



A Study on the Role of Artificial Intelligence in Enhancing Customer Experience in Online Shopping

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ABSTRACT:

Artificial Intelligence (AI) has become an essential component of online shopping which enables e-commerce platforms to offer personalized recommendations, quick assistance, improved product search and automated services. This study intends to assess the role of AI-powered personalization, AI-based chatbots and customer assistance, AI-based product information and search and AI-powered predictive and automated services in enhancing the overall customer experience. A descriptive research design and convenience sampling approach were selected. The primary data were collected through a structured questionnaire and Google Forms from 70 online shoppers. The percentage analysis, weighted average, one-way ANOVA and multiple regression analysis were performed. The majority of the statements in Likert-scale format were positively responded to by over half of the participants (Agree/Strongly Agree) which indicates that the online shoppers have a generally positive perception towards AI-based shopping features. However, the ANOVA test revealed no significant differences in the impact of AI-based product information on purchase preference among age groups ($F = 0.43$, $p = 0.788$), while the regression model was not statistically significant ($R^2 = 0.02$, $p = 0.824$). The study suggests providing accurate and relevant personalization, chatbots which can answer questions in real-time with human support, transparency and privacy in personalization and the necessity of continuous evaluation of AI-enabled services.

Keywords: Artificial Intelligence, Customer Experience, Online Shopping, Personalization, Chatbots, Product Search, Predictive Services

Introduction:

Artificial Intelligence and Online Shopping

The rapid development of digital technology has significantly transformed the way businesses operate and how customers purchase products and services. Artificial Intelligence (AI) refers to the ability of computer systems to perform tasks that normally require human intelligence, such as learning, analysing information, understanding customer preferences, making recommendations and providing personalised responses. In the online shopping industry, AI is increasingly used to understand customer behaviour and provide faster, more personalised and convenient shopping experiences.

The growth of online shopping and e-commerce has changed traditional purchasing behaviour. Customers can search for products, compare prices, read reviews, make payments and track deliveries without visiting a store. However, the large number of products and amount of information available online can make it difficult for customers to identify products that meet their needs. AI addresses this by analysing customer data, purchase history, browsing behaviour and search patterns to provide relevant information and recommendations.

Major applications of AI in online shopping include personalisation, where recommendations are based on individual interests and previous activity; chatbots and virtual assistants, which respond to queries, resolve common problems and provide order information at any time; intelligent product search and information delivery, which helps customers find and compare products; and predictive and automated services such as order tracking, delivery predictions and notifications.

Customer Experience and Industry Profile

Customer experience refers to the overall perception and feeling a customer develops through interactions with an online shopping platform. With increasing competition among platforms offering similar products, prices and services, customer experience has become an important area of business strategy. The online shopping industry has become an important part of the modern retail sector, supported by smartphones, internet connectivity and digital payments, and AI helps platforms improve customer experience by making interactions more personalised, responsive and efficient. The integration of AI is therefore not limited to automation; it represents a shift towards more personalised and intelligent customer interaction.

Need, Scope and Limitations of the Study

Customers may hold different opinions about the usefulness of AI-enabled shopping features, and studying them helps platforms understand customer expectations and improve their services. The study covers AI-powered personalization, chatbots and customer assistance, intelligent product information and search, and predictive and automated services, based on the perceptions of customers who use online shopping platforms. The findings are limited

by the sample of 70 respondents, the use of personal opinions that may involve bias, the limited period of data collection, and respondents' varying awareness of AI features.

Objectives of the Study:

Primary objective:

To study the role of Artificial Intelligence in enhancing customer experience in online shopping.

Secondary objectives:

1. To analyse the effect of AI-based search and product information on customer experience in online shopping.
2. To examine the impact of AI-powered personalization on customer experience in online shopping.
3. To assess the influence of AI chatbots and virtual assistants on customer experience in online shopping.
4. To examine the influence of AI-based predictive and automated services on customer experience in online shopping.
5. To evaluate the overall customer experience in AI-enabled online shopping.

Review of Literature:

Artificial Intelligence has increasingly become an important technology in online shopping, particularly in personalization, customer assistance, product recommendations, intelligent search and automated services. Existing studies indicate that AI can improve different stages of the online shopping journey by using customer data to understand preferences, provide relevant recommendations, simplify product search and offer faster assistance. At the same time, previous research points to concerns such as privacy, relevance of recommendations, trust, system limitations and reduced human interaction.

