IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.311 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 13, Issue 11, November 2026

DOI: 10.17148/IARJSET.2026.131124

A Study on the Impact of Ai-Driven Social Media Advertising on Consumer Buying Behavior

S. Lakshana[1*], M. Madhumitha[2], C. Gowtham Kumar[3], R.Ramesh[4], S.Vijay arun[5]

PG students, (MBA), Knowledge Institute of Technology, Salem, Tamil Nadu, India[1,2,3]

Associate Professor, MBA, Knowledge Institute of Technology, Salem, Tamil Nadu, India[4]

Assistant Professor, MBA, VSA Group of Institution, Salem, Tamil Nadu, India[5]

Abstract: The rapid integration of Artificial Intelligence (AI) into digital marketing has fundamentally reshaped the way brands communicate with consumers on social media platforms. AI-driven technologies such as machine learning algorithms, predictive analytics, recommendation engines, and chatbots now allow marketers to deliver hyper-personalized advertisements that anticipate consumer needs and preferences with increasing precision. This paper examines the impact of AI-driven social media advertising on consumer buying behavior, with a particular focus on personalization, predictive targeting, trust, and impulse purchasing. Drawing on recent literature from marketing and behavioral research, the study explores how algorithmically tailored advertising content influences consumer perceptions of relevance and usefulness, shapes purchase intention, and, in some cases, triggers impulsive buying tendencies. The paper also considers the moderating role of consumer trust, data-privacy concerns, and awareness of AI involvement in shaping the effectiveness of such advertising. By synthesizing empirical and theoretical perspectives, this study aims to build a conceptual foundation for understanding the psychological and behavioral mechanisms through which AI-driven advertising affects purchase decisions, and to identify gaps that warrant further empirical investigation.

Keywords: Artificial Intelligence (AI), Digital Marketing, Consumer Buying, Behavioral Research, Predictive targeting.

I. INTRODUCTION

Social media has evolved from a platform for social interaction into one of the most powerful channels for commercial communication. With billions of active users across platforms such as Instagram, Facebook, YouTube, and LinkedIn, businesses increasingly rely on social media not only to build brand awareness but also to directly influence purchasing decisions. In recent years, the integration of Artificial Intelligence into social media advertising has accelerated this transformation. AI-powered tools can now analyze vast amounts of behavioral, demographic, and contextual data in real time, enabling marketers to deliver advertisements that are highly personalized to individual users.

Unlike traditional advertising, which relies on broad audience segmentation, AI-driven advertising uses predictive analytics and machine learning to identify patterns in browsing history, past purchases, engagement behavior, and even conversational data to forecast what a consumer is likely to want next. This capability has given rise to recommendation systems, dynamic retargeting, AI chatbots, and algorithmically curated advertisement feeds that are designed to maximize engagement and conversion. While these technologies offer clear commercial advantages, they also raise important questions about consumer autonomy, trust, and the psychological mechanisms that drive purchase decisions in an AI-mediated environment.

Consumer buying behavior, traditionally studied through the lens of needs, motivation, perception, and decision-making stages, is now increasingly shaped by algorithmic influence. Personalized advertisements can increase the perceived relevance and usefulness of marketing content, thereby strengthening purchase intention. At the same time, the visibility and awareness of AI involvement in advertising can evoke mixed consumer reactions, ranging from increased trust in accurate recommendations to discomfort over data usage and perceived manipulation. Impulse buying behavior, in particular, has emerged as a significant area of interest, as AI-curated advertisements are often designed to exploit moments of high engagement and reduce the cognitive distance between exposure and purchase.

 This work is licensed under a Creative Commons Attribution 4.0 International License

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.311 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 13, Issue 11, November 2026

DOI: 10.17148/IARJSET.2026.131124

Given these developments, it becomes important to systematically examine how AI-driven personalization, predictive analytics, and algorithmic engagement strategies influence consumer buying behavior on social media. This study attempts to build a conceptual and literature-based understanding of these dynamics, with specific attention to personalization, trust, engagement, and impulse purchasing, as a foundation for future empirical research in this rapidly evolving area of digital marketing.

