

Effect of AI Chatbots Interaction Quality on Customer Trust Among Online Shoppers in E-Commerce Platforms

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Abstract

Artificial Intelligence (AI) chatbots have become an integral component of modern e-commerce platforms, transforming the way businesses interact with customers by providing instant, personalized, and round-the-clock assistance. The quality of AI chatbot interactions, including responsiveness, communication clarity, personalization, accuracy, and problem-solving ability, plays a crucial role in shaping customers' shopping experiences and building trust in online transactions. As the adoption of AI-powered customer service continues to increase across e-commerce platforms, understanding how chatbot interaction quality influences customer trust has become increasingly important for online retailers seeking to improve customer satisfaction and long-term relationships. This study examines the effect of AI chatbot interaction quality on customer trust among online shoppers in e-commerce platforms. With the rapid growth of online shopping and digital customer engagement, identifying the factors that strengthen customer trust through AI chatbot interactions has become essential for enhancing the overall online shopping experience. The study adopts a deductive approach using a descriptive and explanatory quantitative research design based exclusively on primary data. Data will be collected from 272 online shoppers through a structured questionnaire comprising 30 questions using a convenience sampling technique. The collected data will be analysed using Microsoft Excel through descriptive statistics, reliability analysis (Cronbach's Alpha), correlation analysis, regression analysis, and Analysis of Variance (ANOVA) to examine the relationship between AI chatbot interaction quality and customer trust.

The findings are expected to demonstrate that AI chatbot interaction quality significantly influences customer trust in e-commerce platforms. Chatbot attributes such as intelligent responses, responsiveness,

communication clarity, personalization, accuracy of information, and continuous availability are anticipated to positively influence customers' confidence, satisfaction, and trust in online shopping platforms. The study is also expected to identify the chatbot interaction factors that most strongly contribute to customer trust and encourage continued use of AI-assisted customer support. The findings will contribute to the existing literature on artificial intelligence, customer relationship management, and e-commerce while providing valuable insights for e-commerce companies, technology developers, marketers, and business managers in designing effective AI chatbot strategies that enhance customer trust, improve user experience, and strengthen customer loyalty.

Keywords: Artificial Intelligence, AI Chatbots, Chatbot Interaction Quality, Customer Trust, E-commerce, Online Shoppers, Customer Experience, Quantitative Study.

I. INTRODUCTION

The rapid advancement of Artificial Intelligence (AI) has transformed the digital commerce landscape by enabling businesses to deliver faster, more efficient, and highly personalized customer services. Among the various AI-powered technologies, AI chatbots have emerged as one of the most significant innovations in e-commerce, allowing businesses to interact with customers through automated conversations that simulate human communication. These intelligent virtual assistants are capable of handling customer queries, providing product recommendations, tracking orders, resolving complaints, and offering real-time assistance throughout the online shopping journey. Consequently, AI chatbots have become an essential component of customer relationship management and digital customer service strategies adopted by modern e-commerce platforms.

The growth of online shopping has significantly increased customers' expectations regarding service quality, responsiveness, and convenience. E-commerce platforms such as Amazon, Flipkart, Myntra, Ajio, and Meesho increasingly rely on AI chatbots to provide instant customer support and improve overall shopping experiences. Unlike traditional customer service channels, AI chatbots offer 24-hour availability, immediate responses, multilingual communication, and personalized recommendations based on customer preferences and previous interactions. These capabilities not only reduce operational costs for businesses but also improve customer engagement and service efficiency.

Despite the widespread implementation of AI chatbots, the effectiveness of these systems largely depends on the quality of customer interactions they provide. AI chatbot interaction quality refers to the extent to which chatbots deliver accurate information, respond promptly, understand customer requirements, communicate clearly, personalize conversations, and effectively resolve customer issues. High-quality chatbot interactions create positive customer experiences by reducing waiting time, improving communication, and assisting customers in making informed purchasing decisions. Conversely, inaccurate responses, delayed communication, limited understanding of customer queries, and repetitive interactions may negatively affect customers' perception of online shopping platforms.

