

Assessing the Impact of AI-Enabled Technologies on Online Shopping Experience Among Millennials in Chennai

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Abstract

The growing use of digital tools has transformed online shopping by offering consumers more convenience and personalization. Features such as product suggestions, virtual assistants, and automated support services aim to simplify the purchasing process and improve user satisfaction. At the same time, concerns remain about whether these tools are accurate, easy to use, or effective in addressing customer needs, while issues of security and privacy continue to shape levels of trust. In this context, the study examines how technology driven features influence the shopping experience of millennials in Chennai. The research surveyed 180 millennials through convenience and purposive sampling, and the responses were analysed using mean analysis, correlation, and multiple regression. The results show that ease of use and personalized recommendations play a major role in enhancing the online shopping experience, while customer support contributes to a lesser degree. Security and privacy concerns were found to have only a limited effect. These insights suggest that businesses should focus on developing simple, user-friendly, and personalized shopping features, while still giving attention to data protection, to create more satisfying and trustworthy experiences for millennial consumers.

Keywords: AI-enabled Technologies, Online Shopping Experience, Millennials, Perceived Easiness, Security and Privacy.

1. INTRODUCTION

Digital technologies are reshaping e-commerce by enhancing customer experiences through tools such as recommendation systems, chat-based assistance, and virtual shopping support (Bhatt & Singh, 2025; Soni & Dubey, 2024). These platforms analyse consumer data to provide personalized product suggestions, making the shopping process more convenient and engaging (Song, 2023). Features like automated help and voice-enabled search further simplify navigation and decision-making (Arachchi & Samarasinghe, 2023). However, concerns regarding data security and privacy continue to influence consumer trust in technology-driven platforms (Yin, Qiu, & Wang, 2024; Stanciu & Rindasu, 2021). For businesses, this calls for a balance between technological innovation and consumer confidence to fully leverage the potential of these solutions (Aggarwal et al., 2024).

The adoption of such technology-driven features is significantly shaping shopping behavior in metropolitan regions like Chennai, particularly among millennials. Key aspects influencing consumer acceptance include personalized recommendations, ease of use, customer support, and security measures (Nguyen, Thi Thu Truong, & Le-Anh, 2023; Wang et al., 2023). Millennials expect online platforms to deliver accurate suggestions, seamless interfaces, and reliable support systems, while also ensuring the protection of personal data (Luo et al., 2019). Although these innovations increase convenience and efficiency, their success depends heavily on consumer trust and satisfaction (Nagy & Hajdú, 2021). Hence, this study focuses on analysing how these factors influence the online shopping experiences of millennials in Chennai, with the aim of helping businesses refine technology-enabled solutions for stronger consumer engagement (Chowdhury, Basu, & Singh, 2024).

2. Literature Reviews and Research Gap

2.1 Review of Literature

Artificial Intelligence is transforming e-commerce by offering greater personalization, enhanced customer support, and tailored product suggestions, which together enrich the overall shopping experience (Aggarwal et al., 2024). Tools such as chatbots and voice assistants contribute to smoother and more efficient interactions, allowing consumers to navigate platforms with ease and remain more engaged (Bhatt & Singh, 2025; Soni & Dubey, 2024). Algorithm-driven recommendations have also been shown to influence impulse buying, with the variety of suggestions playing a critical role in shaping consumer behaviour (Song, 2023). At the same time, these platforms collect personal data to generate customized options, which raises concerns about privacy and security among users (Stanciu & Rindasu, 2021).

The impact of AI on online shopping experiences is often examined through frameworks such as the Technology Acceptance Model, which emphasizes the roles of perceived ease of use and perceived usefulness in shaping consumer intentions (Nguyen et al., 2023; Wang et al., 2023). Features like personalized recommendations and AI-enabled chatbots increase engagement by creating more interactive and service-oriented shopping environments (Luo et al., 2019). Yet, privacy concerns can weaken these positive effects, as fears of data misuse or violations reduce willingness to engage with such technologies (Yin, Qiu, & Wang, 2024).

AI tools further influence decision-making by reinforcing trust and usefulness as key determinants of adoption (Nagy & Hajdú, 2021). Research consistently highlights that personalization encourages stronger purchase intentions, while the perceived simplicity of AI systems supports wider acceptance (Arachchi & Samarasinghe, 2023; Geddam et al., 2024). Nevertheless, issues of data security and consumer trust remain unresolved, signalling the need for deeper inquiry into how innovation can be balanced with user expectations (Chowdhury et al., 2024; Yin & Qiu, 2021). Studies also reveal that features such as personalized recommendations, voice assistants, and chatbots make shopping both easier and more efficient, motivating millennials in particular to increase their purchasing activities (Bhatt & Singh, 2025).

