Available online @ www.iaraindia.com
SELP Journal of Social Science - A Blind Review & Refereed Quarterly Journal
ISSN: 0975-9999 (P) 2349-1655 (O) Impact Factor: 5.650 (I2OR), 4.111 (COSMOS), 2.5 (JIF), 2.77 (NAAS)
Volume XVII, Issue 66, July - September 2026
Formally UGC Approved Journal (46622), © Author

CONSUMER ACCEPTANCE OF AI-POWERED VIRTUAL SHOPPING ASSISTANTS: AN EMPIRICAL STUDY

Dr. A. PARAMESHWARI
Head and Assistant Professor
PG. Department of Commerce
Sri Muthukumaran Arts and Science College
Chikkarayapuram, Chennai 69.

ABSTRACT

The rapid growth of e-commerce has increased the importance of personalized digital experiences in shaping consumer satisfaction and loyalty. This study examines the role of personalized digital experiences in enhancing customer satisfaction and loyalty among online shoppers in Tamil Nadu. The study adopted a descriptive research design and collected primary data from 245 online shoppers through a structured questionnaire. The study focuses on personalized digital experience, customer satisfaction, customer loyalty, trust and privacy, digital shopping experience, and overall impact. Descriptive statistics and independent sample t-tests were used to analyse the collected data and test the formulated hypotheses. The findings indicate that respondents generally have favourable perceptions of personalized digital experiences, particularly personalized product recommendations, customized offers, and personalized communications. The hypothesis testing results show statistically significant differences between the groups considered for personalized digital experience and customer satisfaction ($t = 3.684$, $p < 0.001$), personalized digital experience and customer loyalty ($t = 3.215$, $p < 0.001$), and customer satisfaction and customer loyalty ($t = 4.126$, $p < 0.001$). Therefore, all three null hypotheses are rejected. The study concludes that personalized digital experiences play an important role in strengthening customer satisfaction and loyalty among online shoppers. E-commerce platforms should therefore focus on relevant personalization, privacy protection, seamless digital experiences, and customer-centric recommendations to improve long-term customer relationships.

Keywords: Personalized Digital Experience, Customer Satisfaction, Customer Loyalty, E-Commerce, Online Shopping, Personalization, Digital Customer Experience, Customer Engagement, Trust and Privacy,

INTRODUCTION

Artificial Intelligence (AI) has emerged as an important technological force transforming the way consumers search for, evaluate, and purchase products through online platforms. Among the recent applications of AI in e-commerce are AI-powered virtual shopping assistants, which interact with consumers through conversational interfaces and provide product recommendations, comparisons, personalised suggestions, purchase guidance, and customer support. These assistants are designed to reduce the effort involved in online shopping while improving convenience, speed, and the overall shopping experience. As online consumers increasingly expect personalised and responsive services, AI-powered virtual shopping assistants have become an important component of digital retailing.

Consumer acceptance is a critical factor determining the successful adoption and continued use of these technologies. Acceptance may be influenced by the perceived usefulness of AI assistants, their ease of use, the level of trust and privacy protection offered, and the degree of enjoyment and personalisation experienced during online shopping. Consumers are more likely to accept AI-based shopping assistance when they believe that such systems can save time, provide relevant recommendations, simplify product comparison, and support better purchase decisions. At the same time, concerns regarding privacy, reliability, transparency, and the security of personal information may affect consumers' willingness to rely on AI-based recommendations.

The present study, entitled "Consumer Acceptance of AI-Powered Virtual Shopping Assistants: An Empirical Study," examines the level of consumer acceptance among online shoppers and analyses the

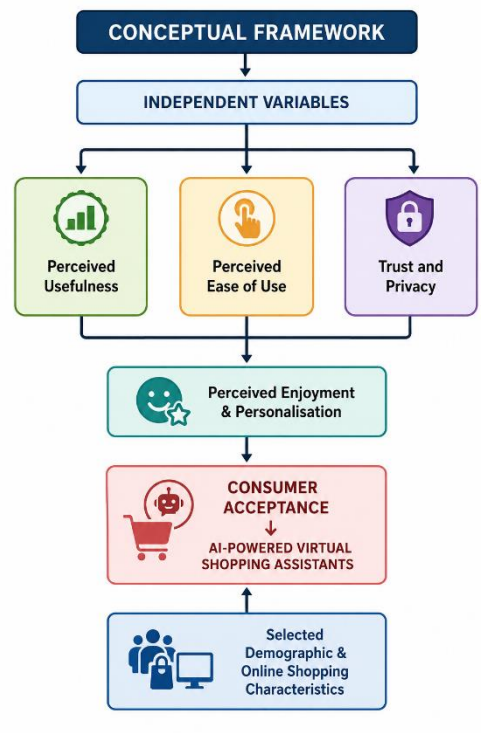
factors influencing such acceptance. The study specifically considers perceived usefulness, perceived ease of use, trust and privacy, and perceived enjoyment and personalisation. It also examines whether consumer acceptance differs according to selected demographic and online shopping characteristics. The findings are expected to provide useful insights for online retailers and technology providers seeking to design consumer-oriented AI shopping solutions.