Shakila and Anthony Rahul Golden (2025) examined the role of AI personalization in the online shopping experience of professional women in South India. Using a structured closed-ended questionnaire distributed through Google Forms and stratified sampling, they obtained 393 valid responses from working women in Chennai, Trivandrum and Bengaluru. Respondents were interested in AI technologies and recognised their influence on purchase decisions, but actual use of AI tools was inconsistent, satisfaction with personalized recommendations was neutral to mildly positive, and customized AI styling advice did not significantly affect the overall buying experience. The study suggests that the effectiveness of AI personalization depends on the relevance, authenticity, cultural suitability and trustworthiness of the recommendations.

Mukund and Tripathi (2024) studied how recommendation systems, personalized promotions, predictive analytics and AI-based customer service create customized online shopping experiences. A descriptive design was adopted and 200 e-commerce users in Delhi were selected through convenience sampling. About 78% of respondents considered AI-based suggestions useful, 70% felt more engaged because of personalized content, 68% believed AI-supported customer service improved satisfaction, and 72% felt that AI enhanced their general shopping experience. The researchers also identified concerns relating to data privacy, irrelevant recommendations and reduced human interaction.

Aggarwal, Sharma and Saxena (2024) discussed the use of AI in personalized product recommendations, fraud detection, customer support, inventory management and product discovery. AI systems can analyse browsing and purchase history to recommend relevant products, while chatbots and virtual assistants provide quick responses and resolve common problems; demand prediction and inventory management reduce stock shortages, and virtual try-on technologies can reduce product returns. The study concludes that AI can make online shopping more personalized, convenient, secure and efficient.

Zhang (2024) investigated the role of AI in enhancing online sales and customer experience in the Chinese e-commerce market through a mixed-method approach, combining a questionnaire answered by about 100 Chinese online shoppers with interviews of representatives of three e-commerce companies. Consumers were familiar with AI technologies such as image recognition and personalized recommendation, but their frequency of use varied and satisfaction remained neutral to mildly positive, suggesting that the availability of AI does not by itself guarantee a satisfactory experience. Intelligent search, virtual shopping assistants and AI-supported customer support were found to improve efficiency and sales, while system compatibility, data integration and privacy remained challenges.

Ebaietaka (2024) examined the use of AI in enhancing customer experience in the Lithuanian e-commerce sector through a quantitative, survey-based master's thesis covering personalized recommendations, sentiment analysis, search and filtering, chatbots and predictive analytics. The findings indicated that AI-enabled services can contribute to customer convenience, engagement, satisfaction, trust and loyalty, but that their effectiveness depends on performance, accuracy, reliability and the ability to respond appropriately to customer requirements.

Upreti, Gangwar, Vats, Bhardwaj, Khatri and Gautam (2024) examined the application of artificial neural networks in e-commerce, with emphasis on personalization, recommendation and customer experience. By analysing browsing and purchasing behaviour, neural networks can generate recommendations aligned with individual preferences and improve interaction between customers and platforms. The study also discusses AI applications in customer assistance, inventory management, pricing and fraud detection, supporting a move from general services towards more customer-focused experiences.

Abu Daqar and Smoudy (2019) examined the role of AI in enhancing customer experience in banking and telecommunications in Palestine using interviews and a structured questionnaire. They found a statistically significant positive relationship between AI and customer experience, with AI explaining 26.4% of its variation, and a stronger effect on customer service than on after-sales support. The study highlighted the importance of personalized service throughout the buying journey and of AI in call centres to reduce waiting time, while noting implementation cost and lack of technical skills as barriers.

Research Gap

The reviewed studies collectively establish that AI can influence customer experience through personalization, recommendation systems, chatbots,

intelligent search, customer support and predictive services. However, they differ in geographical setting, customer group and AI application: Shakila and Anthony Rahul Golden (2025) concentrated on professional women in South India, Zhang (2024) on Chinese consumers and e-commerce companies, Ebaietaka (2024) on the Lithuanian e-commerce context, and Abu Daqar and Smoudy (2019) on banking and telecommunications in Palestine. Several studies have also concentrated on individual aspects such as personalization or customer service rather than examining multiple AI-enabled features together. The present study therefore examines AI-powered personalization, AI chatbots and virtual assistants, AI-based search and product information, and AI-based predictive and automated services together in relation to the overall customer experience of online shoppers.