2.2 Research Gap

Although prior research highlights the role of technology in improving the online shopping experience, limited attention has been given to the combined influence of core AI-enabled features such as perceived ease of use, security and privacy, personalized recommendations, and customer support on consumer behaviour. While personalization and perceived usefulness have been widely examined, the contribution of AI-driven customer support and the effect of security-related concerns in shaping shopping satisfaction are still insufficiently addressed. Furthermore, most existing studies have concentrated on international or

national contexts, with little focus on region-specific consumer behaviour. To address these shortcomings, the present study investigates how these technological features collectively influence the online shopping experiences of millennials in Chennai, while also examining privacy-related issues and offering practical insights for businesses to strengthen AI adoption in this demographic.

3. Statement of Research Problem

The growing integration of AI-enabled technologies has significantly changed how millennials engage with e-commerce platforms. Tools such as personalized product suggestions, chatbots, and automated customer support are designed to improve convenience and strengthen consumer engagement (Bhatt & Singh, 2025; Soni & Dubey, 2024). Yet, doubts remain about whether these systems consistently meet consumer expectations. Factors such as the precision of recommendations (Song, 2023), the perceived ease of use of AI applications (Geddam, Nethravathi, & Hussian, 2024), concerns about data security (Yin, Qiu, & Wang, 2024), and the effectiveness of AI-enabled support services play a crucial role in shaping trust and satisfaction. When these features fail to perform effectively, they can reduce consumer confidence and negatively affect the overall shopping experience (Aggarwal et al., 2024).

Although online shopping adoption is growing rapidly, the influence of AI-driven technologies on consumer behaviour within the Chennai context remains insufficiently understood. For instance, millennials may initially find AI recommendations beneficial, but inaccurate or irrelevant suggestions are often disregarded (Song, 2023). Similarly, while AI-powered customer service is intended to provide efficient support, it may not always deliver accurate or helpful responses (Luo et al., 2019). Data security and privacy concerns further complicate consumer trust in such platforms (Stanciu & Rindasu, 2021; Yin & Qiu, 2021). To address these challenges, this study examines the impact of four critical factors—personalized recommendations, perceived easiness, customer support, and security and privacy—on the online shopping experiences of millennials in Chennai (Arachchi & Samarasinghe, 2023; Wang et al., 2023).

4. Objectives of the Study

This study seeks to investigate the influence of AI-enabled technologies on the online shopping experiences of millennials in Chennai. The focus is placed on four critical dimensions—perceived easiness, security and privacy, personalized recommendations, and customer support—to understand how they contribute to shaping consumer satisfaction and engagement. In addition, the study aims to analyse the relationship between these factors and the overall shopping experience, thereby offering insights into how technological features collectively impact consumer behaviour in the online marketplace.

5. Development of Hypothesis

This study formulates and tests hypotheses to assess the influence of AI-enabled technologies on the online shopping experiences of millennials. It specifically examines whether perceived easiness, security and privacy, personalized recommendations, and customer support significantly contribute to shaping consumer experiences. The hypotheses further explore the extent to which these AI-enabled features collectively influence the overall shopping experience. Through statistical analysis, the study seeks to determine whether these factors play a decisive role in enhancing satisfaction and engagement in online shopping.

Drawing from the review of existing literature, the following hypotheses have been developed:

H1: There is a significant relationship between AI-enabled Technology Factors and Online Shopping Experience of Millennials.

H2: AI-enabled Technology factors have significant influence on Online Shopping Experience of Millennials.

6. Methodology Used

The study adopted an exploratory research design and applied a mixed-method approach, integrating both qualitative and quantitative techniques within a cross-sectional framework. From an initial pool of 200 respondents, a final sample of 180 millennials with a minimum of two years of online shopping experience was selected through a combination of convenience and purposive sampling. Data were gathered using a structured questionnaire, and the responses were analysed using both descriptive and inferential statistical methods to address the research objectives and test the proposed hypotheses.

