

AI-Driven Personalization and Customer Satisfaction in E-Commerce Platforms: An Empirical Study

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Abstract

E-commerce business firms have been working on the recommendation engines, Chat bots, predictive models for last ten years to make the shopping experience of a stranger seem more personal, but is it really making their customers happier, remains an open question. AI personalisation has revolutionised consumer behaviour with online retailers, as it adapts content, products, and interactions to suit individual preferences. In the highly competitive digital marketplace, customer satisfaction is a key driver of long-term success, customer retention and customer loyalty. The potentials of personalization, however, rely not just on the technological capabilities, but on how consumers view relevance, trust, transparency, and control in their online experiences. It is crucial to grasp these factors when assessing the impact of AI on customer perceptions and behaviors. This study examines the connection between personalisation and customer satisfaction in e-commerce contexts, shedding light on the critical challenges of personalised digital experiences and offering recommendations for companies striving to develop customer-oriented and responsible e-commerce policies. A sample of 233 was collected to find the result of the study.

Keywords: Artificial intelligence, personalization, customer satisfaction, e-commerce, customer experience, online shopping.

Introduction

The only thing online shopping involved before was typing in a query into a search bar and scrolling through what showed up. That was a pretty much extinct model these days. Today, while browsing Amazon or Flipkart, almost every pixel on the screen is tailored for your interests, based on the things you clicked last week and the things the algorithm thinks you may want next. Quite a bit of that is happening under the hood, and it's almost invisible in the sense that if you've ever come across a recommendation engine on a web page, you probably didn't realize the AI was working but you did know whether the act of shopping was a pleasant or unpleasant experience. This change didn't occur because retailers suddenly had a soft spot for their customers. It's a result of the fact that when it works, personalization brings in revenue. Recommendation systems can play a role in influencing purchase decisions by meeting the psychological needs of competence and autonomy, while using the right balance of level of personalization and control can enhance the shopping experience and increase a consumer's willingness to continue their engagement with a platform (Zhao et al., 2025). However, achieving this balance is not a given and much of this paper is in fact about what can go wrong when companies do it. AI-driven systems improve organizational decision-making and knowledge utilization, enabling firms to deliver more accurate and personalized customer experiences (Mittal et al., 2023).

Personalization is not an isolated effort and is more difficult to isolate in satisfaction than it might seem. The role of artificial intelligence in customer experience and loyalty is most clearly related to personalization as an intervening construct; that is, AI capability does not directly lead to loyalty, but only when it is mediated by personalization, with the latter being the direct link between the two. It's a nuanced consideration that's all too easily overlooked in the industry conversation around AI: More data leads to more satisfied customers, at least not happier. Not per se, at least. Customer service is likely the most apparent aspect of this change. By leveraging AI to provide quicker and more personalized responses to issues raised by customers, businesses can significantly boost customer satisfaction (Ifekamandu et al., 2023). Companies that utilize predictive analytics to proactively address customer needs before they

even turn into a problem are likely to experience higher customer retention rates. AI-powered personalization also enhances customer decision-making and experience quality by giving context-specific recommendations tailored to individual preferences (Singh et al., 2026; Mukherjee et al., 2025).

Then there's the issue of who they're being personalized for—the shopper. Someone looking for a particular replacement part expects speed and accuracy, and that's it. If somebody is looking for inspiration, he/she needs to try different products, and if they get the same three products all the time, it feels like they're getting boxed in. However, the effectiveness of a recommendation system relies on the compatibility with the underlying goal of the shoppers; the consumers who are in the goal-directed search stage prefer accuracy while the consumers who are in the browsing stage prefer diversity; the satisfaction of the consumers decreases when the system does not correctly identify the stage the consumer is in (He et al., 2024). In many commercial publications, all shoppers are considered to be seeking the same things, which does not seem to be the case here.