Research Methodology:

Research methodology refers to the systematic procedure followed by the researcher to conduct the study and achieve the research objectives. It provides a structured framework for collecting, analysing and interpreting the required data. The methodology adopted for the present study includes the research design, sample design, population, sampling frame, sample size, data collection methods and statistical tools for analysis.

Research Design

The study adopts a descriptive research design, which is used to describe the characteristics, opinions and perceptions of respondents regarding a particular subject. In this study, it is used to understand customers' perceptions of the use of Artificial Intelligence in online shopping and its contribution to customer experience, including their opinions about AI-powered personalization, chatbots, product information and search, and predictive and automated services. The design is appropriate because the study collects and analyses the responses of online shoppers through a structured questionnaire.

Sample Design

The study adopts convenience sampling, a non-probability technique in which respondents are selected based on their accessibility and willingness to participate. Respondents who were accessible and had experience with online shopping were selected.

Population: the population comprises online shopping customers who have experience using online shopping platforms and AI-enabled features such as personalised recommendations, chatbots, intelligent search and product suggestions.

Sampling frame: the frame consists of accessible online shoppers who were approached and were willing to respond to the online questionnaire. As no complete official list of online shoppers is available, the accessible respondents who satisfied the study requirements formed the practical sampling frame.

Sample size: the data were collected from 70 respondents through a structured questionnaire, and the responses were used for percentage analysis and further statistical analysis.

Data Collection

Both primary and secondary data were used. Primary data were collected directly from respondents through a structured questionnaire prepared using Google Forms and circulated among online shopping customers. A total of 70 responses were considered for analysis. The questionnaire collected the respondents' demographic characteristics and their opinions on AI-powered personalization, AI chatbots and virtual assistants, AI-based search and product information, predictive and automated services, and overall customer experience, using five-point Likert-scale statements. Secondary data were collected from relevant books, journals, research articles, websites and previously published studies, and supported the conceptual understanding and review of literature.

Tools for Analysis

The collected data were analysed using the following statistical tools.

- Percentage analysis: used to understand the distribution and proportion of responses, mainly for demographic characteristics and other categorical responses.
- Weighted average analysis: used to identify the most influential AI-enabled factor, by assigning appropriate weights to the five-point Likert-scale responses.
- Multiple regression analysis: used to examine the impact of the AI-related independent variables (personalization, chatbots, search and automation) on the dependent variable, customer experience.
- One-way ANOVA: used to determine whether responses differ significantly between groups of respondents, here the age groups.

Data Analysis and Interpretation

1. PERCENTAGE ANALYSIS – DEMOGRAPHIC PROFILE (N = 70)

Table 1. Respondent profile and shopping behaviour

Variable	Key result
Gender	Female 58.6%; Male 41.4%
Age	21–30 years 50.0%; 18–20 years 31.4%
Occupation	Students 52.9%; private employees 27.1%
Monthly income	No income 58.6%; ₹20,000–40,000 21.4%
Online shopping frequency	“Sometimes” 48.6%; rarely 21.4%

The sample is tilted towards women, and 81.4% of respondents are below 30 years of age. Most respondents are students or private employees and occasional online shoppers, so the opinions reflect largely the young shopper.

2. PERCENTAGE ANALYSIS – OPINION STATEMENTS

Table 2. Favourable responses (agree or strongly agree) by AI dimension

AI dimension	Favourable responses (range across five statements)
AI-powered personalization	58.6% – 68.6%
AI chatbots and virtual assistants	48.6% – 70.0%
AI search and product information	60.0% – 64.3%
AI predictive and automated services	54.3% – 62.9%
Customer experience statements	54.3% – 64.3%

Across all dimensions, a majority of respondents gave a favourable opinion for almost every statement, with neutral responses forming the second-largest group (generally 20–35%) and unfavourable responses limited to about 6–16%. Personalized recommendations making shopping more convenient (68.6%) and chatbots making it easier to obtain product and order information (70.0%) received the highest agreement, whereas the availability of chatbots whenever support is needed received the lowest (48.6%, with 40.0% neutral).

