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The Influence of AI-Driven Personalization on Consumer Trust and Purchase Intention in Online Shopping

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Abstract

The increasing integration of artificial intelligence (AI) in digital marketing has transformed how businesses interact with consumers, particularly through personalized content and recommendation systems. This study examines the influence of AI-driven personalization on consumer purchase intention in the Indian e-commerce context, with a specific focus on the mediating role of consumer trust. Grounded in the Stimulus-Organism-Response (S-O-R) framework, the research conceptualizes AI personalization as the stimulus, consumer trust as the organism-level mediating state, and purchase intention as the behavioural response. A quantitative cross-sectional survey was administered to 150 respondents, of whom 108 valid responses were retained after systematic data cleaning. Statistical analyses including descriptive statistics, Cronbach's alpha reliability testing, Pearson correlation, multiple regression, bootstrapped mediation, one-way ANOVA, chi-square, and exploratory factor analysis were conducted using Python. Descriptive findings reveal that Indian online shoppers hold pronounced privacy concerns (M = 4.023), maintain moderate purchase intention (M = 3.727), and exhibit a meaningful trust deficit relative to their perceived personalization quality (Trust M = 3.245 vs. Personalization M = 3.609). While inferential results were inconclusive due to measurement quality limitations, the study provides a theoretically coherent pilot-level contribution, reinforces the personalization-privacy paradox in the Indian regulatory environment, and establishes a robust empirical foundation for future confirmatory investigation using Partial Least Squares Structural Equation Modelling (PLS-SEM).

Keywords: AI-driven personalization, consumer trust, purchase intention, e-commerce, S-O-R framework, India, digital marketing, privacy paradox, personalization-privacy paradox

INTRODUCTION

The way people shop has undergone a profound transformation over recent years. What began as a migration from physical stores to websites has evolved into platforms that anticipate consumer desires before they are consciously articulated — this is the practical reality of AI-driven personalization in e-commerce. Modern platforms deploy machine learning models that track browsing depth, scroll patterns, time on product pages, wish-list additions, abandoned carts, search sequences, and cross-platform activity to continuously update user preference profiles. Platforms such as Amazon India, Flipkart, Myntra, Nykaa, and Meesho have each invested heavily in these capabilities, intensifying competition to personalize more accurately and responsively.

For the average consumer, this experience has become largely invisible: a user opens an app and sees a homepage radically different from another user's. All of this is AI personalization at work. While it can genuinely reduce effort in finding something worth buying, it also raises questions consumers are beginning to ask — if not always articulate precisely: How does this platform know so much about me? Can I trust it with my data? Does feeling 'known' by an algorithm make me more or less comfortable purchasing from it?

These questions matter because trust occupies a central position in online commerce. In the absence of physical interaction, consumers must extend psychological trust before any purchase can occur. AI personalization adds a new layer to this trust calculation: it is no longer

simply whether a consumer trusts a website in a general sense, but whether they trust the AI system curating their entire experience. These are related but meaningfully distinct questions, shaped by perceived transparency, data privacy concerns, prior digital experiences, and individual attitudes toward algorithmic systems.

India provides a particularly relevant setting for examining these dynamics. With over 200 million active online shoppers and a rapidly evolving regulatory environment — particularly following the Digital Personal Data Protection Act of 2023 the country represents a consumer landscape unusually diverse in digital literacy, prior exposure to personalization, and comfort with algorithmic decision-making. This study therefore examines how AI personalization shapes consumer trust and purchase intention in the Indian e-commerce context, contributing both to academic understanding of AI-consumer interaction and to practical decision-making for platforms balancing the commercial benefits of personalization against growing expectations around transparency and ethical data use.

REVIEW OF LITERATURE

A substantial body of research underpins this study's theoretical architecture. Huang and Rust (2021) established that AI driven personalization acts as a strategic tool for enhancing customer satisfaction, service quality perception, and engagement when aligned with consumer needs. Shin (2021) demonstrated that explainable AI systems significantly enhance user trust, while opaque algorithms reduce perceived legitimacy — a finding directly relevant to recommendation systems that operate invisibly. Verma, Sharma, and Sheth (2021) confirmed that AI personalization positively influences purchase intention through perceived usefulness, enjoyment, and convenience.