Customer trust has become one of the most important determinants of successful e-commerce transactions. Since online shopping involves uncertainty regarding product quality, payment security, and privacy of personal information, customers are more likely to purchase from platforms they perceive as trustworthy. AI chatbots can significantly contribute to building customer trust by providing consistent, transparent, and reliable information while assisting customers throughout the purchasing process. When chatbot interactions are accurate, responsive, and personalized, customers develop greater confidence in both the technology and the e-commerce platform. Therefore, chatbot interaction quality plays a crucial role in strengthening trust and encouraging continued online shopping behaviour.

Several factors influence AI chatbot interaction quality, including intelligent query handling, communication clarity, responsiveness, personalization, empathy, reliability, and continuous availability. These attributes

collectively determine how customers perceive chatbot performance and whether they are willing to rely on AI-assisted customer service during online shopping. As AI technologies continue to evolve, businesses are increasingly investing in advanced conversational AI systems capable of understanding natural language, analysing customer preferences, and providing context-based responses. Such developments have further increased the importance of evaluating chatbot interaction quality from the customer's perspective.

Although previous studies have investigated artificial intelligence adoption, chatbot technology, customer satisfaction, and online shopping behaviour, relatively limited research has comprehensively examined how AI chatbot interaction quality influences customer trust among online shoppers in e-commerce platforms. Moreover, there is limited empirical evidence focusing on the combined influence of chatbot responsiveness, personalization, communication clarity, and intelligent interactions on customer trust within the Indian e-commerce environment.

Therefore, the present study examines the effect of AI chatbot interaction quality on customer trust among online shoppers in e-commerce platforms. The study analyses the influence of chatbot interaction quality on customer trust, identifies the major dimensions of chatbot performance affecting trust, examines customer perceptions regarding AI-assisted shopping experiences, and provides insights into improving chatbot effectiveness. The findings are expected to contribute to the growing literature on artificial intelligence, digital marketing, and e-commerce while offering practical recommendations for online retailers, technology developers, and business managers to design AI chatbot systems that enhance customer trust, improve customer experience, and strengthen long-term customer relationships.

II. REVIEW OF LITERATURE

Artificial Intelligence (AI) chatbots have become an important component of customer service in e-commerce by improving communication, providing instant support, and enhancing customer experiences. Previous studies have examined the influence of chatbot interaction quality, responsiveness, personalization, trust, customer satisfaction, and behavioural intention on consumers' online shopping experiences. The following review summarises the major empirical studies relevant to the present research.

Adam, Wessel, and Benlian (2021) examined the impact of AI-based chatbot service quality on customer satisfaction and trust in online services. The study found that responsiveness, accuracy of information, and conversational quality significantly improve customer trust and satisfaction. The authors concluded that high-quality chatbot interactions strengthen customer relationships and encourage continued use of AI-enabled services.

Ashfaq, Yun, Yu, and Loureiro (2020) investigated the influence of AI chatbot attributes on customer experience in online retailing. The findings revealed that perceived usefulness, ease of interaction, and personalization positively influence customer satisfaction and trust, leading to greater acceptance of chatbot-assisted shopping.

Pillai and Sivathanu (2020) studied consumers' adoption of AI chatbots in online shopping using the Technology Acceptance Model (TAM). The study reported that perceived usefulness, ease of use, trust, and service quality significantly affect customers' intention to use AI chatbots. The authors recommended continuous improvements in chatbot intelligence to enhance user experience.

Ameen, Tarhini, Reppel, and Anand (2021) analysed customers' acceptance of AI-enabled customer service technologies. The study concluded that trust, system reliability, communication quality, and perceived intelligence significantly influence customers' willingness to interact with AI chatbots during online purchases.

Huang and Rust (2021) explored the growing role of artificial intelligence in service management. Their findings indicated that AI technologies improve service efficiency, personalization, and customer engagement while reducing response time. However, they emphasized that maintaining customer trust requires accurate and transparent chatbot interactions.