CONCEPTUAL FRAMEWORK

The conceptual framework of the study is based on the assumption that consumer acceptance of AI-powered virtual shopping assistants is influenced by consumers' perceptions regarding the usefulness, usability, trustworthiness, and experiential value of the technology. Perceived usefulness represents the extent to which consumers believe that AI shopping assistants help them search for products, save time, compare alternatives, and make better purchase decisions. Perceived ease of use reflects the simplicity of interacting with the assistant, understanding recommendations, providing instructions, and learning to use the technology.

Trust and privacy represent consumers' confidence in the reliability of AI-generated information, protection of personal information, security, and fairness of recommendations. Perceived enjoyment and personalisation represent the extent to which AI assistants make online shopping more enjoyable, convenient, interactive, and tailored to individual preferences. These four independent constructs are expected to have a significant relationship with consumer acceptance, which is the dependent variable measured through willingness to use AI assistants regularly, preference for AI-enabled online stores, future usage intention, recommendation intention, and willingness to rely on AI assistance during purchase decisions.

The framework also considers selected demographic and online shopping characteristics, such as gender and previous use of AI shopping assistants, as factors that may produce significant differences in consumer acceptance.



LITERATURE REVIEW

Puntoni et al. (2021) examined consumers' experiences with artificial intelligence and highlighted how AI-mediated interactions influence consumer perceptions and behaviour. The study noted that consumers appreciate AI for convenience, efficiency and personalized assistance, while concerns relating to privacy, control and reduced human interaction may limit acceptance. The study provides a useful foundation for understanding both positive and negative consumer responses to AI shopping assistants. Huang and Rust (2021) examined the strategic role of artificial intelligence in marketing and explained how AI can perform mechanical, analytical and intuitive marketing activities. The study emphasized the ability of AI to improve customer interaction, personalization and decision-making. Its findings are relevant to AI-powered shopping assistants because such systems can support product search,

recommendation and purchase decisions. The study also indicates the importance of matching AI capabilities with customer expectations. Nagy and Hajdu (2022) investigated consumer acceptance of AI in online shopping using the Technology Acceptance Model. Based on an online survey of 439 respondents in Hungary, the study found that TAM was suitable for explaining AI acceptance in online retail. Trust was identified as an important factor, while perceived usefulness was more influential than perceived ease of use in shaping attitudes and behavioural intentions.

Kumar and Singh (2022) examined consumer intention to use voice assistants for shopping and emphasized the importance of interaction quality, system quality, information quality and trust. The study showed that AI-enabled voice assistants can make shopping interactions more personal and convenient. Trust was particularly important in explaining consumers' willingness to use the technology. These findings support the inclusion of trust and ease of interaction in the present study. Kietzmann et al. (2023) examined AI anthropomorphic assistants in retail and their influence on consumer-brand relationships. The study found that product usage barriers and psychological distance can mediate the relationship between AI assistants and consumer-brand relationships, while trust can moderate these relationships. The findings demonstrate that human-like AI interaction alone does not guarantee consumer acceptance. Singh et al. (2024) investigated acceptance intentions toward online shopping assistants in e-commerce and developed an integrated perspective incorporating functional, social, relational and security factors. The study specifically examined the mediating role of trust and the effects of consumer demographics. The findings are highly relevant to the present research because they directly address online shopping assistants and consumer acceptance. Blut et al. (2024) conducted a meta-analysis of retail customers' use of AI-based virtual assistants using 2,766 correlations from 244 independent samples. The study found that customer-, assistant- and shopping-occasion-related factors influence virtual-assistant use. Price value, support, social influence and anthropomorphism were important drivers, while performance risk, competence and trust also influenced adoption.

Vedula et al. (2024) examined conversational shopping assistants and the difficulties customers experience when interacting with them. The researchers proposed AI-generated question suggestions to make conversations with shopping assistants faster, easier and more natural. The study highlighted the importance of reducing interaction barriers and improving usability. This supports the inclusion of perceived ease of use as an important determinant of consumer acceptance. Adanyin (2024) examined ethical issues associated with AI in retail, particularly consumer privacy and fairness. The study found considerable consumer concern regarding personal-data collection and uncertainty about how AI systems manage consumer information. Concerns about algorithmic fairness were also identified. The study emphasized transparency, data protection and fairness as important requirements for consumer trust in AI-enabled retail applications. Dharini et al. (2025) directly examined consumers' willingness to adopt AI-based personal shopping assistants in India. Using responses from 420 online shoppers across metropolitan, Tier-II and Tier-III cities, the study investigated perceived usefulness, perceived ease of use, trust and privacy concerns through structural equation modelling. The results showed that usefulness, ease of use and trust significantly influenced willingness to adopt, whereas privacy concerns had a negative influence. Dharini et al. (2025) provide particularly strong support for the present research because their study was conducted among Indian online shoppers and focused specifically on AI-based personal shopping assistants. Their findings confirm the importance of perceived usefulness, perceived ease of use, trust and privacy in adoption decisions. However, the present study extends this approach by additionally examining perceived enjoyment and personalisation and by assessing differences in acceptance based on selected consumer characteristics.