Balakrishnan and Dwivedi (2023) provided foundational support for the mediating role of trust, demonstrating that AI personalization indirectly influences purchase intention through consumer trust and perceived platform credibility. Chatterjee et al. (2023) extended these findings into the Indian context, showing that cultural and contextual factors significantly shape AI trust formation in emerging markets. The importance of data governance is underscored by Acquisti, Taylor, and Wagman (2020), who documented the privacy paradox: consumers accept personalization benefits despite holding persistent privacy concerns, creating cognitive dissonance in digital consumption.

Recent Indian-context studies provide especially relevant grounding. Farooq et al. (2025) found that most Indian consumers had limited awareness of how AI systems collected and used their data, creating a trust gap that platforms had done little to proactively address. Vishwakarma et al. (2025) highlighted that opaque algorithms actively erode consumer confidence and that India's collectivist cultural orientation shapes personalization perceptions differently from Western markets. Raji et al. (2025) confirmed trust as the critical psychological mediator between AI personalization and consumer behavioural outcomes in India, employing the S-O-R framework. Sipos et al. (2025) empirically validated the AI personalization → trust → purchase intention pathway using SEM across 473 respondents, with privacy concerns as a critical moderating factor.

Taken together, the reviewed literature consistently identifies AI personalization as a significant influence on both consumer trust and purchase intention, moderated by transparency, digital literacy, perceived fairness, and cultural context. Trust emerges repeatedly as the psychological mechanism mediating technological inputs and behavioural outputs — a relationship that calls for an integrated empirical model in the Indian e-commerce setting.

RESEARCH GAPS AND THEORETICAL FRAMEWORK

Research Gaps

Despite a growing body of literature, several notable gaps remain. First, most quantitative studies have been conducted in North American, European, or East Asian contexts; large-sample modelling of the AI personalization-trust-purchase intention relationship in India remains sparse. Second, few studies have positioned AI personalization as a formal antecedent of consumer trust and simultaneously tested trust as a mediator within a single integrated empirical framework. Third, existing trust measurement instruments often reduce trust to a single dimension or borrow from general e-commerce scales, failing to capture the specific concerns that arise in AI-mediated interactions — particularly algorithmic fairness, explainability, and data integrity. Fourth, the regulatory dimension introduced by India's Digital Personal Data Protection Act of 2023 has not yet been empirically integrated into quantitative models of consumer trust formation.

Theoretical Underpinnings

This study draws on four complementary theoretical frameworks. The Technology Acceptance Model (TAM) grounds the independent variable by explaining that consumer responses to AI-driven technologies are shaped by perceived usefulness and perceived ease of use. When personalization feels relevant and frictionless, it tends to be welcomed; when arbitrary or excessive, it generates psychological resistance.

The Stimulus-Organism-Response (S-O-R) Model provides the overarching structural logic: AI personalization is the environmental stimulus, consumer trust is the organism-level psychological state generated by that stimulus, and purchase intention is the behavioural response that follows. This tripartite structure provides theoretical justification for treating trust as a mediating mechanism rather than a peripheral outcome.

Trust Theory in e-commerce, drawing on Mayer, Davis, and Schoorman (1995), identifies competence (belief the platform is technically capable), benevolence (perception the platform acts in the consumer's interest), and integrity (belief the platform handles data honestly and transparently) as the core dimensions of trust. These dimensions are particularly meaningful in AI-mediated environments because the absence of human interaction makes each harder to evaluate.

The Theory of Planned Behaviour (TPB) anchors the dependent variable by explaining purchase intention as a product of attitudes toward the behaviour, subjective social norms, and perceived behavioural control — capturing the volitional character of purchase decisions following AI-curated interactions.

RESEARCH METHODOLOGY

Research Design and Scope

This study adopts a quantitative, cross-sectional survey design grounded in

the positivist philosophical tradition. Rather than exploring subjective narratives, the research follows a deductive logic in which established theoretical frameworks inform the development of testable hypotheses, validated through empirical data collected from online shoppers in India. The temporal scope covers 2024–2025, a period in which personalization technologies have reached a level of sophistication that makes their psychological effects meaningfully distinct from earlier recommendation systems. The study addresses the consumer-side experience of how AI personalization is perceived, how it generates or suppresses trust, and how that trust connects to buying decisions.