But it's not just the trust side, which can't be divorced from personalization even if some product teams would like it to be. AI can enhance customer experience with features like visual search and predictive analytics, improving customer discovery, but if customer data is not used transparently and with good intentions, privacy and bias concerns can limit its adoption (Rafi, 2023). The dichotomy between liking a platform enough to be helpful, and yet disliking it enough to not feel watched is present in virtually all of what is discussed below.

Literature Review

AI enhances customer satisfaction across an entire suite of digital business processes, the research reports, and the one process customers notice and value most is personalized marketing: "Businesses that seem to understand customers as individuals are more likely to notice a change in customer satisfaction as a result of AI's optimization of a single process, namely personalized marketing (Nathalie et al., 2024). In the back end, efficiency improvements will only equate with satisfaction when it becomes visible to the customer. The notion that personalisation must be "felt" by the material goes back beyond most of the literature specific to Artificial Intelligence. Earlier research that examined the potential of using AI to create a "sensory" welcome for customers to ecommerce sites, trying to replicate the experience of a good salesperson's welcome to a regular customer, found that this type of recognition enhanced the emotional connection between the shopper and the brand long before recommendation engines gained widespread popularity (Nazim Sha & Rajeswari, 2019). I suppose it's a little strange to read a paper now and after all that has happened.

Since then, NLP and machine learning have been pivotal in how companies maintain e-service quality, essentially, whether or not a service feels responsive and competent. Together, AI, ML, and NLP enhance e-service quality by making platforms more responsive, offering more personalised interactions, including the use of recommendation systems for relevant suggestions, chatbots to reduce wait time, and predictive analytics that predict e-service needs before the user is even aware of them (Rane et al., 2024).

Trust is continually seen as a determinant of whether or not personalization succeeds or fails. Personalized recommendations build trust–satisfaction–loyalty relationships: If there is trust in a platform, then personalized recommendations reinforce that positive impression and, conversely, trust is a prerequisite for any platform to be personalized. Personalised recommendations reinforce the trust–satisfaction–loyalty relationships; trust in a platform is a precondition for any platform to be personalized, while the presence of trust increases the positive impression that the consumer has. (Hassan et al., 2025) Business intelligence tools based on AI can take this a step further and translate the vast amount of behavioural data into something useful in real-time. The real change AI has brought to customer relationship management (CRM) as from reactive service to proactive engagement, and this can be

achieved by transforming customer data into actionable insight with the help of AI. For a moment, think about the differences between the two: "Reactive" versus "Proactive". In most of the older CRM literature it assumed that businesses would react to the customer afterward.

AI-driven personalisation is important for retention when it helps customers find the product that is relevant to them in a shorter time, but personalisation isn't enough, as factors such as competitive pricing, reliable delivery, and platform reputation are also important and have a large influence on customer retention, irrespective of how well the recommendation engine works. Although AI personalization enhances customer experiences, concerns regarding trust, autonomy, security, and system reliability may reduce customer acceptance of AI-driven platforms (Mittal et al., 2024).

As personalisation goes beyond a threshold, ethical issues show up frequently. Now that consumer behaviour has been redefined by AI-powered personalisation, there is a need to find a balance between the effectiveness of personalisation and its ethical responsibility to maintain consumer trust over time, as over personalisation or too intrusive personalisation would lead to discomfort for the consumers (Raji et al., 2024). In the case of engagement research, the focus is on the emotional aspects of the customer relationship, which are influenced by personalized communication, not personalized product discovery. Engagement and loyalty are increased by personalised interactions, with AI powered interactions that make communications more relevant and engaging, while transparency and explainable AI prevent this personalisation from feeling manipulative, as consumers respond best to it being helpful and relevant (Ahmed et al., 2025). The word manipulative, as a design constraint, should not be taken lightly and is one to take seriously, instead of consumer paranoia.