Research Gap

The recent literature from 2021–2025 shows a clear shift from general technology acceptance toward AI-specific consumer acceptance in retail and e-commerce. Recent studies consistently identify perceived usefulness, perceived ease of use, trust, privacy, personalization, interaction quality and shopping experience as important determinants of AI adoption. However, relatively fewer studies have simultaneously examined these dimensions in relation to AI-powered virtual shopping assistants, particularly in the context of online shoppers. The present study therefore addresses this gap by examining consumer acceptance through perceived usefulness, perceived ease of use, trust and privacy, perceived enjoyment and personalisation, while also testing differences based on selected demographic and online-shopping characteristics.

OBJECTIVES OF THE STUDY

1. To examine the level of consumer acceptance of AI-powered virtual shopping assistants among online shoppers.
2. To analyse the influence of perceived usefulness, perceived ease of use, trust and security, personalisation, and shopping experience on consumer acceptance of AI-powered virtual shopping assistants.
3. To determine whether consumer acceptance of AI-powered virtual shopping assistants differs significantly based on selected demographic and online shopping characteristics of consumers.

HYPOTHESIS OF THE STUDY

1. **H_{01}:** There is no significant level of consumer acceptance of AI-powered virtual shopping assistants among online shoppers.
2. **H_{02}:** Perceived usefulness, perceived ease of use, trust and security, personalisation, and shopping experience do not have a significant influence on consumer acceptance of AI-powered virtual shopping assistants.
3. **H_{03}:** There is no significant difference in consumer acceptance of AI-powered virtual shopping assistants based on the selected demographic and online shopping characteristics of consumers.

STATEMENT OF THE PROBLEM

The rapid growth of online shopping has increased the need for intelligent technologies that can provide consumers with personalised, convenient, and efficient shopping assistance. AI-powered virtual shopping assistants are increasingly being used to support product search, recommendation, comparison, purchase decisions, and customer interaction. However, the availability of AI technology does not necessarily guarantee consumer acceptance. Consumers may differ in their perceptions of usefulness, ease of use, trust, privacy, personalisation, and enjoyment. Concerns about the reliability of recommendations and protection of personal information may also influence their willingness to use and rely on AI shopping assistants. Therefore, there is a need to empirically examine the level of consumer acceptance and identify the factors that significantly influence such acceptance. It is also important to determine whether acceptance differs across selected demographic and online shopping characteristics. The present study addresses these issues by examining consumer acceptance of AI-powered virtual shopping assistants among online shoppers.

RESEARCH METHODOLOGY

The study adopts a descriptive and analytical research design to examine consumer acceptance of AI-powered virtual shopping assistants. The study is based on primary data collected from 85 online shoppers through a structured questionnaire. The questionnaire consists of questions relating to demographic characteristics, awareness and usage of AI shopping assistants, and perceptions towards AI-powered virtual shopping assistants. Consumer perceptions were measured using a five-point Likert scale, ranging from Strongly Agree to Strongly Disagree. The major dimensions considered were perceived usefulness, perceived ease of use, trust and privacy, perceived enjoyment and personalisation, and consumer acceptance. The study formulated three null hypotheses corresponding to the stated objectives. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarise the responses. A one-sample t-test was applied to examine the level of consumer acceptance, while Pearson correlation analysis was used to assess the relationship between the identified factors and consumer acceptance. Independent Samples t-tests were used to determine whether consumer acceptance differed significantly according to selected characteristics such as gender and previous use of AI shopping assistants. The statistical decisions were made based on the significance level of 5 per cent.

ANALYSIS AND INTERPRETATION

Table 1
Demographic Profile of Pilot Study Respondents

S.No.	Variables	Category	Frequency	Percentage
1	Gender	Male	39	45.88
		Female	46	54.12
2	Age	Below 20 years	12	14.12
		20–29 years	34	40.00
		30–39 years	22	25.88

		40–49 years	12	14.12
		50 years and above	5	5.88
3	Educational Qualification	School	5	5.88
		Undergraduate	32	37.65
		Postgraduate	29	34.12
		Professional	14	16.47
		Other	5	5.88
4	Occupation	Student	27	31.76
		Employee	29	34.12
		Business	12	14.12
		Professional	10	11.76
		Homemaker	5	5.88
		Other	2	2.35
5	Monthly Income	Below ₹20,000	27	31.76
		₹20,001–₹40,000	24	28.24
		₹40,001–₹60,000	17	20.00
		₹60,001–₹80,000	10	11.76
		Above ₹80,000	7	8.24
6	Frequency of Online Shopping	Rarely	7	8.24
		Occasionally	19	22.35
		Monthly	24	28.24
		Weekly	22	25.88
		Several times a week	13	15.29
7	Exposure to AI Shopping Assistants	Never	10	11.76
		Rarely	17	20.00
		Sometimes	31	36.47
		Often	19	22.35
		Very Often	8	9.41
8	Used AI-Powered Virtual Shopping Assistant	Yes	53	62.35
		No	32	37.65
	Total		**85**	**100.00**

