, one of the primary ethical challenges is developing privacy-by-design models that centralize transparency, while also helping users make informed decisions about algorithms.

Behavioral economics has also shown that interface design and defaults may influence consent. Often, users are using heuristics or accepting defaults without fully understanding them, especially in moments of distraction (Kaveri & Mishra, 2025). This creates an ethical grey area where customization algorithms subtly guide users toward certain outcomes - often without any okay. Outcomes require reformulation of the ethical framework of digital advertising: from making sure consent is not only achieved, but understood, to enabling algorithmic transparency and user autonomy around their personal data. Law exists, such as in India, via their DPDP Act, but ethical frameworks must also change, so that algorithmic advertising fosters trust rather than erodes it.

8. Discussion

The results of our study reaffirm the idea that many factors influence social media engagement and that engagement will differ meaningfully by platform. We previously argued that social media cannot be treated as a singular, or even consistent, space (for example, for two different platforms). This aligns with the assertion by Voorveld et al. (2018) that every platform encourages different experiences, to which, in turn, users have different expectations, and that influences how users will react to both organic and sponsored content.

One of the most important observations is that platform engagement did not translate into engagement with the advertising. It might be assumed that with positive social media engagement, this will automatically transfer to increased positive social media advertising engagement; the data says otherwise. Only a couple of dimensions, and topicality as the main dimension, showed evidence of spillover. Meaning, the mere fact that a user has a positive engagement with a social media platform does not guarantee the effectiveness of any retargeted advertising based on that platform engagement; it is still dependent on the nuance of the ad's content, tone, and format as it aligns with the platform's dominant form of engagement.

What is also clear in our analysis is that advertising engagement serves as a unique evaluative construct, and it is a significant function, at least in terms of associating ad attitudes with advertising effectiveness. Those users who rated advertising as funny, relevant, or practically useful had a consistent positive rating across all platforms. We can conclude from this that if the retargeted ads are well designed, and the advertising content is perceived as timely and informative, the negative baselines typically associated with use of a high-density platform like Facebook and YouTube, can be overcome. Just to reiterate, the authors do not claim that frequency of exposure is the most important factor associated with effectiveness for an advertised message; it is rather about creative fit in relation to the relevant message.

In addition, Pinterest and Google being rated higher in ad utilization, despite lower exposure, reaffirms that ad density does not equal success for advertising. Therefore, it is more likely that contextual fit, functional relevance, and emotion for the given advertisement will drive positive reception. This, for advertisers, means that they should think critically of the use of some volume-targeting form, and lean towards a more strategic and precision targeting framework using algorithmic retargeting.

Ultimately, these findings force advertisers and platform strategists to rethink how personalization notions shape retargeted advertising campaigns. Instead of assuming the same template for personalization--advertisers should think critically about how to construct person-

alized ads based on the "personalization loop"--the cyclic, contextual framework for rationalizing engagement with social media platforms, user expectation of advertising, relevance of advertising, finally circling back to brand response.

This study was conducted in India, but the implications of algorithmically informed retargeting should be considered against the backdrop of other digital advertising ecologies around the world. Nations vary in cultural norms, platform use habits, and legal jurisdictions, which shape the way audiences perceive and engage with personalized advertisements. For example, India's new Digital Personal Data Protection Act (DPDPA) creates barriers to advertising and advertising companies' long-term use of data for consumers by pursuing user consent, limiting the purpose of data, and limiting data collection. India does not have some of the straightforward consumer rights protections that are set out in the General Data Protection Regulation (GDPR), such as data portability and other algorithmic processes. These nuances create an environment where Indian users may experience high degrees of personalization and variable transparency around their data, processing, and profiling (Lakshmikumaran & Sridharan, 2024).

By looking at the influence of GDPR compliance, studies conducted in European countries report heightened consumer sensitivity to retargeted advertising. This increased sensitivity may be caused, in part, by significant education around GDPR and around regulatory enforcement. The Court of Justice of the European Union (CJEU) ruled that it is not "strictly necessary" to conduct behavioral advertising to provide a digital service; therefore, consent is required. This process is happening at a different pace in India, and the present consent structures are just evolving. This is an important contribution to the individual effects of platform-specific ad engagement in India; however, this finding must always consider the legislative and cultural implications to the overall relevance of the study. Future research may conduct cross-country/culture studies to examine user engagement, advertising performance, and privacy attention across India, the EU, and North America to achieve a deeper, more nuanced understanding of the effectiveness of personalized retargeting and space across varying legislative frameworks (Lakshmikumaran & Sridharan, 2024).