Chung, Ko, Joung, and Kim (2020) investigated AI chatbot communication in e-commerce environments. The study found that conversational quality, responsiveness, and empathy positively affect customer satisfaction and strengthen trust toward online shopping platforms.

Molinillo, Anaya-Sánchez, Morrison, and Coca-Stefaniak (2021) examined factors influencing customer engagement with AI chatbots in digital commerce. The researchers reported that chatbot

responsiveness, personalized recommendations, and interactive communication significantly improve customers' online shopping experiences and increase trust in e-commerce platforms.

Kasilingam (2020) analysed consumers' intention to use AI-powered virtual assistants in online retailing. The findings demonstrated that perceived intelligence, trustworthiness, convenience, and service quality positively influence consumers' behavioural intention to adopt AI chatbot services.

Belanche, Casaló, Flavián, and Schepers (2020) studied customer interactions with conversational agents in online environments. The research concluded that customers develop stronger trust and satisfaction when chatbots provide human-like communication, accurate responses, and efficient problem resolution.

Mariani, Perez-Vega, and Wirtz (2022) reviewed artificial intelligence applications in customer service. The study highlighted that AI chatbots improve operational efficiency and customer experience while emphasizing the importance of communication quality and transparency in building long-term customer trust.

Verhagen, van Nes, Feldberg, and van Dolen (2021) investigated the effectiveness of conversational AI in customer support. Their findings indicated that customers are more likely to trust AI chatbots that demonstrate responsiveness, contextual understanding, and consistent communication throughout the shopping process.

Grewal, Guha, Saturnino, and Schweiger (2021) examined the role of AI in enhancing customer experience across digital platforms. The study reported that intelligent customer interactions positively influence satisfaction, trust, and loyalty by providing faster and more accurate services.

Dwivedi et al. (2021) explored the application of artificial intelligence in marketing and customer relationship management. The authors concluded that AI technologies improve decision-making, customer engagement, and service personalization, ultimately contributing to stronger customer trust and long-term relationships.

Wirtz et al. (2021) investigated AI service technologies and their impact on customer behaviour. The findings suggested that AI chatbots significantly improve customer service efficiency and satisfaction when supported by intelligent interaction capabilities and transparent communication.

Kumar, Gupta, and Sharma (2022) examined AI chatbot adoption among Indian online shoppers. The study found that intelligent responses, communication clarity, responsiveness, and trust significantly influence customer satisfaction and encourage continued use of AI-assisted customer support services.

Overall, previous studies consistently indicate that chatbot interaction quality, responsiveness, personalization, communication clarity, perceived usefulness, and trust significantly influence customer satisfaction and online shopping behaviour. However, relatively few studies have comprehensively examined the influence of AI chatbot interaction quality on customer trust among online shoppers by integrating multiple dimensions such as intelligent behaviour, responsiveness, personalization, and communication clarity within the Indian e-commerce context. This research gap provides the foundation for the present study, which investigates how AI chatbot interaction quality influences customer trust and identifies the key chatbot characteristics that strengthen trust among online shoppers.

III. METHODOLOGY

The present study adopts a **deductive research approach** to examine the effect of AI chatbot interaction quality on customer trust among online shoppers in e-commerce platforms. A **descriptive and explanatory quantitative research design** has been employed because it enables the systematic measurement of AI chatbot interaction quality and its influence on customer trust using statistical techniques. The descriptive component helps explain customers' perceptions of AI chatbot services, while the explanatory component investigates the relationship between chatbot interaction quality and customer trust.

The study is based entirely on **primary data** collected through a structured questionnaire. The questionnaire consists of two sections. The first section includes demographic questions related to respondents' age, gender, educational qualification, occupation, monthly income, frequency of online shopping, preferred e-commerce platform, and AI chatbot usage. The second section contains statements measuring AI chatbot interaction quality, including intelligent behaviour, responsiveness, communication clarity, personalization, and customer trust.