7. Data Analysis and Results

7.1 Millennials' Perception on AI-enabled Technologies for Online Shopping – Mean Analysis

The research instrument comprised twelve structured questions designed to capture millennials' perceptions of AI-enabled technologies in online shopping. Each of the four dimensions—perceived easiness, security and privacy, personalized recommendations, and customer support—was measured through three items. A five-point Likert scale was employed, with response options ranging from Strongly Disagree (1) to Strongly Agree (5). The collected responses were subjected to descriptive statistical analysis, particularly mean analysis, to evaluate participants' perceptions across these dimensions.

Table 1 Millennials' Perception on AI-enabled Technologies for Online Shopping - Mean Analysis

AI-ENABLED TECHNOLOGIES FOR ONLINE SHOPPING	N	Mean	RANK
Perceived Easiness	180	12.55	First
Security and Privacy	180	10.67	Fourth
Personalized Recommendations	180	11.82	Second
Customer Support	180	11.08	Third
MILLENNIALS' PERCEPTION ON AI-ENABLED TECHNOLOGIES FOR ONLINE SHOPPING	180	46.12	

(Primary-Data Source)

The results of the mean analysis indicate that among the four AI-enabled technologies, Perceived Easiness ranked first, receiving the highest score ($M = 12.55$), highlighting its strong role in enhancing the online shopping experience of millennials. Personalized Recommendations ($M = 11.82$) occupied the second position, followed by Customer Support ($M = 11.08$) in the third rank. In contrast, Security and Privacy received the lowest rating ($M = 10.67$), placing it at the fourth rank.

On the whole, millennials reported a favourable perception across all four dimensions, with a combined average score of 46.12 out of 60, representing 76.87% of the maximum possible score. These findings suggest that millennials in Chennai are highly aware of, and maintain a positive attitude toward, the role of AI-enabled technologies in shaping their online shopping experiences.

7.2 Relationship between AI-enabled Technology Factors and Online Shopping Experience of Millennials - Correlation Analysis

H₀: There is no significant relationship between AI-enabled Technology Factors and Online Shopping Experience of Millennials.

A Pearson product-moment correlation analysis was employed to examine the association between AI-enabled technology factors and Millennials' online shopping experience.

Table 2 Relationship between AI-enabled Technology and Online Shopping Experience of Millennials – Correlation Analysis

VARIABLES	N	'r' VALUE	P-VALUE	RELATIONSHIP	REMARKS	
					SIGNIFICANT	RESULT
AI-enabled Technology Factors and Online Shopping Experience of millennials	180	0.728**	0.000	Positive	Significant	REJECTED

(Correlation is significant at 1%)**

Given that the p-value (0.000) is below the 1% significance level, the null hypothesis is rejected. This confirms that AI-enabled technology factors have a significant influence on the online shopping experience of Millennials. The analysis revealed a strong, positive, and statistically significant correlation ($r = 0.728$), indicating that AI-enabled technologies substantially enhance the overall shopping experience. Hence, support for H₁ validates that AI-enabled technologies, particularly Perceived Easiness, Personalized Recommendations, Customer Support, and Security measures, play a vital role in shaping the online shopping experiences of Millennials.

7.3 Impact of AI-enabled Technology Factors on Online Shopping Experience of Millennials - Multiple Regression Analysis

H₀: AI-enabled Technology Factors have no significant influence on Online Shopping Experience of Millennials.

A multiple regression analysis was performed to evaluate the influence of AI-enabled technologies adopted by online stores on Millennials' online shopping experience. The overall model was statistically significant, as indicated by an F-value of 458.115 and a p-value of 0.000, well below both the 0.05 and 0.01 significance levels. The adjusted R² value of 0.739 demonstrates that 73.9% of the variance in shopping experience is explained by the AI-enabled technology factors, indicating a large effect size.

Table 3 Impact of AI-enabled Technology Factors on Online Shopping Experience of Millennials – Multiple Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	SE	Beta		
1	(Constant)	6.555	.587		6.005	.000
	Perceived Easiness	.489	.042	.355	7.569	.000**

Security and Privacy	.099	.068	.091	1.225	.284
Personalized Recommendations	.313	.049	.287	5.888	.000**
Customer Support	.152	.057	.148	2.651	.015*

Dependent Variable: Online Shopping Experience of Millennials

The standardized beta coefficients show that Perceived Easiness exerted the strongest influence ($\beta = 0.355$), followed by Personalized Recommendations ($\beta = 0.287$). Customer Support also contributed positively, though to a lesser extent ($\beta = 0.148$). In contrast, Security and Privacy ($\beta = 0.091$) did not have a statistically significant effect on Millennials' shopping experience.