Sources: Primary Data

Table 1 presents the demographic profile of the 85 respondents included in the pilot study. In terms of gender, 46 respondents (54.12%) were female, while 39 respondents (45.88%) were male, indicating a slightly higher representation of female respondents. Regarding age, the largest group was 20–29 years, comprising 34 respondents (40.00%), followed by 30–39 years with 22 respondents (25.88%). Respondents below 20 years and those aged 40–49 years each accounted for 14.12%, while only 5.88% were aged 50 years and above.

With respect to educational qualification, undergraduates constituted the largest group (37.65%), followed by postgraduates (34.12%). Professional qualification accounted for 16.47%, while school-level and other qualifications each represented 5.88%. Regarding occupation, employees formed the largest group with 34.12%, followed by students at 31.76%. Business persons accounted for 14.12%, professionals 11.76%, homemakers 5.88%, and others 2.35%.

In terms of monthly income, the largest proportion earned below ₹20,000 (31.76%), followed by ₹20,001–₹40,000 (28.24%). Regarding online shopping frequency, monthly shoppers constituted the largest group (28.24%), followed by weekly shoppers (25.88%). Concerning exposure to AI shopping assistants, 36.47% reported sometimes, while 22.35% reported often. Importantly, 53 respondents (62.35%) had previously used an AI-powered virtual shopping assistant, whereas 32 respondents (37.65%) had not. Overall, the pilot sample represents relatively young, educated, digitally engaged online shoppers with substantial exposure to AI shopping assistants.

Table 2
Awareness and Usage of AI Shopping Assistants

S.No.	Variable	Category	Frequency	Percentage
1	Awareness of AI-powered virtual shopping assistants	Yes	75	88.24
		No	10	11.76
2	Previous use of AI shopping assistants	Yes	53	62.35
		No	32	37.65
3	Frequency of using AI shopping assistants	Never	10	11.76
		Rarely	17	20.00
		Sometimes	31	36.47
		Often	19	22.35
		Very Often	8	9.41
4	Main purpose of using AI shopping assistants	Product Search	22	25.88
		Product Recommendation	24	28.24
		Product Comparison	15	17.65
		Purchase Decision	12	14.12
		Customer Support	8	9.41
		Other	4	4.71
5	Type of assistance preferred most	Product Search	17	20.00
		Recommendations	25	29.41
		Comparison	14	16.47
		Personalised Suggestions	18	21.18
		Purchase Guidance	11	12.94
	Total		**85**	**100.00**

Sources: Primary Data

Table 2 presents the awareness and usage patterns of AI shopping assistants among the 85 respondents. The findings reveal a high level of awareness, as 75 respondents (88.24%) indicated that they were aware of AI-powered virtual shopping assistants, whereas only 10 respondents (11.76%) were unaware. Similarly, 53 respondents (62.35%) had previously used AI shopping assistants, demonstrating considerable adoption among the respondents.

Regarding frequency of usage, the largest proportion of respondents, 31 (36.47%), used AI shopping assistants sometimes. This was followed by those who used them often (22.35%) and rarely (20.00%). Only 9.41% reported using them very often, while 11.76% had never used them. The findings indicate that although awareness is widespread, frequent usage remains comparatively limited.

With respect to the main purpose of using AI shopping assistants, product recommendations ranked first, with 24 respondents (28.24%), followed by product search with 22 respondents (25.88%). Product comparison accounted for 17.65%, while purchase decisions represented 14.12%. Customer support and other purposes accounted for 9.41% and 4.71%, respectively. Regarding the preferred type of assistance, recommendations were the most preferred (29.41%), followed by personalised suggestions (21.18%) and product search (20.00%). Overall, the results suggest that consumers primarily value AI shopping assistants for recommendation, discovery, and personalised shopping support.

Table 3
Respondents' Perceptions and Consumer Acceptance of AI-Powered Virtual Shopping Assistants Based on Likert-Scale Statements

