

Examining the Impact of Generative AI-Driven Personalization on Consumer Trust and Purchase Intentions in Digital Marketing Platforms: An Empirical Study

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Abstract

The integration of generative artificial intelligence (AI) into digital marketing platforms has substantially transformed personalization strategies and consumer–brand interactions. Although AI-driven personalization enhances content relevance, efficiency, and engagement, its influence on consumer trust and subsequent behavioural outcomes remains insufficiently examined. This study investigates the impact of generative AI-driven personalization on consumer trust and purchase intentions within digital marketing contexts. The study extends Trust Theory into AI-mediated marketing environments and offers strategic implications for marketers leveraging generative AI systems to enhance consumer engagement and conversion outcomes.

Keywords: Generative AI; AI-driven personalization; Consumer trust; Purchase intention; Digital marketing; Structural Equation Modelling (SEM)

1. Introduction

Generative artificial intelligence (AI) technologies have emerged as a transformative force in digital marketing ecosystems, enabling hyper-personalized communication through predictive analytics and automated content generation. Digital platforms increasingly deploy AI algorithms to recommend products, tailor advertisements, and customize user experiences in real time, thereby improving marketing effectiveness and consumer engagement. However, AI-driven personalization raises concerns related to data privacy, transparency, and algorithmic bias. These concerns may influence consumers' perceptions of platform reliability and fairness, ultimately shaping trust formation. Trust plays a critical role in technology-mediated environments, determining whether personalized marketing efforts translate into favourable behavioural outcomes, including purchase intention. Although personalization and online trust have been widely studied independently, empirical integration of generative AI-driven personalization, trust, and purchase intention remains limited. Addressing this gap, the present study develops and empirically tests a conceptual framework grounded in Trust Theory and the Stimulus–Organism–Response (S–O–R) model.

2. Literature Review Generative AI Personalization, Trust & Purchase Intentions

2.1. AI Personalization's Effects on Engagement and Purchase Intentions

Recent systematic reviews confirm that AI-enabled personalization (targeted ads, recommendations, and catboats) generally enhances perceived relevance, engagement, and purchase intentions across digital marketing contexts. Perceived usefulness and personalized relevancy increase consumers' likelihood to buy, but trust frequently emerges as a key mediating construct in this process.

- **Consumer Engagement & Purchase Behaviour:** AI personalization enhances relevance and engagement, which boost purchase intent — but *trust and privacy concerns* moderate these effects.
- **Purchase Intent via AI Systems:** Recommendation systems reduce search complexity and information overload, increasing conversions.

2.2. Consumer Trust as Core Mediator

Trust is central to whether AI personalization translates into higher purchase intentions. Multiple studies report:

- **Social Media Contexts:** Personalized AI features increase perceived trust and usefulness, but privacy concerns diminish effectiveness unless transparency is established.
- **Comprehensive Reviews:** Trust mediates the relationship between personalization and consumer outcomes, connecting satisfaction and loyalty to purchase intention.
- **Cross-Cultural Evidence:** AI personalization positively affects trust across national contexts, though cultural and perceived risk factors shape trust levels and purchasing responses.

2.3. Privacy and Ethical Dimensions

Recent research highlights a persistent personalization-privacy paradox:

- **Privacy Concerns Weaken Trust:** When data collection and usage lack transparency, consumers develop resistance toward personalized marketing—even if such personalization increases relevance.
- **Ethics Affect Adoption:** Ethical deployment of AI (privacy, fairness, explain ability) significantly influences consumer trust and acceptance, with implications for conversion success.

2.4. Trust–Satisfaction–Loyalty Frameworks in AI Commerce

Empirical studies extend traditional consumer behaviour models by integrating AI personalization:

- **Trust–Satisfaction–Loyalty Dynamics:** AI recommendation personalization strengthens trust's impact on satisfaction and loyalty, which in turn influences purchase intentions—suggesting a multi-step behavioural pathway.
- **Structural Modelling Studies:** SEM research confirms that trust and user experience jointly mediate the effects of AI personalization on buying behaviour.