Thus, the null hypothesis is rejected, and support for H2 confirms that AI-enabled technologies significantly shape the shopping experience of Millennials in online shopping. The findings highlight that ease of use, personalization, and customer support are the most influential drivers, while security-related features may not strongly determine perceived shopping experience among Millennials.

These findings emphasize that AI-enabled technologies, particularly Perceived Easiness, play a pivotal role in shaping Millennials' overall online shopping experience. The results suggest that online retailers should prioritise improving ease of use and strengthening personalised recommendation systems to enhance user satisfaction. At the same time, greater attention should be directed toward addressing security and privacy concerns, as these remain critical for fostering trust and creating a safer and more reliable online shopping environment for Millennials.

8. Discussion, Suggestions, and Recommendations

8.1 Discussion

The findings confirm that AI-enabled technologies play a significant role in shaping the online shopping experience of Millennials in Chennai. The validation of H1 and the regression results together demonstrate that these technologies not only have a strong influence on consumer shopping experiences but also positively contribute to overall satisfaction. This aligns with earlier research which reported that AI-driven systems significantly enhance customer engagement and decision-making in e-commerce platforms (Bhatt & Singh, 2025; Luo et al., 2019). Similarly, Soni and Dubey (2024) also highlighted that AI-powered tools improve convenience and foster consumer trust when integrated effectively into online shopping systems. In the present study, Perceived Easiness emerged as the strongest predictor, indicating that simplified interfaces and user-friendly AI-enabled features greatly enhance Millennials' online experiences. This finding resonates with the work of Geddani, Nethravathi, and Hussian (2024), who found that ease of use was a major determinant of consumer adoption of AI tools in digital platforms. Personalized Recommendations also significantly influenced satisfaction, supporting prior studies that showed AI-generated suggestions improve consumer decisionmaking and purchase intentions (Song, 2023; Arachchi & Samarasinghe, 2023).

While Customer Support played a weaker role, it still contributes positively, echoing earlier findings that responsive AI-enabled support builds consumer confidence (Aggarwal et al., 2024). Interestingly, Security and Privacy did not significantly impact satisfaction in this study, contrasting with the results of Stanciu and Rindasu (2021) and Yin, Qiu, and Wang (2024), who emphasized privacy concerns as a critical factor. This suggests that Millennials may view secure systems as an expected baseline rather than a differentiator in their shopping experiences. The strong correlation ($r = 0.728$) further confirms that AI-enabled technologies collectively serve as essential drivers of enhanced consumer engagement and loyalty in

ecommerce.

8.2 Suggestions and Recommendations

Based on the findings, it is suggested that online retailers focus on simplifying the overall shopping process by designing platforms that are easy to navigate and user-friendly. Greater emphasis should be placed on strengthening personalized product suggestions, as these directly influence purchase decisions and enhance customer satisfaction. While customer support plays a supportive role, improving its responsiveness and reliability can further strengthen consumer trust. At the same time, even though security and privacy did not emerge as major drivers of satisfaction, retailers should not overlook these aspects; ensuring strong data protection measures will help maintain consumer confidence and safeguard long-term loyalty. Together, these steps can create a more engaging, reliable, and satisfying shopping environment for Millennials in Chennai.

9. Conclusion

This study underscores the significance of AI-enabled technologies in shaping Millennials' online shopping experiences. The findings reveal that Personalized Recommendations and Perceived Easiness substantially enhance shopping satisfaction, while Customer Support has a moderate effect and Security and Privacy exert a comparatively weaker influence. Nonetheless, the overall results confirm that AI-driven features contribute strongly to consumer engagement and play a crucial role in improving the quality of online shopping.

From an academic perspective, the study enriches existing literature by providing fresh insights into how AI applications influence consumer behavior in e-commerce. Practically, it offers guidance for businesses to refine their digital strategies by focusing on personalization, simplified user interfaces, and reliable customer support to boost satisfaction and loyalty. While the study is limited to Millennials in Chennai and examines only four AI-enabled factors, it opens avenues for future research to include wider demographics, explore additional technologies such as predictive analytics and augmented reality, and adopt longitudinal approaches to capture evolving consumer attitudes. Overall, the integration of AI-enabled tools is reshaping online retail, and businesses must continually adapt to meet changing consumer expectations.

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