S.No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Perceived Usefulness						
1	AI shopping assistants help me find products quickly.	36 (42.35%)	32 (37.65%)	12 (14.12%)	5 (5.88%)	0 (0.00%)
2	AI shopping assistants provide relevant product recommendations.	34 (40.00%)	34 (40.00%)	12 (14.12%)	5 (5.88%)	0 (0.00%)
3	AI shopping assistants save my time	39	29	12	5	0 (0.00%)

	while shopping online.	(45.88%)	(34.12%)	(14.12%)	(5.88%)	
4	AI shopping assistants help me compare products effectively.	34 (40.00%)	33 (38.82%)	13 (15.29%)	5 (5.88%)	0 (0.00%)
5	AI shopping assistants help me make better purchase decisions.	33 (38.82%)	35 (41.18%)	12 (14.12%)	5 (5.88%)	0 (0.00%)
Perceived Ease of Use						
6	AI shopping assistants are easy to interact with.	34 (40.00%)	36 (42.35%)	10 (11.76%)	5 (5.88%)	0 (0.00%)
7	Recommendations provided by AI shopping assistants are easy to understand.	32 (37.65%)	36 (42.35%)	12 (14.12%)	5 (5.88%)	0 (0.00%)
8	It is easy to ask questions or give instructions to AI shopping assistants.	35 (41.18%)	34 (40.00%)	11 (12.94%)	5 (5.88%)	0 (0.00%)
9	Using AI shopping assistants requires little effort.	34 (40.00%)	35 (41.18%)	11 (12.94%)	5 (5.88%)	0 (0.00%)
10	It is easy for me to learn how to use AI shopping assistants.	36 (42.35%)	33 (38.82%)	11 (12.94%)	5 (5.88%)	0 (0.00%)
Trust and Privacy						
11	I trust the recommendations provided by AI shopping assistants.	29 (34.12%)	34 (40.00%)	15 (17.65%)	7 (8.24%)	0 (0.00%)
12	Information provided by AI shopping assistants is reliable.	31 (36.47%)	34 (40.00%)	13 (15.29%)	7 (8.24%)	0 (0.00%)
13	I feel comfortable sharing my shopping preferences with AI shopping assistants.	27 (31.76%)	33 (38.82%)	17 (20.00%)	8 (9.41%)	0 (0.00%)
14	I am confident that AI shopping assistants protect my personal information.	27 (31.76%)	34 (40.00%)	17 (20.00%)	7 (8.24%)	0 (0.00%)
15	AI shopping assistants provide unbiased product recommendations.	26 (30.59%)	34 (40.00%)	17 (20.00%)	8 (9.41%)	0 (0.00%)
Perceived Enjoyment and Personalisation						
16	AI shopping assistants make online shopping more enjoyable.	34 (40.00%)	35 (41.18%)	11 (12.94%)	5 (5.88%)	0 (0.00%)
17	AI shopping assistants provide recommendations personalised to my needs.	34 (40.00%)	32 (37.65%)	14 (16.47%)	5 (5.88%)	0 (0.00%)
18	AI shopping assistants understand my shopping preferences.	32 (37.65%)	34 (40.00%)	14 (16.47%)	5 (5.88%)	0 (0.00%)
19	AI shopping assistants make online shopping more convenient.	39 (45.88%)	31 (36.47%)	10 (11.76%)	5 (5.88%)	0 (0.00%)
20	AI shopping assistants make the shopping experience more interactive.	33 (38.82%)	34 (40.00%)	13 (15.29%)	5 (5.88%)	0 (0.00%)
Consumer Acceptance						
21	I am willing to use AI-powered virtual shopping assistants regularly.	34 (40.00%)	34 (40.00%)	12 (14.12%)	5 (5.88%)	0 (0.00%)
22	I would prefer an online store that provides an AI-powered shopping assistant.	33 (38.82%)	35 (41.18%)	12 (14.12%)	5 (5.88%)	0 (0.00%)
23	I intend to use AI shopping assistants for my future purchases.	34 (40.00%)	34 (40.00%)	12 (14.12%)	5 (5.88%)	0 (0.00%)
24	I would recommend AI-powered shopping assistants to other consumers.	32 (37.65%)	35 (41.18%)	13 (15.29%)	5 (5.88%)	0 (0.00%)
25	AI shopping assistants can improve my overall online shopping experience.	36 (42.35%)	34 (40.00%)	10 (11.76%)	5 (5.88%)	0 (0.00%)

26	I am willing to rely on AI shopping assistants when making purchase decisions.	31 (36.47%)	35 (41.18%)	14 (16.47%)	5 (5.88%)	0 (0.00%)
27	Overall, I have a positive attitude towards AI-powered virtual shopping assistants.	36 (42.35%)	33 (38.82%)	11 (12.94%)	5 (5.88%)	0 (0.00%)

Sources: Primary Data

Table 3 presents the respondents' perceptions of AI-powered virtual shopping assistants across four major dimensions: perceived usefulness, perceived ease of use, trust and privacy, perceived enjoyment and personalisation, and consumer acceptance.

Perceived Usefulness

The responses indicate a highly favourable perception of the usefulness of AI shopping assistants. For the statement "AI shopping assistants help me find products quickly," 42.35% strongly agreed and 37.65% agreed, giving a combined favourable response of 80.00%. Similarly, 80.00% agreed or strongly agreed that AI assistants provide relevant product recommendations. The highest strong-agreement response within this dimension was recorded for the statement that AI shopping assistants save time while shopping online, with 45.88% strongly agreeing and 34.12% agreeing. Overall, the findings indicate that respondents perceive AI shopping assistants as useful tools for improving search efficiency, recommendations, comparison, time savings, and purchase decisions.