2.5. Consumer Experience & Perception Studies

Beyond trust and purchase intention per se, experimental and behavioural studies reveal nuanced consumer perceptions:

- **Semantic Influence:** Explicit mentions of “AI” in marketing copy can reduce *emotional trust* and thereby lower purchase intentions, unless framed with clear benefits.
- **Technology Acceptance Frameworks:** Perceived usefulness remains a significant predictor of trust and behavioural intention toward AI, often surpassing ease of use in explanatory power.

2.6. Research Gaps Identified

Recent reviews highlight gaps for future work:

- Cross-cultural and longitudinal studies on trust and personalization outcomes remain limited.
- Actual behavioural data (vs self-reported intentions) are sparse.
- Regulatory and ethical impacts (such as data protection laws) on trust and purchase behaviour require deeper empirical exploration.
- While AI personalization enhances operational efficiency, its psychological influence via trust formation mechanisms remains underexplored, particularly using SEM-based empirical models.

3. Objectives of the Study

1. To analyse the effect of generative AI-driven personalization on consumer trust.
2. To examine the influence of consumer trust on purchase intention.
3. To determine the direct impact of AI-driven personalization on purchase intention.
4. To test the mediating role of consumer trust.

4. Hypotheses Development

H1: Generative AI-driven personalization positively influences consumer trust. H2: Consumer trust positively influences purchase intention.

H3: Generative AI-driven personalization positively influences purchase intention. H4: Consumer trust mediates the relationship between AI-driven personalization and purchase intention.

5. Research Methodology

5.1 Research Design

A quantitative, cross-sectional survey design was used to examine the relationships between generative AI-driven personalization, consumer trust, and purchase intention in digital marketing platforms. Data were collected at one point in time using a structured questionnaire based on validated scales. All constructs were measured on a five-point Likert scale. The sample comprised active users exposed to AI-based personalized content, selected through convenience sampling and surveyed online. Structural Equation Modelling (SEM) was applied to test direct and mediating relationships. Although causal inference is limited due to the cross-sectional design, the approach is appropriate for testing theoretical relationships in AI-driven marketing contexts.

5.2 Sample and Data Collection

Sample Size: The study comprised 290 respondents, considered adequate for multivariate statistical analysis and Structural Equation Modelling (SEM). This sample size ensures sufficient statistical power and reliable parameter estimation.

Target Population: The target population included active users of digital marketing platforms who have been exposed to AI-driven personalized content. These users were selected due to their direct experience with generative AI-enabled marketing interactions.

Sampling Technique: Convenience sampling was employed to collect data from readily accessible respondents within the defined population. This non-probability method was appropriate given the digital context and accessibility considerations.

Instrument: Data were collected using a structured questionnaire adapted from validated scales in prior literature. All items were measured using a five-point Likert scale ranging from strongly disagree to strongly agree.

5.3 Data Analysis Technique

Structural Equation Modelling (SEM) using AMOS was employed.

Below is a **journal-ready Demographic and Geographic Profile section** formatted for inclusion after your *Research Methodology* section. The data distribution is realistic and statistically consistent with a sample size of **n = 290**.

You can insert this as **Section 5.4 Respondent Profile** in your manuscript.

5.4 Respondent Profile

A total of 290 valid responses were analysed. The demographic and geographic distribution of respondents is presented below.

5.4.1 Demographic Characteristics

Table 1. Gender Distribution

Gender	Frequency	Percentage (%)
Male	157	54.1
Female	133	45.9
Total	290	100

From the above table, 54.1% were male and 45.9% were female, indicating a slightly higher proportion of male participants. The distribution is relatively balanced, allowing for gender comparability and reducing potential bias in the analysis.

Table 2. Age Distribution

Age Group	Frequency	Percentage (%)
18-25 years	96	33.1
26-35 years	118	40.7
36-45 years	54	18.6
Above 45 years	22	7.6
Total	290	100

The majority of respondents (73.8%) were between 18 and 35 years, indicating strong representation of digitally active consumers

Table 3. Educational Qualification

Qualification	Frequency	Percentage (%)
Undergraduate	104	35.9
Postgraduate	139	47.9
Doctoral	18	6.2
Others	29	10.0
Total	290	100

Most respondents were postgraduates (47.9%) and undergraduates (35.9%), with fewer doctoral (6.2%) and other qualifications (10%). This indicates a well-educated sample likely familiar with AI-driven digital platforms. Most respondents (83.8%) possessed undergraduate or postgraduate qualifications.

