

The Role of AI Agency, Personalization and Consumer Trust in Online Purchase Decisions: An Empirical Study

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Abstract

The rapid integration of Artificial Intelligence (AI) into e-commerce has transformed the way consumers search for information, evaluate alternatives, and make online purchase-decisions. AI-enabled systems increasingly use recommendation engines, predictive analytics, conversational agents, and personalized content to provide consumers with more relevant and convenient shopping experiences. However, the effectiveness of such AI interventions depends not only on personalization but also on consumer's perception of AI agency, transparency, privacy and trust. Research indicates that personalization can influence purchase intentions through perceived relevance and consumer trust, while excessive and insufficiently transparent personalization may raise privacy concerns. The study focuses on how consumers perceive AI system's ability to understand preferences, provide recommendations, anticipate needs, and support purchasing decisions. It further investigates whether personalized recommendations enhance perceived usefulness and relevance and how these perceptions contribute to consumer trust and purchase decision-making. The findings can provide useful implications for e-commerce platforms and digital retailers seeking to design consumer-centric AI applications that improve decision-support and purchasing experience while maintaining consumer confidence. A sample of 233 was collected to find the result of the study. The factors studying the Role of AI Agency, Personalization and Consumer Trust in Online Purchase Decisions are AI Agency, AI Personalization, Consumer Trust in AI and Perceived AI Transparency.

Keywords: Artificial Intelligence, AI agency, Consumer trust, Online purchase decisions, Purchase intention, Personalization

Introduction

Rapidly advancing Artificial Intelligence has completely transformed almost every sector and marketing has been one of them which has got affected profoundly. Personalization driven by Artificial Intelligence is using algorithms for tailored recommendation of products, advertisements and content for individual customer on the basis of their data has become a foundation of modern strategies of marketing. Leveraging massive data, companies are delivering highly relevant and personalized experience that led to better engagement, and have improved online purchase decisions. Rising awareness of Artificial Intelligence personalization, management of privacy and ethical concerns, experience and satisfaction are vital to develop trust among consumers that eventually make influence on online purchase decisions. An important role is played by satisfaction with personalized experience in enhancing trust, but it does not translate purchase behavior directly. Therefore, businesses need to adopt transparent practices prioritising ethical considerations in Artificial Intelligence applications for engaging customers effectively (Nath, 2025). Personalization powered by AI makes a strong impact on customer's buying decisions. They tend to prefer brands offering personalized recommendations, suggestions on products as well as tailored advertisements matching with their requirements and preferences. Businesses are helped with AI to understand customer's behavior through data analysis; it enables them in delivering more relevant experiences as well as enhanced level of satisfaction. However, some consumers are still showing their concern towards data security and privacy. AI-driven personalization does not just improve customer engagement and loyalty but also assist business to increase their sales and develop strong customer

relations in this digital marketplace. Marketers need to balance personalization with ethical practices for maintaining consumer trust (Shabeer & Shobana, 2025).

Personalization driven by AI has appeared as a transformative force in social media marketing that make significant influence on consumer online purchase decisions. It is confirmed that content of personalization improves online purchase decisions as it increases perceived relevance and trust among customers. It is also revealed that personalization driven by AI makes a strong and positive impact on online purchase decisions. Another significant factor is perceived relevance that makes impact on buying intentions, followed by trust in personalized advertisements. However, concerns related to privacy were identified to be making negative influence on consumer online buying decisions, it indicates that excessive personalization might reduce confidence of customers if data usage is perceived as intrusive. It is concluded that while AI-driven personalization improves engagement and buying likelihood, businesses need to balance strategies of personalization with practices of data transparency and ethical implementation of AI (Lakshmi, Sindhu & Stefy, 2026). AI application in digital retail has transformed experience of shopping for customers through personalized suggestions, dynamic pricing and AI-powered customer interaction. Recommendations are made possible through AI makes a strong influence on purchase behavior through customized buying experience. Concerns related to algorithmic bias and data privacy are common issues. It is found that while AI personalization enhanced customer satisfaction as well as sales, automation and intervention must strike a balance for achievement of sustainable success in retail business. Rapidly growing e-commerce has transformed global retail sector, making online shopping has become highly convenient and accessible. However, digital shopping has expanded, so do the challenges to meet customer expectations for personalized and involving experience of shopping. Today's, customers seek more than just transactional shopping journey, demanding curated recommendation, personalized content and interactive experience catering to individual preferences (Jancy & Muthukumarave, 2025). Data-driven personalization has been intensified through rapidly advancing AI in e-commerce; it has raised important questions regarding psychological implications for customers and its role in shaping sustainable and responsible digital practices of business. Perceived specificity and perceived relevance enhance psychological well-being significantly as it reduces cognitive overload and increased perceived value. However, these dimensions of personalization also increase concerns related to privacy, with perceived specificity exerted a notable strong impact. Brand trust moderates this dynamic significantly as it weakens the harmful influence of privacy concerns on psychological well-being (Aydin, 2026).