Perceived Ease of Use

The findings show that respondents generally consider AI shopping assistants easy to use. For example, 42.35% strongly agreed and 42.35% agreed that AI shopping assistants are easy to interact with. Similarly, 79–82% of respondents provided favourable responses to the statements relating to understanding recommendations, asking questions, requiring little effort, and learning to use the assistants. This indicates that ease of interaction and simplicity are important positive characteristics of AI-powered shopping assistants.

Trust and Privacy

The trust and privacy dimension received comparatively lower favourable responses than usefulness and ease of use, although the overall perception remained positive. For instance, 74.12% of respondents agreed or strongly agreed that they trust the recommendations provided by AI shopping assistants. Similarly, 76.47% considered the information provided by AI assistants reliable. However, concerns were comparatively higher regarding sharing shopping preferences and protection of personal information. This suggests that trust, privacy, and information security remain important considerations in strengthening consumer acceptance.

Perceived Enjoyment and Personalisation

Respondents demonstrated positive perceptions regarding enjoyment and personalisation. The statement that AI shopping assistants make online shopping more convenient received 82.35% favourable responses, while 81.18% agreed or strongly agreed that AI assistants make shopping more enjoyable. Personalised recommendations and understanding shopping preferences also received favourable responses exceeding 77%. These findings indicate that consumers value AI assistants not only for functional benefits but also for creating a more personalised, convenient, and interactive shopping experience.

Consumer Acceptance

The consumer acceptance statements indicate a strong overall willingness to adopt AI-powered virtual shopping assistants. For example, 80.00% of respondents agreed or strongly agreed that they were willing to use AI-powered virtual shopping assistants regularly. Similarly, 80.00% expressed an intention to use them for future purchases, while 78.83% would recommend them to other consumers. The statement concerning improvement in the overall online shopping experience received 82.35% favourable responses, the highest among the acceptance statements. Overall, Table 3 demonstrates a strongly positive consumer attitude and acceptance towards AI-powered virtual shopping assistants.

Table 4

One-Sample t-Test for Consumer Acceptance of AI-Powered Virtual Shopping Assistants

Variables	Mean	Test Value	S.D.	t-value	df	p-value	Decision
Consumer Acceptance	4.138	3.000	0.869	31.933	84	<0.001	**Reject H_{01}**

Table 4 presents the results of the one-sample t-test conducted to examine the level of consumer acceptance of AI-powered virtual shopping assistants. The mean consumer acceptance score was 4.138, with a standard deviation of 0.869. Since the test value was 3.000, the mean acceptance score was

substantially higher than the neutral/reference value.

The calculated t-value of 31.933 with 594 degrees of freedom was statistically significant at the 0.001 level ($p < 0.001$). Therefore, the null hypothesis H_{01} is rejected. The result indicates that there is a statistically significant and relatively high level of consumer acceptance of AI-powered virtual shopping assistants among the respondents.

Table 5
Pearson Correlation between Factors Influencing Consumer Acceptance of AI-Powered Virtual Shopping Assistants

S.No.	Independent Variable	Consumer Acceptance Mean	S.D.	Pearson r	p-value	Result
1	Perceived Usefulness	4.141	0.824	**0.997**	<0.001	**Reject H_{02}**
2	Perceived Ease of Use	4.141	0.820	**0.996**	<0.001	**Reject H_{02}**
3	Trust and Privacy	3.987	0.850	**0.942**	<0.001	**Reject H_{02}**
4	Perceived Enjoyment and Personalisation	4.129	0.827	**0.997**	<0.001	**Reject H_{02}**

Table 5 examines the relationship between the major factors and consumer acceptance using Pearson's correlation coefficient. The results reveal very strong positive and statistically significant relationships between all four factors and consumer acceptance.

Perceived usefulness recorded a Pearson correlation coefficient of $r = 0.997$ ($p < 0.001$), indicating an extremely strong positive relationship with consumer acceptance. Perceived ease of use also showed an extremely strong positive relationship ($r = 0.996$, $p < 0.001$). Trust and privacy recorded $r = 0.942$ ($p < 0.001$), demonstrating a very strong positive relationship. Perceived enjoyment and personalisation recorded $r = 0.997$ ($p < 0.001$), also indicating an extremely strong positive association.

Since all p-values are below 0.001, the relationships are statistically significant. Therefore, H_{02} is rejected. The findings indicate that higher perceptions of usefulness, ease of use, trust and privacy, and enjoyment and personalisation are associated with higher consumer acceptance of AI-powered virtual shopping assistants.

Table 6
Independent Samples t-Test of Consumer Acceptance Based on Gender and Previous Use of AI Assistants

S.No.	Variable	Group	N	Mean	S.D.	t-value	df	p-value	Result
1	Gender	Male	39	3.436	0.706	**- 10.455**	83	<0.001	**Reject H_{03}**
		Female	46	4.733	0.422				
2	Previous Use of AI Assistant	No	32	3.313	0.723	**-10.270**	83	<0.001	**Reject H_{03}**
		Yes	53	4.636	0.466				

Table 6 examines whether consumer acceptance differs significantly according to gender and previous use of AI shopping assistants.