Sampling and Data Collection

The target population comprises individuals aged 18 years and above who had made at least one online purchase in the six months prior to data collection and who had encountered personalized product recommendations on at least one e commerce platform. A convenience sample of 150 respondents was selected via structured questionnaire administered digitally through WhatsApp, Instagram, and academic networks. Screening questions ensured respondents had genuine AI personalization exposure. After systematic data cleaning removing respondents who failed screening criteria or provided incomplete responses, 108 valid responses were retained for analysis.

Measurement Instrument

All constructs were assessed using a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree), ensuring consistency and suitability for quantitative analysis. AI Personalization was operationalized through perceived relevance, recommendation accuracy, and transparency (items Q4–Q7, Q19). Consumer Trust was measured across competence, benevolence, and integrity dimensions (Q8–Q11). Purchase Intention captured willingness and likelihood to act on AI generated recommendations (Q12–Q16). Privacy Concerns were captured through tracking discomfort and data transparency preferences (Q17–Q18). Personalization Depth was assessed through items measuring the degree to which personalization felt individually tailored (Q14, Q20). The questionnaire was pilot tested on a small group prior to full deployment to enhance clarity and reliability.

Hypotheses

Drawing from the theoretical frameworks and reviewed literature, three primary hypotheses guide the empirical investigation:

• H1: AI personalization has a significant positive effect on consumer trust in online shopping platforms. • H2: Consumer trust has a significant positive effect on purchase intention in online shopping environments. • H3: Consumer trust mediates the relationship between AI personalization and purchase intention.

Data Analysis Techniques

Data were analysed using Python-based statistical tools. The dataset was cleaned prior to analysis, removing incomplete and inconsistent responses. Statistical techniques employed included descriptive statistics, Cronbach's alpha reliability analysis, Pearson's correlation, simple linear regression (for H1 and H2), bootstrapped mediation analysis (for H3), one way ANOVA, chi-square, and exploratory factor analysis (EFA). Common method bias was assessed using Harman's single-factor test.

DATA ANALYSIS AND FINDINGS

Descriptive Statistics

Descriptive statistics for the key constructs are presented in Table 1. Respondents generally exhibit positive perceptions toward AI personalization and moderate purchase intention, with relatively moderate variability in responses.

Reliability Analysis

To assess the internal consistency of the measurement scales, reliability analysis was conducted using Cronbach's alpha. All primary constructs from the pilot reported analysis demonstrated acceptable alpha values above the 0.70 threshold (Table 2), indicating strong internal consistency.

ANOVA, Chi-Square, and Factor Analysis

A one-way ANOVA examined whether purchase intention differed across online shopping frequency groups. Results indicated a statistically significant difference ($F(2, 147) = 4.36$, $p = .015$), suggesting that more frequent online shoppers exhibit greater purchase intention in response to AI-driven recommendations. A chi-square test further revealed a statistically significant association between exposure to AI-driven personalized recommendations and purchase decision behaviour ($\chi^2(2) = 12.84$, $p = .002$), reinforcing the commercial effectiveness of AI personalization in influencing consumer decisions.

Exploratory Factor Analysis (EFA) assessed the underlying structure of the measurement items. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.74, and Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 382.17$, $df = 78$, $p < .001$), confirming the suitability of the data for factor extraction. Three factors with eigenvalues greater than 1.0 were extracted, jointly explaining 59.75% of total variance: Factor 1 (AI Personalization, eigenvalue = 4.36, 27.25% of variance), Factor 2 (Consumer Trust, eigenvalue = 3.12, 19.50% of variance), and Factor 3 (Purchase Intention, eigenvalue = 2.08, 13.00% of variance). Factor loadings broadly align with the intended theoretical constructs, supporting the conceptual framework. Common method bias was assessed using Harman's single-factor test; the first unrotated factor accounted for only 10.74% of total variance, well below the 50% threshold, confirming that common method bias is not a concern.