Literature Review

An environment is provided by e-commerce in which AI-powered personalization featured are used, it enables businesses to personalize customer interactions on the basis of individual preferences and behavior. It is suggested by findings that AI-powered personalization to become successful, it must provide not just convenience but also emotional value resonating customer requirement. E-commerce platforms need to concentrate on offering personalized shopping experience delivering clear benefits like more relevant recommendations and ensure customers feel in control of their data. Usage of transparent data and opt-in privacy policies are important to foster trust and motivate repeat buying (Moodley & Sookhdeo, 2025). In digital marketplace, as AI-powered personalized advertisements has become highly common, understanding its impact on consumer online buying decision is important. Perceived usefulness and perceived relevance reinforce the idea that personalized marketing is highly effective when it delivers content that customer find valuable as well as meaningful. However, it is also revealed that perceived personalization does not enhance perceived trust directly, it suggests that personalization alone is not sufficient in establishment of consumer trust (An & Ngo, 2025). A significant and positive impact is made by AI-powered personalization on consumer online buying intentions in digital retail sector. Shopping experience of customers is enhanced by using advanced AI algorithms and recommendation system, it also enhanced relevance, and impact planned as well as impulsive buying behavior. It is confirmed by the findings that all factors like ease of shopping, personalization and accuracy plays a vital role to shape up the consumer online buying decisions, trust level in AI systems, which indicates that customers value convenience and relevance when communicating with AI-powered retail platforms. Personalization powered by AI is a strong driver of modern transformation of retail. It not just improves customer experience but also contribute significantly to enhance buying decision-making (Rajalakshmi et al. 2026).

In modern e-commerce, Artificial Intelligence has become highly essential, mainly through personalization driven through algorithms customizing product suggestions and content for individual customers. Applications of AI are spreading rapidly, there are very few evidences on how personalization driven by AI make influence on online buying decisions in emerging markets, mainly with regards to psychological process. Attitude of consumers towards Artificial Intelligence makes a significantly positive effect on online purchase decisions. On the other hand, personalization driven by Artificial Intelligence does not impact buying intention significantly. Rather, its influence works indirectly through awareness among consumers. Alone AI-driven personalization is not sufficient in encouraging online buying in emerging market unless customers understand clearly how system of AI operates and value, they are offering (Ekwunife, Nwokoye & Mbamalu, 2026). AI is already a part of technical tools that have completely revolutionized the world of e-commerce and have changed the experience of customers in a new way of personalization. Online shopping experience have shaped up the products and adverts that are presented to users, productions with the help of ML algorithms, anticipatory analytics and recommender engines. The behavior of customer perception, their trust and buying decisions in e-commerce through lens of personalization driven by AI have been addressed as to whether high-level personalization improves trust of customers or erodes it. It is indicated that algorithmic recommendations can improve purchase intentions substantially in the form of personalization by AI, but trust is mediating variable turning algorithmic suggestions in active customers (Singhal et al. 2025). The contemporary environment of marketing, which is shaped by dynamic technical development, positioning AI as one of the main elements that transforms communication between customers and companies. As an essential element of strategies of digital marketing, AI is enabling the identification of target segment of consumers, automated creation of content, and personalized real-time communication. Technologies like AI, AR/VR solutions and advancing analytical model is enabling brands to personalized customer shopping experience, acceleration cycle of production and creating strong emotional relations with customers. A positive impact is made by customer satisfaction on behavioral intentions, while education does not make impact on behavioral intention or customer satisfaction level on digital advertising. The findings of the study make contribution towards improved understanding about how the integrating AI-driven personalization and digital marketing make influence on customer perception as well as loyalty (Ristic, Nikolic & Milovanovic, 2026).