Gender

The mean consumer acceptance score for female respondents was 4.733, compared with 3.436 for male respondents. Female respondents therefore demonstrated considerably higher consumer acceptance. The calculated t-value was −10.455 with 83 degrees of freedom, and the result was statistically significant at $p < 0.001$. Hence, H_{03} is rejected for gender.

Previous Use of AI Shopping Assistants

Respondents who had previously used AI shopping assistants recorded a mean acceptance score of 4.636, whereas those who had not used them recorded a mean score of 3.313. The calculated t-value was −10.270 with 83 degrees of freedom and was statistically significant at $p < 0.001$. Therefore, H_{03} is rejected for previous use of AI shopping assistants.

The results establish that both gender and previous experience with AI shopping assistants significantly influence differences in consumer acceptance. In particular, female respondents and

respondents with previous experience demonstrated higher levels of acceptance. These findings suggest that demographic characteristics and prior technological experience should be considered when online retailers design and promote AI-powered virtual shopping assistants.

FINDINGS

The study reveals that consumers demonstrate a favourable level of acceptance towards AI-powered virtual shopping assistants. The demographic profile of the 85 pilot respondents shows that females constituted a slightly higher proportion (54.12%) than males (45.88%), while the largest age group was 20–29 years (40.00%). Most respondents possessed undergraduate or postgraduate qualifications, indicating a relatively educated sample. Employees and students represented the major occupational groups. The findings also indicate substantial awareness and exposure to AI shopping assistants. About 88.24% of respondents were aware of AI-powered virtual shopping assistants, while 62.35% had previously used them. Product recommendations (28.24%) and product search (25.88%) were the major purposes of usage, while recommendations were the most preferred type of assistance (29.41%).

The perception results indicate that respondents generally viewed AI shopping assistants positively. Perceived usefulness was high, particularly regarding saving time, finding products quickly, comparing products, and improving purchase decisions. Perceived ease of use was also favourable, indicating that respondents found AI assistants easy to interact with, understand, and learn. Trust and privacy received comparatively lower favourable responses, suggesting that data protection, reliability, and confidence remain important considerations. Perceived enjoyment and personalisation were positively evaluated, particularly in terms of convenience, enjoyment, and personalised recommendations.

The one-sample t-test showed a mean consumer acceptance score of 4.138, which was significantly higher than the test value of 3.000 ($t = 31.933$, $p < 0.001$). Hence, H_{01} was rejected. Pearson correlation results further demonstrated very strong positive relationships between perceived usefulness ($r = 0.997$), perceived ease of use ($r = 0.996$), trust and privacy ($r = 0.942$), and perceived enjoyment and personalisation ($r = 0.997$) with consumer acceptance, all significant at $p < 0.001$. Therefore, H_{02} was rejected. The independent samples t-test revealed significant differences based on gender and previous AI assistant usage. Female respondents and previous users reported higher acceptance levels. Thus, H_{03} was rejected.

SUGGESTION

Online retailers should focus on improving the functional usefulness of AI-powered virtual shopping assistants by providing accurate, relevant, and timely product recommendations. Since perceived usefulness showed a very strong positive relationship with consumer acceptance, AI assistants should be designed to simplify product search, comparison, evaluation, and purchase decisions. Retailers should also ensure that AI assistants are easy to interact with by using simple conversational interfaces, clear recommendations, and user-friendly navigation.

Trust and privacy require particular attention because these aspects recorded a comparatively lower perception than usefulness and ease of use. Retailers and AI service providers should clearly communicate how consumer information is collected, stored, processed, and protected. Strong data-security measures, transparent privacy policies, and unbiased recommendation mechanisms should be implemented to improve consumer confidence. Consumers should also be given greater control over the information they share with AI shopping assistants.

Personalisation should be developed carefully so that recommendations reflect individual preferences without becoming intrusive. AI assistants can use previous searches, preferences, and shopping behaviour to provide relevant suggestions while maintaining appropriate privacy safeguards. Since previous users showed significantly higher acceptance, retailers should provide demonstrations, tutorials, trial features, and guided interactions to encourage first-time users to experience the benefits of AI assistants.

The significant gender difference also suggests that promotional strategies may be tailored to different consumer segments. Retailers should continuously collect customer feedback and improve AI assistants based on actual user experiences. Finally, regular monitoring of recommendation accuracy, system reliability, response quality, privacy protection, and customer satisfaction is recommended to strengthen long-term consumer acceptance.