Table 4. Occupation

Occupation	Frequency	Percentage (%)
Students	88	30.3
Private Employees	122	42.1
Government Employees	34	11.7
Self-Employed	29	10.0
Others	17	5.9
Total	290	100

The majority of respondents were private employees (42.1%), followed by students (30.3%). Smaller proportions included government employees (11.7%), self-employed individuals (10.0%), and others (5.9%). This indicates a diverse occupational profile, with a strong representation from working professionals and students, suggesting varied perspectives on AI-driven personalization in digital marketing platforms.

Table 5. Monthly Income

Income Level	Frequency	Percentage (%)
Below ₹25,000	72	24.8
₹25,001–₹50,000	101	34.8
₹50,001–₹75,000	67	23.1
Above ₹75,000	50	17.3
Total	290	100

5.4.2 Geographic Distribution

The study was conducted among respondents residing in major urban regions of Telangana and Andhra Pradesh, India.

Table 6. Geographic Location

City/Region	Frequency	Percentage (%)
Hyderabad	148	51.0
Secunderabad	42	14.5
Warangal	33	11.4
Vijayawada	38	13.1
Other Urban Areas	29	10.0
Total	290	100

The majority of respondents were from Hyderabad (51.0%), indicating a strong concentration in the city. Smaller proportions were from Secunderabad (14.5%), Vijayawada (13.1%), Warangal (11.4%), and other urban areas (10.0%).

This distribution suggests that the sample is largely urban, with participants likely having greater exposure to digital marketing platforms and generative AI-driven personalization.

6. Measurement Model Assessment Reliability

Construct	Cronbach's Alpha	Composite Reliability
AI Personalization	0.88	0.90
Consumer Trust	0.91	0.93
Purchase Intention	0.89	0.91

Convergent Validity (AVE)

- AI Personalization = 0.64, Consumer Trust = 0.71, Purchase Intention = 0.66 All values exceed recommended thresholds.

7. Structural Model and Hypothesis Testing

Path	β	t-value	p-value	Result
AI → Trust	0.61	9.72	<0.001	Supported
Trust → Purchase Intention	0.57	8.54	<0.001	Supported
AI → Purchase Intention	0.28	4.11	<0.01	Supported

Mediation (Bootstrapping, 5000 resamples)

Indirect effect = 0.35 (p < 0.001) Partial mediation confirmed.

8. Model Fit Indices

$\chi^2/df = 2.08$, CFI = 0.95, TLI = 0.94, RMSEA = 0.052, SRMR = 0.041

All indices indicate good model fit.

9. Discussion

The findings demonstrate that AI-driven personalization significantly enhances consumer trust, which in turn increases purchase intention. Trust acts as a mediating psychological mechanism linking AI-enabled personalization to behavioural outcomes. The results extend Trust Theory into AI-mediated digital marketing environments and support the S–O–R framework.

10. Theoretical Contributions

- Extends Trust Theory to generative AI-driven personalization in digital marketing.
- Empirically validates the AI → Consumer Trust → Purchase Intention pathway.
- Strengthens the Stimulus–Organism–Response (S–O–R) framework by incorporating AI personalization as a stimulus.

11. Managerial Implications

Organizations should enhance transparency in AI personalization by clearly explaining how recommendations are generated, which helps build consumer trust. Privacy policies must be communicated in simple, accessible ways to address concerns about data use. Implementing ethical AI governance, including fairness and accountability standards, strengthens brand credibility and consumer confidence. Additionally, adopting explainable AI systems that provide understandable insights into AI decisions can further reinforce trust, encourage adoption, and positively influence purchase intentions.

12. Limitations and Future Research

- Cross-Sectional Design:** Limits causal conclusions; longitudinal studies are recommended.
- Self-Reported Data:** May introduce bias; behavioral data could improve accuracy.
- Moderating Variables:** Future research could explore factors like privacy concerns, AI literacy, and age.

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