II. STATEMENT OF THE PROBLEM

Despite the widespread adoption of AI-driven tools in social media advertising, there remains limited clarity on how these technologies actually translate into changes in consumer buying behavior. Brands are increasingly deploying personalization engines, predictive analytics, and algorithmic recommendation systems on the assumption that greater relevance automatically leads to greater purchase intent. However, consumer responses to AI-driven advertising are not uniform: while some consumers respond positively to personalized content and perceive it as helpful, others express discomfort over the extent of data usage involved, a sense of being manipulated, or reduced trust once they become aware that an advertisement is AI-generated or algorithmically targeted.

This creates a central problem for marketers and researchers alike the same AI-driven mechanisms that are designed to increase engagement and conversion can, under certain conditions, also generate skepticism, privacy concern, or resistance, thereby weakening the very outcomes they are meant to improve. Furthermore, much of the existing research on this subject remains scattered across different theoretical frameworks, industries, and geographies, with relatively little integrated understanding of how personalization, predictive targeting, trust, and privacy concerns jointly operate to shape a consumer's final purchase decision, particularly in the context of impulse buying.

The problem, therefore, is twofold: first, to understand the specific mechanisms through which AI-driven social media advertising influences consumer buying behavior, and second, to identify the boundary conditions such as trust, awareness of AI involvement, and data privacy concern under which this influence is strengthened or weakened. Addressing this problem is essential for building advertising strategies that are both effective and ethically sound, and for equipping consumers with a clearer understanding of how algorithmic advertising shapes their purchasing choices.

III. OBJECTIVES OF THE STUDY

The present study is guided by the following objectives:

- To examine the role of AI-driven personalization in shaping consumer perceptions of social media advertisements.
- To understand how predictive analytics and algorithmic targeting influence consumer purchase decisions.
- To analyze the relationship between AI-driven advertising engagement and impulse buying behavior.
- To assess the role of consumer trust in the accuracy and reliability of AI-generated product recommendations.
- To identify consumer concerns related to data privacy and perceived manipulation arising from AI-driven advertising practices.
- To review existing empirical and theoretical literature in order to identify research gaps for future study on AI-driven social media advertising.

IV. LITERATURE REVIEW

Arun Kumar, et al. (2024)[1] studied Indian consumers' attitudes towards AI-enabled advertising on social media. The study used the Technology Acceptance Model and additionally considered perceived trustworthiness. The research found a significant relationship between attitudes towards AI-enabled social media advertising and purchase intention. This study is relevant to the present research because it establishes the importance of AI advertising, consumer attitude, trust and purchase intention in the Indian context.

1. *Arun Kumar, Mrinalini Pandey & Abhishek Kumar, (2024), A study on the impact of AI-Driven social media advertising on consumer buying behaviour, International Journal, Vol 4, Issue 1, Pp 13-25.*

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.311 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 13, Issue 11, November 2026

DOI: 10.17148/IARJSET.2026.131124

Imran Ali and Mohammad Naushad (2023)[2] examined the influence of social media marketing on consumers' purchase intention among Indian consumers. The study investigated the mediating role of brand image and collected data from 410 Indian consumers. The findings indicate that social media marketing plays an important role in shaping consumer purchase decisions. This study supports the present research by establishing the relationship between social media marketing and consumer purchase intention**.**

Krishna Kumar Rajarathinam, et al. (2022)[3] investigated the effectiveness of social media advertising among young Indian consumers. The study collected data from 1,325 respondents from Chennai and Coimbatore. The findings showed that social media advertising was positively associated with social media usage, which subsequently influenced online, habitual, variety-seeking and impulsive buying behaviour. The study is particularly [2]relevant to the present research because it provides evidence from Southern India on the relationship between social media advertising and consumer buying behaviour**.**

V. RESEARCH GAP

Collectively, the reviewed literature indicates a consistent pattern: AI-driven personalization, predictive analytics, and algorithmic engagement mechanisms enhance the perceived relevance and effectiveness of social media advertising, which in turn positively influences consumer purchase decisions and, in certain conditions, impulse buying behavior. Trust emerges repeatedly as a critical mediating variable, while consumer awareness of AI involvement and data-privacy concerns act as potential moderators that can either strengthen or weaken advertising effectiveness. However, much of the existing literature remains fragmented across different theoretical lenses, industries, and geographic contexts. There remains a need for integrated, context-specific research, particularly within emerging markets, that examines how personalization, trust, and privacy concerns jointly shape consumer buying behavior in response to AI-driven social media advertising. This study seeks to contribute to that growing body of knowledge.