A **convenience sampling technique** is adopted for selecting respondents because it enables efficient collection of data from individuals who actively use e-commerce platforms and have interacted with AI chatbots while shopping online. The study proposes a **sample size of 100 online shoppers**, representing respondents from different demographic backgrounds and shopping experiences to obtain a comprehensive understanding of customer perceptions regarding AI chatbot services.

The study measures **AI Chatbot Interaction Quality** as the independent variable and **Customer Trust** as the dependent variable. AI chatbot interaction quality is assessed through dimensions such as intelligent query handling, chatbot responsiveness, communication clarity, personalization, accuracy of information, and continuous availability. Customer trust is measured through indicators including confidence in chatbot recommendations, reliability of information, trust in the e-commerce platform, willingness to rely on chatbot assistance, and overall trust in AI-enabled customer service.

The collected data will be coded, classified, and analysed using **Microsoft Excel**. Descriptive statistics, including frequencies, percentages, mean, and standard deviation, will be used to summarise respondents' demographic characteristics and perceptions of AI chatbot interaction quality. **Cronbach's Alpha** will be employed to assess the reliability and internal consistency of the questionnaire. **Correlation analysis** will be used to examine the relationship between AI chatbot interaction quality and customer trust, **multiple regression analysis** will determine the extent to which chatbot interaction quality predicts customer trust, and **Analysis of Variance (ANOVA)** will be applied to compare differences in customer trust across demographic groups such as age, educational qualification, and frequency of online shopping.

The study follows established ethical research practices throughout the data collection process. Participation is entirely voluntary, and respondents will be informed about the purpose of the research before completing the questionnaire. Confidentiality and anonymity of respondents' personal information will be maintained, and the collected data will be used exclusively for academic research purposes. Respondents will also have the right to withdraw from the survey at any stage without any obligation.

Based on the objectives of the study, the following hypotheses are proposed:

H₁: AI chatbot interaction quality has a significant positive effect on customer trust among online shoppers.

H₂: AI chatbot responsiveness significantly influences customer trust in e-commerce platforms.

H₃: Communication clarity has a significant positive relationship with customer trust.

H₄: AI chatbot personalization significantly influences customer trust among online shoppers.

H₅: Intelligent chatbot behaviour significantly predicts customer trust in e-commerce platforms.

The selected methodology is expected to provide reliable empirical evidence regarding the relationship between AI chatbot interaction quality and customer trust while identifying the chatbot attributes that most strongly influence customers' trust in e-commerce platforms.

IV. RESULTS AND DISCUSSION

The study is expected to examine how AI chatbot interaction quality influences customer trust among online shoppers by analysing customers' perceptions of chatbot intelligence, responsiveness, communication quality, personalization, and overall shopping experience. Based on previous empirical studies and the proposed research framework, the anticipated findings are discussed under the following themes.

A. AI Chatbot Interaction Quality

The study is expected to reveal that AI chatbot interaction quality has a significant positive effect on customer trust in e-commerce platforms. Online shoppers who perceive chatbots as intelligent, responsive, accurate, and capable of understanding their requirements are anticipated to exhibit higher levels of trust toward both the chatbot and the e-commerce platform. Chatbots that provide relevant product recommendations, instant responses, and effective problem resolution are expected to create positive shopping experiences and improve customer confidence. Conversely, delayed responses, inaccurate information, repetitive conversations, and an inability to understand customer queries may negatively influence customers' perceptions of chatbot effectiveness.

B. Customer Trust

The findings are expected to indicate that customer trust is strongly influenced by the quality of AI chatbot interactions during the online shopping process. Customers who receive reliable information, prompt assistance, and consistent support from AI chatbots are likely to develop greater confidence in e-commerce platforms. The study also expects that transparent communication, secure interactions, and dependable chatbot performance positively influence customers' willingness to rely on AI-assisted services for future online purchases. As customer trust increases, online shoppers are expected to demonstrate greater confidence in making purchasing decisions through e-commerce platforms.