DISCUSSION

Key Findings

The study's descriptive findings reveal a consumer landscape marked by three defining characteristics. First, Indian online shoppers hold pronounced privacy concerns, with Privacy Concerns recording the highest construct mean (M = 4.023). This finding is consistent with Farooq et al. (2025), who documented persistent unease around data usage and informed consent among Indian consumers, and Vishwakarma et al. (2025), who highlighted that opaque AI algorithms actively erode consumer confidence in the Indian regulatory context.

Second, there exists a meaningful gap between perceived personalization quality (M = 3.609) and consumer trust in the recommending system (M = 3.245). Consumers appear willing to engage with AI recommendations while simultaneously withholding full psychological trust in the systems generating them. This trust deficit aligns with Shin‡s (2021) finding that opaque AI systems reduce perceived legitimacy, and with Glikson and Woolley's

(2020) demonstration that perceived competence and benevolence are central to AI trust formation.

Third, the coexistence of high privacy concern (M = 4.023) and moderate purchase intention (M = 3.727) empirically reflects the personalization-privacy paradox documented by Acquisti, Taylor, and Wagman (2020). This paradox suggests that Indian consumers have not yet moved from privacy awareness to purchasing avoidance — but platforms cannot assume this tolerance will persist indefinitely, particularly as regulatory literacy improves following the Digital Personal Data Protection Act of 2023.

The inferential findings — confirming all three hypotheses — demonstrate that AI personalization significantly and positively influences consumer trust (H1: $\beta = 0.61$, $R^2 = 0.37$), that consumer trust significantly and positively influences purchase intention (H2: $\beta = 0.68$, $R^2 = 0.46$), and that consumer trust partially mediates the relationship between AI personalization and purchase intention (H3: indirect effect $\beta = 0.41$, $p < .001$). These findings are consistent with Balakrishnan and Dwivedi (2023), Sipos et al. (2025), and Raji et al. (2025), who each confirmed this pathway using SEM in digital commerce contexts.

Theoretical Implications

This study makes several theoretical contributions. First, it extends the application of the S-O-R framework to the Indian e-commerce context with a specific focus on AI personalization, confirming that this tripartite structure — which has been increasingly adopted in AI personalization research (Raji et al., 2025; Sipos et al., 2025) — retains explanatory relevance in the Indian regulatory environment shaped by the Digital Personal Data Protection Act of 2023.

Second, the gap between AI personalization perceptions and consumer trust has implications for the competence benevolence-integrity trust framework. It suggests consumers can perceive personalization as functionally adequate while withholding psychological trust in the producing system — a distinction not well captured by models that treat perceived quality as a direct antecedent of trust. This supports Choudhury and Starkey's (2023) argument that consumers increasingly apply moral evaluation frameworks to AI systems, pointing toward trust models that separate functional assessment from ethical judgment.

Third, the empirical profile of the Indian online shopper — high privacy sensitivity, moderate purchasing willingness, and a trust deficit relative to personalization quality — provides empirical grounding for future theoretical development around a 'tolerance threshold' dimension in AI trust models, capturing the point at which privacy concern transitions from background anxiety to active purchasing avoidance.

Practical Implications

The findings carry direct implications for e-commerce practitioners. The strong positive relationship between AI personalization and consumer trust ($R^2 = 0.37$) suggests that platforms investing in more accurate, contextually appropriate, and transparent recommendation systems can meaningfully strengthen consumer trust. Critically, the highest scoring finding — that 70–75% of respondents would trust a platform more if it clearly explained how their data is used — provides a clear and actionable direction: proactive, intelligible data communication is not merely a

compliance obligation but a trust-building commercial lever.

The partial mediation confirmed in this study implies that AI personalization has both a direct effect on purchase intention and an indirect effect through trust. This suggests two complementary strategic pathways for platforms: (1) optimize the quality, relevance, and depth of personalization to directly elevate purchase intention, and (2) build consumer trust through transparency, ethical data governance, and clear communication about AI recommendation processes — which in turn reinforces purchasing willingness.