Integrating AI in e-commerce has reshaped the business interaction with their customers. Personalization driven by AI is considered the strongest strategy for rising engagement of customers, loyalty and profitability. One of the key mediators is satisfaction that drives purchase intents, highlights the dual significance of psychological comfort as well as emotional gratification. A significant implication is held by these findings for e-commerce platforms, policymakers and marketers to strive the maximum advantages of AI and respecting consumer privacy (Sipos, 2025). The idea of AI provides the strategy of personalization with a novel side enabling businesses in personalization of their products, experience and messages in a more accurate than ever before. The influence of personalization based on AI on buying intentions of consumers was analysed in context of psychological process performing the establishment of process of decision-making and technical conditions making such personalization possible and practical. A significant and substantial influence in made by AI-based personalization on consumer online purchase decisions. Exposure to the concept of personalization is high, but its impacts are not direct as it is operating mainly through the perceived relevance and satisfaction. High recommendations offered by Artificial Intelligence tools found to be credible, customized and responding to the particulars, would make higher chances of buying (Mallika & Siyad, 2025). Rapidly integrating AI-powered recommendation engines into e-commerce platforms makes transformation on how customers interact with digital content, making buying decisions. Transparent and ethically sound strategies of personalization mitigating perceived instructiveness make substantial enhancement on consumer trust and results of decision-making. Designers of Artificial Intelligence and e-commerce platforms must be striving to attain a balance between persuasive personalization, trustworthiness and transparency (Sharma et al. 2025). Artificial Intelligence in e-commerce is referred to the implementation of AI technologies and methodologies on e-commerce industry. It includes machine learning algorithms, NLP and computer vision to improve numerous facets of digital commerce (Bhavani, 2025).

Objective

1. To know the factors impacting “Role of AI Agency, Personalization and Consumer Trust in Online Purchase Decisions”
2. To measure the impact of AI Agency, Personalization, Consumer Trust and Perceived AI Transparency on Online Purchase Decisions

Methodology

233 participants were surveyed from participants using different products. The method of sampling was “Random sampling” for collection of data and examination was done by “Explanatory Factor Analysis” for results.

Findings

Table 1 demonstrates demographic details, it shows that 51.93% are Male, 48.07% are female. Looking at the age, 35.62% are between 25 to 30 years of age, 29.61% are between 30 to 35 years of age, and 34.77% are above 35 years of age. With regards to Product Type used by participants, 30.47% are Clothing & Apparel, 35.62% Electronics and 33.91% are others.

Table. 1 Respondent's Details

Variables	Participants	Percentage
Gender		
Male	121	51.93%
Female	112	48.07%
Total	233	100
Ages in years		
25 to 30	83	35.62%
30 to 35	69	29.61%
Above 35	81	34.77%
Total	233	100
Product Type		
Clothing & Apparel	71	30.47%
Electronics	83	35.62%
Others	79	33.91%
Total	233	100

“Factor Analysis”

“KMO and Bartlett's Test”

Table. 2 “Kaiser-Meyer-Olkin Measure of Sampling Adequacy”

“Kaiser-Meyer-Olkin Measure of Sampling Adequacy”		.768
“Bartlett's Test of Sphericity”	“Approx. Chi-Square”	4238.411
	df	91
	Significance	.000