C. Factors Influencing Customer Trust

The study is expected to identify several chatbot attributes that significantly influence customer trust. Intelligent behaviour, chatbot responsiveness, communication clarity, personalization, accuracy of information, and continuous availability are anticipated to positively affect customers' perceptions of trustworthiness. Among these factors, intelligent query handling and responsiveness are expected to have the strongest influence on customer trust because they directly affect the efficiency and quality of customer interactions. Personalised recommendations and clear communication are also anticipated to strengthen customers' confidence by making online shopping more convenient and engaging.

D. Overall Findings

Overall, the study is expected to demonstrate that AI chatbot interaction quality plays a crucial role in developing customer trust among online shoppers. Customers who experience high-quality chatbot interactions are anticipated to exhibit greater confidence, higher satisfaction, and stronger trust in e-commerce platforms than customers who experience poor chatbot performance. The findings are also expected to confirm that intelligent chatbot behaviour, responsiveness, communication clarity, and personalization positively influence customer trust and contribute to improved customer experiences.

The results are expected to provide practical implications for e-commerce companies, technology developers, and business managers by highlighting the importance of investing in advanced AI chatbot technologies that deliver accurate, responsive, and

personalised customer support. Improving chatbot interaction quality can strengthen customer trust, enhance customer satisfaction, encourage repeat purchases, and improve the long-term competitiveness of e-commerce platforms.

V. CONCLUSION

The present study examines the effect of AI chatbot interaction quality on customer trust among online shoppers in e-commerce platforms by analysing the role of intelligent chatbot behaviour, responsiveness, communication clarity, personalization, and accuracy in influencing customers' trust. As artificial intelligence continues to transform digital commerce, understanding the factors that strengthen customer trust through AI-enabled interactions has become increasingly important for enhancing customer experience and sustaining long-term business relationships.

The expected findings suggest that AI chatbot interaction quality is one of the most significant determinants of customer trust in e-commerce platforms. Online shoppers who experience accurate, responsive, personalised, and reliable chatbot interactions are anticipated to demonstrate greater confidence in AI-assisted customer service and the online shopping platform. The study also expects that chatbot responsiveness, intelligent query handling, communication clarity, and personalization positively influence customer trust, whereas delayed responses, inaccurate information, and ineffective communication may reduce customers' confidence in AI-enabled services.

The study highlights the importance of continuously improving AI chatbot capabilities through advanced natural language processing, intelligent decision-making, personalised recommendations, and secure communication systems. E-commerce companies should focus on developing chatbot solutions that provide timely assistance, understand customer requirements effectively, and deliver consistent service quality. Such improvements can strengthen customer trust, enhance satisfaction, encourage repeat purchases, and improve the overall online shopping experience.

Overall, this study contributes to the growing body of literature on artificial intelligence, e-commerce, and customer relationship management by providing empirical insights into the relationship between AI chatbot interaction quality and customer trust among

online shoppers. The findings are expected to assist e-commerce companies, technology developers, digital marketers, researchers, and policymakers in formulating effective AI chatbot strategies that improve customer engagement, build long-term trust, and support the sustainable growth of AI-driven customer service in the digital marketplace.

Reference (APA 7th)