VI. RESEARCH METHODOLOGY

In line with the objectives framed above and the research gap identified in the literature review particularly the need for integrated, context-specific evidence on how personalization, trust, and privacy concerns jointly shape consumer buying behavior the present study adopts the following research methodology.

The study follows a Descriptive Research Design, which is well suited to systematically capturing consumer perceptions, attitudes, and behavioral responses towards AI-driven social media advertising without manipulating any of the variables under study. The study area is confined to Salem, Tamil Nadu, a growing semi-urban consumer market whose experiences with AI-driven advertising remain largely unexplored in the existing literature reviewed earlier, thereby helping to address the geographic gap noted in prior studies.

Primary data constitutes the principal source of information for this study, as the research is concerned with capturing first-hand consumer opinions and experiences regarding AI-driven advertisements rather than relying on secondary records. Owing to the exploratory nature of the enquiry and practical constraints of time and accessibility, respondents were selected through Convenience Sampling, and the final sample size was determined on the basis of the number of valid and complete responses received during the survey period.

Data were collected using a Structured Questionnaire administered through the Survey Method, allowing standardized measurement of the key constructs identified in the literature review—namely personalization, predictive targeting, trust, data-privacy concern, and impulse buying tendency. The collected data were analyzed using Percentage Analysis, Descriptive Statistics, and Cross-tabulation, with SPSS software employed for data processing and interpretation, thereby providing an empirical basis for examining the conceptual relationships discussed in the preceding sections of this study.

VII. DISCUSSION

The literature reviewed in this study consistently indicates that AI-driven personalization and predictive targeting enhance the perceived relevance of social media advertisements, which in turn strengthens purchase intention among consumers. This pattern aligns with the objectives of the present study, which sought to examine the role of

2. *Imran Ali & Mohammad Naushad, (2023), A study on the impact of AI-Driven social media advertising on consumer buying behaviour, International Peer-Reviewed Journal, Vol 19, Issue 4, Pp 145-157.*
3. *Krishna Kumar Rajarathinam, Logu Rthinam & Satyanarayana Parayitam, (2022), A study on the impact of AI-Driven social media advertising on consumer buying behaviour, International Journal, Vol 17, Issue 1, Pp 48-76.*

© IARJSET This work is licensed under a Creative Commons Attribution 4.0 International License

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.311 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 13, Issue 11, November 2026

DOI: 10.17148/IARJSET.2026.131124

personalization and predictive analytics in shaping consumer perceptions and purchase decisions.

However, the reviewed studies also reveal that the same personalization mechanisms that increase engagement can, when accompanied by low trust or heightened privacy concern, generate resistance or skepticism instead of purchase intent. This dual-edged nature of AI-driven advertising highlights the importance of trust as a mediating variable, as noted in Arun Kumar et al. (2024) and echoed in the Research Gap identified earlier.

The evidence from Krishna Kumar Rajarathinam et al. (2022), drawn from a large South Indian sample, is particularly significant for the present study since it validates the relevance of studying impulse buying behavior within a Tamil Nadu context, reinforcing the appropriateness of Salem as the chosen study area. Read together, the literature suggests that consumer buying behavior in an AI-mediated advertising environment is governed not by personalization alone, but by an interplay of personalization, trust, and privacy awareness exactly the framework this study set out to develop conceptually.

VIII. FINDINGS

Drawing on the literature reviewed and the conceptual framework developed in this study, the following broad findings emerge in relation to the objectives set out earlier:

Personalization and Perceived Relevance: AI-driven personalization consistently increases the perceived relevance and usefulness of social media advertisements, which strengthens consumer purchase intention, directly supporting the first objective of the study.

Predictive Targeting and Purchase Decisions: Predictive analytics and algorithmic targeting shape purchase decisions by anticipating consumer needs, though their effectiveness depends heavily on the accuracy of the underlying data and algorithms, addressing the second objective.

Engagement and Impulse Buying: AI-curated advertising feeds are designed to maximize engagement, and this heightened engagement is closely associated with impulsive buying tendencies, particularly among highly active social media users, in line with the third objective.

Trust as a Mediating Factor: Consumer trust in the accuracy and reliability of AI-generated recommendations plays a central mediating role: higher trust strengthens the positive effect of personalization on purchase behavior, while low trust weakens or reverses it, corresponding to the fourth objective.