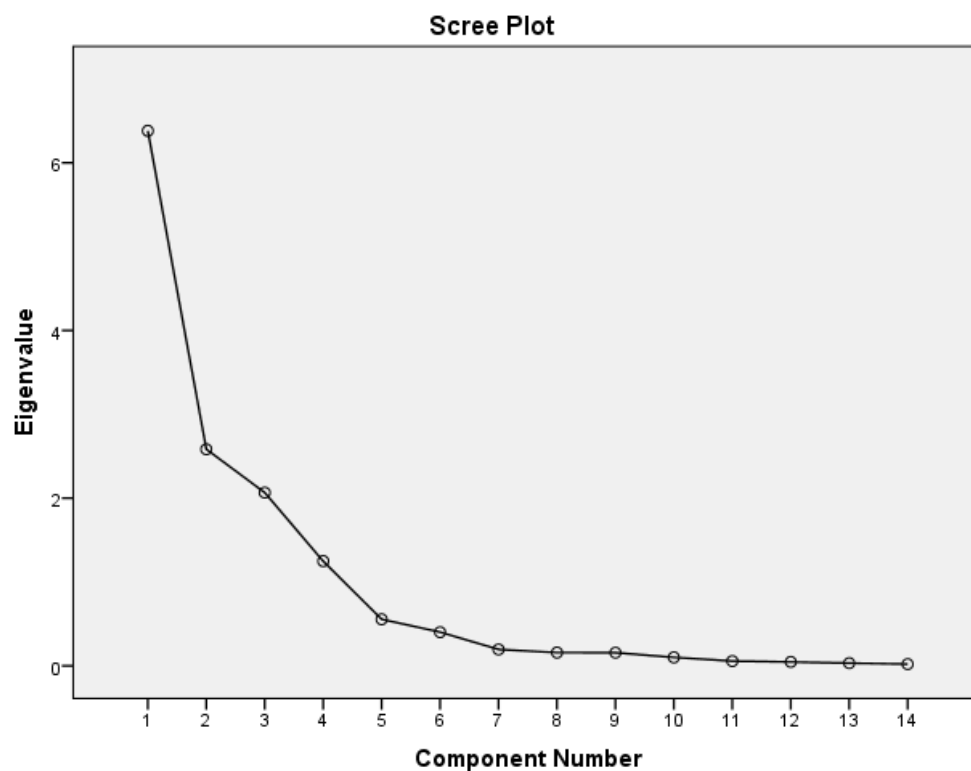
“KMO and Bartlett's Test”, value of KMO is .768 (Table 2).

Table 3 “Total Variance Explained”

“Component”	“Initial Eigenvalues”			“Rotation Sums of Squared Loadings”		
	“Total”	“% Of Variance”	“Cumulative %”	“Total”	“% Of Variance”	“Cumulative %”
1.	6.381	45.581	45.581	3.885	27.751	27.751
2.	2.583	18.453	64.034	3.644	26.028	53.779
3.	2.066	14.756	78.790	2.426	17.331	71.110
4.	1.249	8.920	87.710	2.324	16.600	87.710
5.	.555	3.965	91.676			
6.	.401	2.866	94.542			
7.	.195	1.396	95.938			

8.	.158	1.126	97.064			
9.	.157	1.119	98.183			
10.	.101	.720	98.903			
11.	.056	.402	99.305			
12.	.046	.327	99.633			
13.	.032	.225	99.858			
14.	.020	.142	100.000			

The four factors contribute towards explaining total 87.710% of variance. Variance explained by AI Agency is 27.751%, AI Personalization is 26.028%, Consumer Trust in AI is 17.331%, and Perceived AI Transparency is 16.600%. (Table 3).



“Scree Plot”

Table. 4 “Rotated Component Matrix”

S. No.	Statements	Factor Loading	Factor Reliability
	AI Agency		.949
1.	AI system independently understands shopping requirements	.954	
2.	AI system responds intelligently to customer questions and shopping needs	.912	
3.	AI-powered systems help in making purchase-decisions more efficiently	.846	

4.	AI make product suggestions based on customer references	.845	
	AI Personalization		.963
1.	AI-based recommendations reflect previous searches and purchases	.962	
2.	Personalized offers make online shopping more relevant	.903	
3.	Personalized content saves time when searching for products online	.898	
4.	AI-personalization improves overall online shopping experience	.883	
	Consumer Trust in AI		.872
1.	Consumers provide AI-powered systems to provide reliable product information	.917	
2.	Customers feel confident using AI-powered features on online shopping platforms	.857	
3.	Transparency about how AI makes recommendations increase trust in online shopping	.734	
	Perceived AI Transparency		.834
1.	AI-powered shopping platforms explain how their recommendations are generated	.926	
2.	AI system provides information about how customer shopping data is used	.925	
3.	Transparency about AI recommendations increases customer confidence	.655	