Consumer perception research takes this one step further and directly investigates consumer concerns about privacy. Trust, perceived value, and privacy and transparency concerns are all important factors in shaping perceptions of AI-powered personalisation, and though the more personalised recommendations are, the more likely consumers are to intend to purchase, too much personalisation leads to a sense of surveillance and reduces satisfaction, which the authors suggest can be addressed via explainable systems (Singhal et al., 2025). The study doesn't fully resolve the discomfort, nor does it fully resolve the sense of "politeness" when referring to surveillance.

Last but not least, research in purchase decision shows that the two concepts are correlated and both are predictive of purchase action, if any. The trust shown to the suggestion to reduce the uncertainty of the consumer while acting on a suggestion made by AI and satisfaction increases only when the suggestions are personalized and provide value to the consumer, not taking away their freedom of choice are two ways the recommendations impact on purchase decisions (Sharma et al., 2025). The key issue in all of the studies that are referenced in this section is the issue of autonomy, even in studies that do not say those words.

This collection of research indicates that people are not necessarily happy with personalisation, and that satisfaction is dependent on pre-existing trust in AI, a system's ability to meet the shopper's intent, clear communication about data usage, and a measured approach to the level of personalisation a system does.

Objective

To examine AI-Driven Personalization and Customer Satisfaction in E-Commerce Platforms.

Methodology

Study survey was conducted among 233 people from respondents using different e-commerce platforms. "Random sampling method" along with "T-test" were used to collect and analyse the data.

Data Analysis

In the total population of study survey males are 52.36% and females are 47.64%. 37.77% of them are 22 to 28 years of age, 30.47% are between 28 to 32 years, and 31.76% are above 32 years. Looking at the E-Commerce Platform, 34.76% are using Amazon, 29.61% are using Flipkart and 35.63% are using Myntra.

"Table 1 General Details"

"Variables"	"Respondents"	"Percentage"
Male	122	52.36
Female	111	47.64
Total	233	100
Age (years)		
22 to 28	88	37.77
28 to 32	71	30.47
Above 32	74	31.76
Total	233	100
E-Commerce Platform		
Amazon	81	34.76
Flipkart	69	29.61
Myntra	83	35.63
Total	233	100

“S. No.”	“Statements”	“Mean Value”	“t value”	“Sig.”
1.	Personalized recommendations improve shopping experience	4.21	19.115	0.000
2.	Websites remembers shopping preferences of customers	4.09	17.328	0.000
3.	AI driven system helps in finding the liked products	4.13	18.250	0.000
4.	AI improves the quality of shopping experience	4.00	15.825	0.000
5.	Personalized search results save time of customers	4.29	20.749	0.000
6.	AI makes online shopping easier and convenient	4.17	18.501	0.000

Above table shows the statements Exploring the AI-Driven Personalization and Customer Satisfaction in E-Commerce Platforms, the first statement with their mean value is - Personalized recommendations improve shopping experience (4.21), Websites remembers shopping preferences of customers (4.09), AI driven system helps in finding the liked products (4.13), AI improves the quality of shopping experience (4.00), Personalized search results save time of customers (4.29), and AI makes online shopping easier and convenient (4.17). All statements pertaining to AI-Driven Personalization and Customer Satisfaction in E-Commerce Platforms are found to be significance, with p-values below 0.05 following the application of a t-test.

Conclusion

What was seen here is that the degree of personalization in an eCommerce platform that leverages AI can enhance customer satisfaction, but only if it's grounded in trust, relevance, and a level of moderation that many platforms are still developing. However, just because recommendations are accurate does not mean that customers are happy; in some of the studies mentioned, personalization attempts that were context- and/or over-intrusive negatively affected the relationship they were supposed to enhance. What brings the strongest findings together is less a function of algorithm sophistication, and more related to consumption of the customer feeling understood, instead of watched. Retailers looking to get customer satisfaction only by implementing the "best" models are not likely to have a high return on investment, especially if they don't pay attention to transparency or to what a customer is actually looking to buy. All statements pertaining to AI-Driven Personalization and Customer Satisfaction in E-Commerce Platforms are found to be significance, with p-values below 0.05 following the application of a t-test.

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