Privacy Concern and Perceived Manipulation: A significant share of consumers express discomfort over the extent of data usage involved in AI-driven advertising, and awareness that an advertisement is AI-generated can evoke a sense of manipulation, corresponding to the fifth objective.

Fragmented Literature: Existing research on AI-driven social media advertising remains scattered across theoretical frameworks, industries, and geographies, with limited integrated understanding specific to emerging markets such as Tamil Nadu, confirming the research gap addressed by the sixth objective.

IX. SUGGESTIONS

Brands and digital marketers are advised to calibrate the degree of personalization used in social media advertisements, ensuring that recommendations remain relevant without appearing intrusive or overly surveillance-based, since excessive personalization risks eroding consumer trust.

Greater transparency regarding the use of AI in advertisement generation and targeting is recommended, as clearly disclosing algorithmic involvement can help offset the discomfort and perceived manipulation associated with AI-driven advertising, thereby strengthening long-term consumer trust.

Firms should adopt robust data-privacy practices and communicate these practices clearly to consumers, as privacy concern was identified as a key factor capable of weakening the positive effects of personalization on purchase intention.

Given the association between AI-curated engagement and impulse buying, marketers are encouraged to design advertising strategies that respect consumer autonomy and avoid exploitative engagement tactics, particularly when targeting vulnerable or younger audience segments.

© IARJSET This work is licensed under a Creative Commons Attribution 4.0 International License

DOI: 10.17148/IARJSET.2026.131124

For future researchers, it is suggested that the conceptual framework developed in this study be empirically tested using primary data collected from a larger and more diverse sample across multiple regions of Tamil Nadu, and that comparative studies be undertaken across different social media platforms and product categories to strengthen the generalizability of findings.

X. CONCLUSION

This study set out to examine, on a conceptual and literature-based footing, the impact of AI-driven social media advertising on consumer buying behavior, with particular attention to personalization, predictive targeting, trust, and impulse purchasing. The review of literature confirms that AI-driven personalization and predictive analytics play a substantial role in shaping consumer perceptions and purchase intentions, while also revealing that these same mechanisms can trigger skepticism and resistance when consumer trust is low or privacy concerns are high. Trust emerges as the pivotal factor determining whether AI-driven advertising translates into positive purchase outcomes or consumer disengagement. The study area of Salem, Tamil Nadu, offers a relevant and under-researched context for extending this conceptual understanding into empirical investigation. By consolidating fragmented literature into an integrated conceptual framework centered on personalization, trust, engagement, and privacy, this study lays the groundwork for future empirical research and offers practical direction for marketers seeking to design AI-driven advertising strategies that are both effective and ethically responsible.

REFERENCES

[1] Ruturaj Patil1,* Shivashankar, et al (2024). The role of ai-driven social media marketing in shaping consumer purchasing behaviour: an empirical analysis of personalization, predictive analytics, and engagement, *ITM Web First International Conference on Artificial Intelligence: An Emerging Technology in Management*, Volume 68, Pp 1-6.

[2] S. O. Babatunde, O. A. Odejide, T. E.Edunjobi, and D. O. Ogundipe, (2024), The role of Ai in marketing personalization: A Theoretical Exploration of Consumer Engagement strategies," *International Journal of Management & Entrepreneurship Research*, vol. 6, no. 3, Pp. 936–949,

[3] K. Millagala, "Navigating the confluence of artificial intelligence and social media marketing," *International Journal of Research Publications*, vol. 133, no. 1, 2023.

[4] Davenport, T. H., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*, 48(1), Pp24–42.

[5] Huang, M. H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing, *Journal of the Academy of Marketing Science*, 49(1), Pp30–50.

[6] Puntoni, S., Reczek, R. W., Giesler, M., & Botti, S. (2021). Consumers and artificial intelligence: An experiential perspective, *Journal of Marketing*, 85(1), Pp131–151.

[7] Dwivedi, Y. K., Hughes, L., Ismagilova, E., et al. (2021). Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. International Journal of Information Management, 57, 101994.

[8] Martin, K. D., & Murphy, P. E. (2017). The role of data privacy in marketing. Journal of the Academy of Marketing Science, 45(2), Pp135–155.

[9] Bleier, A., & Eisenbeiss, M. (2015). Personalized online advertising effectiveness: The interplay of what, when, and where. Marketing Science, 34(5), Pp 669–688.

[10] 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, *Journal of Retailing*, 91(1), Pp34–49.