Factors of the study and its related variables

AI Agency is the first factor of the study, the variables it includes are AI system independently understands shopping requirements, AI system responds intelligently to customer questions and shopping needs, AI-powered systems help in making purchase-decisions more efficiently and AI make product suggestions based on customer references. AI Personalization is the second factor, it includes variables like AI-based recommendations reflect previous searches and purchases, Personalized offers make online shopping more relevant, Personalized content saves time when searching for products online and AI-personalization improves overall online shopping experience. Third factor is Consumer Trust in AI, its variables are Consumers provide AI-powered systems to provide reliable product information, Customers feel confident using AI-powered features on online shopping platforms, and Transparency about how AI makes recommendations increase trust in online shopping. Last and fourth factor is Perceived AI Transparency, its variables are AI-powered shopping platforms explain how their

recommendations are generated, AI system provides information about how customer shopping data is used and Transparency about AI recommendations increases customer confidence.

Table 5 “Reliability Statistics”

“Cronbach's Alpha”	“Number of Items”
.896	14

Total reliability of 14 items that includes variables for “Role of AI Agency, Personalization and Consumer Trust in Online Purchase Decisions” 0.896 (Table 5).

“Table 6 Model Summary”

“Model”	“R”	“R Square”	“Adjusted Square”	“Std. Error of the Estimate”
1	.850 ^a	.722	.717	.40216
Predictors: (Constant), AI Agency, AI Personalization, Consumer Trust in AI, and Perceived AI Transparency				

The adjusted R-squared value is 0.717 with approximately 72% of the variation.

“Table 7 ANOVA”

“Model”		“Sum of Squares”	“df”	“Mean Square”	“F”	“Sig.”
1	“Regression”	95.777	4	23.944	148.049	.000 ^b
	Residual	36.875	228	.162		
	Total	132.652	232			
a. Dependent Variable: Overall impact of AI Agency, Personalization, Consumer Trust and Perceived AI Transparency on Online Purchase Decisions						
b. Predictors: (Constant), AI Agency, AI Personalization, Consumer Trust in AI, and Perceived AI Transparency						

Value under significant column indicates a significant relationship between (AI Agency, AI Personalization, Consumer Trust in AI, and Perceived AI Transparency) and online purchase decision.

“Table 8 Coefficients”

“Model”	“Un standardized Coefficients”		“Standardized Coefficients”	“t”	“Sig.”
	“B”	“Std. Error”	“Beta”		
(Constant)	3.961	.026		150.358	.000
AI agency	.319	.026	.422	12.080	.000
Personalization	.057	.026	.075	2.157	.032
Consumer trust	.250	.026	.331	9.475	.000
Perceived AI Transparency	.495	.026	.655	18.758	.000
DV: Overall impact of AI Agency, Personalization, Consumer Trust and Perceived AI Transparency on Online Purchase Decisions					

All the factors AI Agency, AI Personalization, Consumer Trust in AI, and Perceived AI Transparency are showing significant impact on online purchase decision. Highest impact is shown by Perceived AI Transparency (.655), AI agency (.422), Consumer trust (.331), and Personalization (.075).

Conclusion

It is concluded that AI Agency, personalization, and consumer trust play important role in shaping consumer’s online purchasing decisions. AI-enabled e-commerce platforms have increasingly moved beyond basic automation by providing intelligent recommendations, personalized product information, conversational assistance, and predictive suggestions. The perceived agency of AI systems can enhance consumer’s confidence

in the decision-making process when consumers believe that AI can understand their preferences, provide relevant information, and assist them effectively. Personalization further strengthens online shopping experience by presenting products, offers, and content that are aligned with individual consumer needs and interests. Consumer trust as a significant is also highlighted as a significant element between AI-based interactions and online purchase decisions. Consumers are more likely to respond positively to AI recommendations where they perceive technology as reliable, transparent, and secure. E-commerce business can strengthen consumer relationships by designing AI systems that provide relevant recommendations while giving consumers greater control and clarity over how their data is used. The factors studying the Role of AI Agency, Personalization and Consumer Trust in Online Purchase Decisions are AI Agency, AI Personalization, Consumer Trust in AI and Perceived AI Transparency.

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