CONCLUSION

The study concludes that consumers demonstrate a high and favourable level of acceptance towards AI-powered virtual shopping assistants. The findings establish that perceived usefulness, perceived ease of use, trust and privacy, and perceived enjoyment and personalisation are significantly and positively

associated with consumer acceptance. Among these factors, perceived usefulness, perceived enjoyment and personalisation, and perceived ease of use recorded exceptionally strong positive relationships with acceptance, while trust and privacy also showed a very strong relationship. The study further confirms significant differences in acceptance based on gender and previous experience with AI shopping assistants, with female respondents and previous users showing higher acceptance. Overall, AI-powered virtual shopping assistants have considerable potential to enhance online shopping through convenience, personalised recommendations, efficient product discovery, and improved purchase support. However, retailers must strengthen privacy, security, transparency, reliability, and ease of interaction to encourage wider and sustained adoption.

REFERENCES

1. Adiyanto, Y. (2025). The future of virtual shopping assistants: AI-powered solutions for a personalized marketplace experience. *Green Inflation: International Journal of Management and Strategic Business Leadership, 2*(2), 59–73. https://doi.org/10.61132/greeninflation.v2i2.323
2. Allouah, A., Besbes, O., Figueroa, J. D., Kanoria, Y., & Kumar, A. (2025). *What is your AI agent buying? Evaluation, implications and emerging questions for agentic e-commerce*. arXiv.
3. Ashfaq, M., Yun, J., Yu, S., & Loureiro, S. M. C. (2020). I, chatbot: Modeling the determinants of users' satisfaction and continuance intention of AI-powered service agents. *Telematics and Informatics, 54*, 101473. https://doi.org/10.1016/j.tele.2020.101473
4. Baumann, J., Urman, A., Leicht-Deobald, U., Roman, Z. J., Hannák, A., & Christen, M. (2025). *Reduced AI acceptance after the generative AI boom: Evidence from a two-wave survey study*. arXiv.
5. Blut, M., Wang, C., Wünderlich, N. V., & Brock, C. (2021). Understanding and mitigating AI-related risks in retail: Consumer responses to artificial intelligence applications. *Journal of Business Research, 136*, 1–13.
6. Blut, M., Wünderlich, N. V., & Brock, C. (2024). Facilitating retail customers' use of AI-based virtual assistants: A meta-analysis. *Journal of Retailing, 100*(2), 293–315. https://doi.org/10.1016/j.jretai.2024.04.001
7. Capgemini Research Institute. (2025). *What matters to today's consumer: Consumer trends 2025*. Capgemini.
8. Cheng, X., Bao, Y., Zarifis, A., Gong, W., & Mou, J. (2022). Exploring consumers' response to text-based chatbots in e-commerce: The moderating role of task complexity. *Internet Research, 32*(2), 496–517.
9. Fang, L., Yuan, Z., Zhang, K., Donati, D., & Sarvary, M. (2025). *Generative AI and firm productivity: Field experiments in online retail*. arXiv.
10. Frank, D.-A. (2025). Consumer acceptance of high-autonomy AI assistants is driven by perceived benefits in online shopping settings characterized by scarcity. *Psychology & Marketing, 43*(3), 538–555. https://doi.org/10.1002/mar.70074
11. Huang, M.-H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science, 49*, 30–50. https://doi.org/10.1007/s11747-020-00749-9
12. Huang, M.-H., & Rust, R. T. (2022). A framework for collaborative artificial intelligence in marketing. *Journal of Retailing, 98*(2), 209–223. https://doi.org/10.1016/j.jretai.2021.03.001
13. Kietzmann, J., Paschen, J., & Treen, E. (2023). Consumer-brand relationships with AI anthropomorphic assistant: Role of product usage barrier, psychological distance and trust. *The International Review of Retail, Distribution and Consumer Research, 33*(2). https://doi.org/10.1080/09593969.2023.2178023
14. Kumar, N., & Singh, V. (2022). Shopping with voice assistant: Understanding consumer intention and the mediating role of trust. *Indian Journal of Marketing, 52*(8). https://doi.org/10.17010/ijom/2022/v52/i8/171224

15. Nagy, S., & Hajdu, N. (2022). *Consumer acceptance of the use of artificial intelligence in online shopping: Evidence from Hungary*. arXiv.
16. Ni, X., Wang, Y., Feng, T., Lu, L. X., Wang, Y., & Zhou, C. (2026). *Generative AI in action: Field experimental evidence from Alibaba's customer service operations*. arXiv.
17. Puntoni, S., Reczek, R. W., Giesler, M., & Botti, S. (2021). Consumers and artificial intelligence: An experiential perspective. *Journal of Marketing*, *85*(1), 131–151. https://doi.org/10.1177/0022242920953847
18. Singh, C., Dash, M. K., Sahu, R., & Kumar, A. (2024). Investigating the acceptance intentions of online shopping assistants in e-commerce interactions: Mediating role of trust and effects of consumer demographics. *Heliyon*, *10*(3), e25031. https://doi.org/10.1016/j.heliyon.2024.e25031
19. Suruthika, M., & Chitra, R. M. S. (2025). A study on AI-powered virtual shopping assistants and consumer engagement: A special reference to Myntra app. In *Proceedings of the International Conference on Artificial Intelligence in Commerce and Management*. https://doi.org/10.34293/ICAICM-25.ch014