

AI-Driven Hyper-Personalization in Online Retail: A Systematic Review of Consumer Ethical and Behavioral Responses

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1. Introduction and Research Gap

Artificial Intelligence (AI) has revolutionized digital marketing and online retail by enabling hyper-personalization that tailors products, services, and content to individual consumers with unprecedented granularity. Through machine learning (ML), natural language processing (NLP), and big data analytics, AI technologies can actually predict consumer behaviors and deliver highly individualized experiences, enhancing engagement, satisfaction, and conversion rates (Aggarwal et al., 2024; Bhadange et al., 2025; Raji et al., 2024). Hyper-personalization allows businesses to anticipate consumer needs, automate campaign management, adapt content in real time and foster stronger consumer–brand relationships in the digital marketplace.

While prior studies have advanced understanding of the benefits and risks of hyper-personalization, several gaps persist. In particular, little is known about how individual-level factors such as digital literacy and tech-savviness could moderate consumer perceptions, ethical evaluations, and behavioral responses. This gap is significant because consumers' abilities to understand, navigate, and critically evaluate AI-driven personalization vary widely, influencing both their enthusiasm and skepticism. Some consumers perceive hyper-personalized marketing as useful and value-enhancing, whereas others view it as intrusive or manipulative, depending on their level of digital competence (Mahmood et al., 2021; Biagini, 2024).

Addressing this gap is crucial for both scholars and practitioners. From an academic perspective, a systematic mapping of the behavioral and ethical dynamics surrounding AI-driven hyper-personalization can enrich theoretical debates in digital marketing, consumer ethics, and human–AI interaction. From a practical standpoint, understanding these dynamics can inform responsible AI deployment strategies that enhance personalization effectiveness while maintaining consumer trust and respecting ethical boundaries.

2. Methodology

The study adopts a Systematic Literature Review (SLR) methodology to synthesize existing empirical and conceptual research on consumer ethical and behavioral responses to AI-driven hyper-personalization in online retail. The review follows the PRISMA guidelines, encompassing identification, screening, eligibility, and inclusion stages. The literature search covers publications from 2015 to 2025, using databases such as Scopus, Web of Science, and Google Scholar.

Inclusion criteria focus on peer-reviewed articles that include key terms such as: AI hyper-personalization, ethical implications, digital marketing, consumer trust, privacy, and digital literacy.

3. Findings from the Literature

3.1 Behavioral Responses to Hyper-Personalization

AI-powered hyper-personalization significantly impacts consumer engagement, loyalty, and purchasing behavior. By leveraging predictive analytics, retailers deliver recommendations and content tailored to individual preferences, increasing relevance and efficiency (Aggarwal et al., 2024; Bhadange et al., 2025; Gao & Liu, 2022). Empirical studies reveal that hyper-personalization enhances customer satisfaction, perceived relevance, and purchase intention. It also supports continuous engagement through dynamic adaptation of marketing content based on real-time data.

Moreover, consumers who are more tech-savvy and digitally literate navigate AI systems more comfortably, appreciating their efficiency and relevance (Mahmood et al., 2021; Yaseen et al., 2025). They are less likely to perceive personalization as intrusive and more likely to experience seamless interactions with digital platforms (Sodiya et al., 2024).

3.2 Ethical Concerns and Consumer Trust

Despite its advantages, hyper-personalization introduces significant ethical challenges. Key issues include privacy risks, algorithmic bias, filter bubbles, and consumer manipulation (Islam et al., 2024). Hyper-personalization depends on vast consumer datasets, often collected with limited transparency regarding consent and usage (Wilson et al., 2024). This can lead to privacy violations, undermining consumer trust (Babadoğan, 2024). Algorithmic bias may perpetuate discrimination or exclusion, while filter bubbles can limit consumer exposure to diverse options, constraining autonomy (Babadoğan, 2024). Ethical concerns are categorized into algorithmic-level issues (bias), and societal-level impacts (exclusion).

Trust emerges as a critical mediating variable: consumers willingness to engage with AI-driven personalization depends on whether they perceive AI technology as transparent, fair, and privacy-respecting. Without trust, even technically efficient platforms may face consumer resistance (Durmuş Şenyapar, 2024; Potwora et al., 2024).

3.3 Moderating Role of Digital Literacy and Tech-Savviness

The literature emphasizes the importance of digital literacy and technological competence as moderators shaping consumer responses to hyper-personalization. High digital literacy correlates with greater comprehension of personalization mechanisms and more favorable evaluations of AI systems (Mahmood et al., 2021; Yaseen et al., 2025). Conversely, consumers

with limited digital skills may misunderstand or mistrust algorithmic processes, perceiving hyper-personalization as invasive.

Similarly, tech-savvy consumers are more adept at using AI-driven tools, such as virtual assistants and recommendation engines, contributing to a smoother experience (Sodiya et al., 2024). This suggests that personalization strategies must be calibrated to accommodate different levels of consumer digital competence to maintain trust and engagement across segments.

4. Conceptual Framework

Based on the initial steps of the SLR, a dual-path conceptual framework is proposed. On one path, AI-driven hyper-personalization influences consumer behavior through mechanisms of relevance, convenience, and engagement, leading to increased satisfaction, trust, and loyalty. On the other path, it triggers ethical evaluations, including privacy concerns, perceived risk, and fairness judgments. These ethical perceptions can either mediate or moderate behavioral outcomes, potentially reducing engagement if negative. Crucially, digital literacy and tech-savviness could act as moderators on both paths, amplifying positive effects when high, and exacerbating skepticism or resistance when low.

This integrative framework offers a structured understanding of how technological, ethical, and individual factors interact to shape consumer responses to hyper-personalization in online retail.

5. Expected Contributions and Implications

Building on the preliminary steps of the SLR, several key contributions could be anticipated: First, it could consolidate fragmented research on the behavioral and ethical dynamics of AI-driven hyper-personalization, offering theoretical clarity on how these dimensions interact. Second, it highlights the moderating role of digital literacy, a factor often overlooked in personalization research. Third, it proposes a conceptual framework that can guide both academic inquiry and managerial practice.

For practitioners, the findings underscore the importance of transparent data practices, consumer education, and the responsible deployment of personalization technologies. Marketers should design AI systems that respect consumer privacy and autonomy while enhancing engagement. The study will also shed light on emerging regulatory and ethical considerations, helping policymakers and organizations to understand how consumer capabilities shape perceptions of AI-driven personalization, and how ethical safeguards can be embedded into design and implementation processes.

6. Conclusion and Next Steps

This research-in-progress highlights the dual promise and risk of AI-driven hyper-personalization in online retail. While AI technologies enable unprecedented levels of customization and engagement, they simultaneously raise ethical concerns that shape consumer responses in complex ways. Preliminary findings indicate a rich, complex and multidimensional landscape

where behavioral benefits and ethical risks are interconnected and mediated by consumer characteristics. This dynamic that will shape the future of AI personalization strategies.

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