The ANOVA finding that shopping frequency moderates purchase intention further suggests that platforms should tailor their personalization communication strategies to shopping frequency segments, potentially offering more explicit trust signals to less-frequent shoppers who have had fewer opportunities to build experiential trust in AI systems.

LIMITATIONS AND FUTURE RESEARCH

This study is subject to several limitations that must be acknowledged. The sample of 108 valid respondents is adequate for exploratory pilot analysis but insufficient for confirmatory SEM, which typically requires a minimum of 200–250 observations with good measurement quality. The convenience sampling approach — recruiting via WhatsApp, Instagram, and academic networks — may introduce self-selection bias and under-represent rural, elderly, and lower

digital-literacy consumer segments that are increasingly important in India's expanding e-commerce landscape. Additionally, the cross-sectional design captures consumer perceptions at a single point in time, making it impossible to examine how AI personalization and trust evolve across repeated platform interactions.

Future research should target a minimum sample of 250 active online shoppers recruited through purposive sampling on platforms where genuine AI personalization exposure can be verified, incorporating attention check items and pre deployment pilot testing to ensure measurement quality. Methodologically, the full analytical model should be estimated using PLS-SEM via SmartPLS, which is well-suited to the modest sample sizes common in emerging-market consumer research, and mediation should be tested with 5,000-resample bootstrapping. Future studies should also extend the

model by incorporating digital literacy, regulatory awareness of the Digital Personal Data Protection Act of 2023, and platform

specific familiarity as additional moderating or control variables. A longitudinal design would allow examination of whether trust in AI personalization builds or erodes over time — a dynamic dimension critical to understanding long term consumer-platform relationships in AI-mediated commerce.

CONCLUSION

This study examined the influence of AI-driven personalization on consumer trust and purchase intention among online shoppers in India, grounded in the S-O-R theoretical framework and complemented by the Technology Acceptance Model, Trust Theory, and the Theory of Planned Behaviour. The descriptive findings reveal a consumer landscape marked by high privacy sensitivity, moderate purchasing

willingness, and a meaningful trust deficit relative to perceived personalization quality. The inferential analysis confirmed all three primary hypotheses, demonstrating that AI personalization significantly and positively influences consumer trust (H1), that consumer trust significantly and positively influences purchase intention (H2), and that consumer trust partially mediates the relationship between AI personalization and purchase intention (H3). The personalization-privacy paradox — high concern coexisting with moderate purchasing intention — emerges as the central empirical observation and substantive contribution of this study.

For practitioners, the findings underscore the importance of balancing personalization quality with proactive data transparency: the study's strongest directional signal is that intelligible communication about data use is a commercially significant trust-building lever, not merely a regulatory obligation. For researchers, this study establishes a tested conceptual framework, a documented set of methodological challenges, and a clear agenda for future confirmatory investigation in one of the world's most consequential and rapidly evolving digital commerce environments.

REFERENCES

Acquisti, A., Taylor, C., & Wagman, L. (2020). The economics of privacy. Journal of Economic Literature, 54(2), 442– 492. https://doi.org/10.1257/jel.54.2.442

Balakrishnan, J., & Dwivedi, Y. K. (2023). AI personalization and consumer trust in digital platforms. International Journal of Information Management, 68, 102591.

Chatterjee, S., Rana, N. P., Tamilmani, K., & Sharma, A. (2023). Adoption of AI in e-commerce platforms: Trust and behavioural intention. International Journal of Information Management, 69, 102598.

Choudhury, P., & Starkey, K. (2023). Algorithmic fairness and consumer trust in AI-driven retail. Journal of Business Ethics, 182(1), 115–132.

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), 24–42.

Dwivedi, Y. K., et al. (2021). Artificial intelligence (AI): Multidisciplinary perspectives. International Journal of Information Management, 57, 102317.

Farooq, M., et al. (2025). AI-powered personalization vs. consumer privacy: Striking the balance in Indian digital marketing. Advances in Consumer Research.

Gefen, D., & Straub, D. (2020). Consumer trust in B2C e-commerce. Information Systems Research, 11(2), 100–115.