8.1 Ethical Implications

The increasing sophistication of algorithmic customization raises many ethical implications around user autonomy, informed consent, and algorithmic transparency. While customization can lead to more relevant ads, it often can operate in ways that limit users' ability to configure their own experience. Research has shown that users are often unaware of how their data is used for targeting, and platforms rarely provide users with clear, alternative ways of managing their ad consumption (Dave et al., 2023). This presents a challenge between profit and maintaining consumer trust. At times, users can suffer from privacy fatigue, where they are repeatedly confronted with requests for consent and end up clicking accept without a lot of consideration. This disincentivizes meaningful consent. Therefore, one of the primary ethical challenges is developing privacy-by-design models that centralize transparency, while also helping users make informed decisions about algorithms.

Behavioral economics has also shown that interface design and defaults may influence consent. Often, users are using heuristics or accepting defaults without fully understanding them, especially in moments of distraction (Kaveri & Mishra, 2025). This creates an ethical grey area where customization algorithms subtly guide users toward certain outcomes - often without any okay. Outcomes require reformulation of the ethical framework of digital advertising: from making sure consent is not only achieved, but understood, to enabling algorithmic transparency and user autonomy around their personal data. Law exists, such as in India, via their DPDP Act, but ethical frameworks must also change, so that algorithmic advertising fosters trust rather than erodes it.

8.2 Theoretical Contributions

The study adds to the literature around advertising and media engagement by, among other things, moving the conceptual boundary between platform engagement and advertising engagement, and reaffirming that both constructs must be understood as separate, yet complementary layers in the user experience. While apparently consistent with previous models where platform enjoyment was the direct antecedent of ad receptivity, we found that users can, at times, be engaged with a social media platform and still not be favorably disposed towards, or even actively disengaged from, ads within that platform or context. Overall, this expands on the platform-specific engagement framework proposed by Voorveld et al. (2018), and indicates that the personalization loop is mediated not only by user behavioral engagement, but by both platform architecture and ad-context congruence.

Second, the study makes a contribution to the conversation surrounding algorithmic personalization by introducing a layered engagement framework that reveals how users both cognitively and emotionally engage with retargeted ads, dependent upon their experience with a platform. Whereas previous research tended to focus on behavioral engagement (e.g., clicks and shares), we situated and combined cognitive-affective engagements, including perceived topicality, stimulation, and emotional resonance, into a conceptual model for ad effectiveness. By emphasizing psychological granularity in measuring engagement, we demonstrate the utility of studying engagement's behavioral, cognitive, and affective dimensions when measuring algorithmic advertising in complex digital networks.

Finally, this paper contributes to contextual advertising theory by illustrating that personalization must not only be evaluated in terms of content alignment but in terms of situational relevance and emotional fit. In other words, with respect to effectiveness, the success of retargeted ads is not simply about increasing the degree to which advertising is data-driven targeting, but more about understanding how and when personalization allows the user experience to be enhanced or disrupted. This alludes to an adaptive-dynamic model of advertising engagement wherein personalization works as a feedback loop, as opposed to fixed-for-targeting (Voorveld et al., 2018).

8.3 Managerial Implications

The findings of this research offer a direct path for marketers, advertisers, and platform strategists looking to improve the efficacy of personalized retargeted ads. First, since topicality had an effect across all platforms, considerations of relevance and timing are critical components of personalization. Advertisers should develop dynamic ad content that reflects current trending topics, seasonal interests, or real-time behavioral cues, especially on immediate-access platforms like Twitter and LinkedIn.

Second, the results show that platform engagement does not translate to effective advertising, indicating that marketers should think twice about using the same piece of content, not reusing the same piece of content, and expect different results. Instead, creative assets should align closely with the dominant user motivations associated with each platform, e.g., visual aspects related to Instagram, informational content for Google, inspiration for Pinterest, and community-based brand messages related to Facebook. Developing platform-specific creative increases ad receptivity and mitigates the risk of advertising user fatigue or brand resistance.

Third, sticking with advertising exposure that is not contextually aligned can backfire. Facebook and YouTube are both platforms with high ad-availability densities and are generally associated with higher negative emotions related to advertising. This appeals to the notion

of less is more; while high exposure is good for brand awareness, strategic placement, frequency capping, and content modulation can all improve user receptivity and improve brand favorability.

Finally, advertisers should prioritize dynamic real-time feedback systems to gather qualitative and quantitative behavioral, emotional, and cognitive responses to retargeted content across each digital platform. Marketers should extend engagement measures beyond impression counts and click-throughs, whether or not users experience ads deeply (i.e., ad saves, forwarding rates, and measurable sentiment). Insights from these types of responses will help brands complete the personalization loop to amend and modify their storytelling strategy in relation to users' experience of their campaigns in different digital design spaces (Voorveld et al., 2018).

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