3. WEIGHTED AVERAGE ANALYSIS

Table 3. Weighted average of selected AI-enabled factors

Factor	Weighted total	Weighted average	Rank
AI chatbots – information	265	17.67	1
AI – saves time and effort	259	17.27	2
CE – AI-based services	250	16.67	3
AI – relevant and accurate	249	16.60	4
Product recommendation	243	16.20	5

The weighted average analysis shows that respondents attach the highest importance to the ability of AI chatbots to provide information, followed by the time and effort saved through AI-based automated services.

4. ONE-WAY ANOVA

H0: There is no significant difference in the mean influence of AI-based product information on purchase preference among the age groups.

Table 4. ANOVA – purchase preference by age group

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.84	4	0.46	0.43	0.788
Within Groups	70.00	65	1.08		
Total	71.84	69			

Inference: The significance value (0.788) is greater than 0.05, so the null hypothesis is accepted. The influence of AI-based product information on purchase preference does not differ significantly among age groups; age explains only about 2.6% of the variation. The result should be read with caution because the 41–50 and above-50 groups contain only 3 and 1 respondents.

5. MULTIPLE REGRESSION ANALYSIS

H0: The AI-enabled factors (personalization, chatbots, search and automation) do not have a significant effect on customer experience in online shopping.

Table 5. Regression model summary and ANOVA

R	R Square	Adjusted R Square	F	Sig.
0.15	0.02	–0.04	0.38	0.824

Table 6. Regression coefficients (dependent variable: customer experience)

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	3.35	0.74		4.54	0.000
AI Personalization	0.05	0.14	0.05	0.37	0.714
AI Chatbots	0.10	0.13	0.11	0.76	0.452
AI Search	0.05	0.12	0.05	0.38	0.708
AI Automation	-0.11	0.14	-0.10	-0.75	0.457

Inference: The four AI factors together explain only about 2% of the variation in customer experience, and the model as a whole is not significant ($F(4, 65) = 0.38$, $p = 0.824$). None of the four factors is individually significant, so the null hypothesis is accepted. Only the constant is significant (3.35), showing that the baseline customer experience is already above the neutral point of the five-point scale. Since most respondents rate customer experience favourably irrespective of their ratings of individual AI features, there is little variation for the model to explain; the small convenience sample may also have limited the power of the test.

Results:

1. Respondents are aware of and use AI-enabled features such as personalized recommendations, chatbots, intelligent search and product information, and predictive or automated services; a majority gave favourable opinions on almost every statement.
2. AI-based personalization was seen as helpful in finding relevant products and in making shopping more convenient (68.6% favourable).
3. AI chatbots were valued mainly for providing product and order information (70.0% favourable), although fewer respondents agreed that chatbots are available whenever needed (48.6%).
4. Weighted average analysis ranked chatbot-based information first and time saved through automated services second.
5. The influence of AI-based product information on purchase preference does not differ significantly across age groups.
6. The four AI factors did not significantly explain differences in customer experience in this sample; favourable perceptions of AI features coexist with a generally positive customer experience.

Suggestions

1. Improve the accuracy and relevance of personalization and avoid irrelevant or repeated suggestions that reduce trust.
2. Strengthen AI chatbots so that they understand queries accurately, and provide an easy option to reach a human representative.
3. Improve search and product information so that customers can find and compare products quickly.
4. Use predictive services responsibly, without being excessive or intrusive.
5. Protect customer privacy, communicate how data is used and inform customers when they interact with AI.
6. Regularly collect customer feedback and evaluate the performance of AI-enabled services.

Conclusion:

The study examined how AI-enabled technologies influence the experience of online shoppers. Respondents generally hold favourable perceptions of AI-powered personalization, chatbots, search and product information, and predictive and automated services, which can make online shopping more convenient, efficient and customer-oriented. At the same time, the statistical tests did not find a significant effect of the four AI factors on overall customer experience in this sample, and the effectiveness of AI depends on the accuracy, relevance, reliability and usefulness of the services provided. Challenges such as data privacy, irrelevant recommendations and reduced human interaction remain important. Online shopping platforms should therefore use AI responsibly and transparently while maintaining human support. Future research may use larger, probability-based samples to confirm the relationships examined here.

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