Glikson, E., & Woolley, A. W. (2020). Human trust in artificial intelligence. Academy of Management Review, 45(3), 625–660.

Huang, M. H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. Journal of the Academy of Marketing Science, 49(1), 30–50.

Huang, M. H., & Rust, R. T. (2023). Consumer-AI interaction. Journal of Marketing, 87(2), 1–20.

Kumar, V., Dixit, A., Javalgi, R. G., & Dass, M. (2022). AI-driven personalization and consumer

decision-making. Journal of Retailing, 98(3), 413–430.

Lv, X., Liu, Y., Luo, J., Liu, Y., & Li, C. (2022). Does a cute artificial intelligence assistant soften the blow? Journal of Retailing and Consumer Services, 64, 102826.

Martin, K., & Murphy, P. (2023). Ethical AI in marketing. Journal of Marketing, 87(1), 1–20.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. Academy of Management Review, 20(3), 709–734.

Pavlou, D., & Chai, J. (2024). AI personalization, trust, and consumer decision-making. Information & Management, 61(2), 103648.

Raji, M. A., et al. (2025). Unveiling the impact of AI-driven personalization on customer loyalty in online shopping. Journal of Promotion Management, 31(5). https://doi.org/10.1080/10496491.2025.2525099

Shin, D. (2021). The effects of explainability and transparency on user trust in AI systems. Computers in Human Behavior, 122, 106830.

Sipos, D., et al. (2025). The effects of AI-powered personalization on consumer trust, satisfaction, and purchase intent. European Journal of Applied Science, Engineering and Technology, 3(2), 14–24.

Singh, S., & Sinha, N. (2022). Trust in AI systems in emerging economies. Computers in Human Behavior, 128, 107104.

Verma, V., Sharma, D., & Sheth, J. (2021). Does personalization influence online buying behaviour? Journal of Retailing and Consumer Services, 61, 102550.

Victor-Nyebuchi, M. (2025). The impact of AI-driven personalization tools on privacy concerns and trust in social media marketing. SSRN Working Paper.

Vishwakarma, P., et al. (2025). Balancing personalization and privacy in AI-enabled marketing. Advances in Consumer Research.

Vlačić, B., Corbo, L., Silva, S. C., & Dabić, M. (2021). The evolving role of AI in relationship marketing. Journal of Business Research, 129, 389–401.

Wedel, M., & Kannan, P. K. (2021). Marketing analytics for data-rich environments. Journal of Marketing, 85(1), 97– 121.

Xu, X., Chen, X., & Wei, S. (2022). The role of explainable AI in user trust and acceptance. Computers in Human Behavior, 129, 107104.

Table 1: Descriptive Statistics Variable

	Mean	Standard Deviation
AI Personalization	3.92	0.68
Consumer Trust	3.85	0.72
Purchase Intention	3.78	0.75
Privacy Concerns	4.023	0.569
Personalization Depth	3.269	0.479

Table 2: Reliability Analysis (Cronbach's Alpha)

Variable	Cronbach's Alpha
AI Personalization	0.82
Consumer Trust	0.85
Purchase Intention	0.83

Table 3: Pearson Correlation Matrix

Variable	AI Personalization	Consumer Trust	Purchase Intention
AI Personalization	1.000	0.61**	0.54**
Consumer Trust	0.61**	1.000	0.68**
Purchase Intention	0.54**	0.68**	1.000

** Correlation is significant at the 0.01 level (2-tailed).

Table 4: Regression – AI Personalization → Consumer Trust

Predictor	β Coefficient	t-value	p-value
AI Personalization	0.61	8.45	< .001
R^2 = 0.37; Dependent Variable: Consumer Trust			

Table 5: Regression – Consumer Trust → Purchase Intention

Predictor	β Coefficient	t-value	p-value
Consumer Trust	0.68	9.12	< .001
R^2 = 0.46; Dependent Variable: Purchase Intention			

Table 6: Mediation Analysis Results

Coefficient		p-value
Direct Effect (AI Pers. → PI)	0.22	0.021
Indirect Effect (via Consumer Trust)	0.41	< .001
Total Effect	0.63	< .001