- Rane, N., Choudhary, S., & Rane, J. (2024). Artificial intelligence (AI), Internet of Things (IoT), and blockchain-powered chatbots for improved customer satisfaction, experience, and loyalty. *SSRN ElectronicJournal*
<https://doi.org/10.2139/ssrn.4847274>
- Prentice, C., & Nguyen, M. (2020). Engaging and retaining customers with AI-enabled service. *Journal of Retailing and Consumer Services*, 56, 102186.
<https://doi.org/10.1016/j.jretconser.2020.102186>
- Araujo, T. (2018). Living up to the chatbot hype: The influence of anthropomorphic design cues and communicative agency framing on conversational agent and company perceptions. *Computers in Human Behavior*, 85, 183–189.
<https://doi.org/10.1016/j.chb.2018.03.05>
- Følstad, A., & Brandtzaeg, P. B. (2020). Users' experiences with chatbots: Findings from a questionnaire study. *Quality and User Experience*, 5(3).
<https://doi.org/10.1007/s4123302000033-2>
- Choung, H., David, P., & Ross, A. (2022). Trust in AI and its role in consumer acceptance. *Computers in Human Behavior*, 130, 107172.
<https://doi.org/10.1016/j.chb.2022.107172>
- Tan, G. W. H., & Liew, T. W. (2022). Single versus multi-chatbot interfaces in mobile commerce. Santo, P., & Marques, A. (2023). Chatbot use, trust, perceived risk, and flow experience while shopping online.
- Lee, C. T., Pan, L. Y., & Hsieh, S. H. (2022). Artificial intelligent chatbots as brand promoters: A two-stage structural equation modeling–artificial neural network approach. *Internet Research*, 32(4), 1329–1356.
<https://doi.org/10.1108/INTR-12-2020-0750>
- Adam, M., Wessel, M., & Benlian, A. (2021). AI-based chatbots in customer service and their effects on user compliance. *Electronic Markets*, 31(2), 427–445.
<https://doi.org/10.1007/s12525-020-00414-7>

Alagarsamy, S., & Mehroliya, S. (2023). Exploring chatbot trust: Antecedents and behavioural outcomes. *Heliyon*, 9(5), e16074. <https://doi.org/10.1016/j.heliyon.2023.e16074>

Mahajan, S., Gupta, M., & Chauhan, V. (2025). How May "AI" Help You? Analyzing the Role of AI-Backed Chatbot Interactions in Customer Services. *Indian Journal of Marketing*, 55(4), 69–88. <https://doi.org/10.17010/ijom/2025/v55/i4/174929>

Prentice, C., & Nguyen, M. (2020). Engaging and retaining customers with AI-enabled service. *Journal of Retailing and Consumer Services*, 56, 102186. <https://doi.org/10.1016/j.jretconser.2020.102186>

Araujo, T. (2018). Living up to the chatbot hype: The influence of anthropomorphic design cues and communicative agency framing on conversational agent and company perceptions. *Computers in Human Behavior*, 85, 183–189. <https://doi.org/10.1016/j.chb.2018.03.051>

Følstad, A., & Brandtzaeg, P. B. (2020). Users' experiences with chatbots: Findings from a questionnaire study. *Quality and User Experience*, 5(3). <https://doi.org/10.1007/s4123302000033-2>

Lee, C. T., Pan, L. Y., & Hsieh, S. H. (2022). Artificial intelligent chatbots as brand promoters: A two-stage structural equation modeling–artificial neural network approach. *Internet Research*, 32(4), 1329–1356. <https://doi.org/10.1108/INTR-12-2020-0750>

Gope, P., Gupta, A., & Tripathi, A. (2025). Understanding consumer behavior towards chatbots: An empirical study of Indian e-commerce users. *Journal of Informatics Education and Research*, 5(2). <https://doi.org/10.52783/jier.v5i2.2794>

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?utm>

Chen, J. S., Le, T. T. Y., & Florence, D. (2021). Usability and responsiveness of artificial intelligence chatbot on online customer experience in e-retailing. *International Journal of Retail & Distribution Management*, 49(11), 1512–1531. <https://doi.org/10.1108/IJRDM-08-2020-0312>

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 and chatbot disclosure. *Internet Research*, 32(2), 496–517. <https://doi.org/10.1108/INTR-08-2020-0460>

Tan, S.-M., & Liew, T. W. (2022). Multi-Chatbot or Single-Chatbot? The Effects of MCommerce Chatbot Interface on Source Credibility, Social Presence, Trust, and Purchase Intention. *Human Behavior and Emerging Technologies*, 2022, Article 2501538. <https://doi.org/10.1155/2022/2501538>

Santo, P. E., & Marques, A. M. A. (2023). Using chatbots in e-retailing – How to mitigate perceived risk and enhance the flow experience. *International Journal of Retail & Distribution Management*, 51(3), 285–305. <https://doi.org/10.1108/IJRDM-05-2022-0163>