

# Role Of AI Chatbot in Shaping Customer Engagement and Loyalty in E-Commerce Platforms

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**Abstract**—Artificial Intelligence AI- powered chatbots are transforming the landscape of customer service in e-commerce platforms. These intelligent systems enable real- time, personalized, and interactive communication, enhancing the overall customer experience. This paper explores how AI chatbots contribute to building customer engagement and fostering long-term loyalty. By automating routine queries, offering product recommendations, and maintaining 24/7 availability, chatbots significantly improve user satisfaction and trust. The study also highlights the psychological factors influencing consumer responses to chatbot interaction, including availability& responsiveness, personalization, trust, customer engagement, customer loyalty. The findings suggest that effectively designed AI chatbots not only streamline service efficiency but also act as strategic tools in nurturing deeper customer relationships, thereby enhancing brand loyalty in a competitive digital marketplace.

**Index Terms**—Artificial Intelligence, Chatbots, Customer Engagement, Customer loyalty.

## I. INTRODUCTION

The rapid evolution of digital technologies has significantly transformed the e-commerce landscape, with Artificial Intelligence (AI) playing a pivotal role in enhancing customer experiences. Among various AI application, chatbots have emerged as powerful tools simulate human-like conversation enabling businesses to engage with customers efficiently and effectively. AI chatbots are being increasingly adopted by e-commerce platforms to provide instant support, personalized recommendations, and round-the-clock service, thereby redefining the customer journey. Customer engagement and loyalty have become critical success factors for online retailers in a highly competitive and dynamic market. Traditional customer service methods often fall short in addressing real-time demands and personalization

expectations of modern consumers. AI chatbots bridge this gap by offering seamless, data-driven interaction that not only resolve customer queries but also anticipate needs and foster meaningful relationship. This study explores the role of AI chatbots in influencing customer engagement and loyalty within e-commerce settings. It aims to analysis how chatbot features such as responsiveness, personalization, and emotional intelligence impact user satisfaction and long-term brand connection. By understanding the behavioural responses and preferences of consumers interacting with AI systems, e-commerce business can strategically enhance their digital communication and customer retention efforts.

## SCOPE OF THE STUDY

This study aims to explores AI-powered chatbots influence customer engagements and loyalty within e-commerce platforms. It focuses on evaluating chatbot features such as instant responses, personalized communication, 24/7 availability, and interactive design. The scope includes analysing user experiences, satisfaction levels, and emotional connections built through chatbot interactions.

## NEED FOR THE STUDY

AI chatbots are becoming increasingly essential in online business, yet many companies still lack clarity on how these tools influence customer engagement and brand loyalty.

## II. REVIEW OF LITERATURE

Shankar et al. (2021) conducted the study on the conduct “Technology-driven customer engagements”. Studied tech’s role in building loyalty and engagement. A conceptual (literature-based) design was conducted. Multidisciplinary framework

statistical tools were used. The findings showed that chatbot support retention by reducing friction in services. The study Conclude that AI tools including chatbot are essential in digital loyalty models.

Adam et al. (2020) conducted a look at the “chatbots and customer service compliance.” This study examined how chatbot design affect engagement and behaviour. Data from 382 respondents were collected through a questionnaire. A lab experiment with simulated chatbot were used. Finding showed that human-like chatbots improve engagement and compliance. The result offer AI chatbots can influence user actions via tools or designs.

Chung et al. (2020) conducted study “chatbots service and satisfaction in luxury brands.” This study investigated the effect of chatbots on satisfaction in luxury e-commerce. Data from 370 online Shoppers respondents were collected. Survey and structural equation modelling (SEM) statistical tools were used. Findings showed that personalization improves satisfaction and future purchase intent. The study conclude that customization is key in chatbots effectiveness.

Pantano & Pizzi (2020) studied on the content the “AI chatbot evolution in retail.” This study examined chatbot patent and trends in retail adoption. An online check of 110 chatbot related patents analysis was conducted. Patent analysis statistical tools were used. The finding showed that growing interest in personalization, loyalty automation. The study’s conclusion gives chatbot will be central in future customer service strategies.

Luo et al. (2019) studied on the content assessing “Impact of AI chatbot disclosure on purchases.” This study examined how chatbot vs human agent influences consumer behaviour, 60 online check responses were collected from customer from an online retailer. Statistical ways were used field experiment and statistical analysis. Findings give disclosing chatbot identify reduced purchase intent unless explained well. Result shows disclosure transparency helps improve customer trust.

Gnewuch et al. (2018) conducted the study on the conduct “social design of chatbots.” This study focused on emotional and social cues in chatbot

design. A conceptual and experimental design was used. The finding showed that social features enhance trust and perception. The study benefits human-like elements improve trust and user comfort.

Wirtz et al. (2018) conducted the study on the content “technology-mediated service encounters.” Studied human vs tech-driven service preferences. Data from 385 survey responses were collected. Statistical ways were used SEM and consumer behaviour model. The Findings showed that customer prefer human agents in emotionally complex issues. The study Conclude that hybrid models preferred for emotional or complex queries.

### OBJECTIVES

- To study the demographic profile of the respondents.
- To examine the role of AI chatbots in Shaping Customer Engagement and loyalty in e-commerce.

### III. RESEARCH METHODOLOGY

This study uses a quantitative research approach to examine how AI chatbots influence customer engagement and loyalty in e-commerce platforms. Data was collected through a structured online questionnaire using fivepoint Likert scale, targeting users with prior chatbot experience on platforms. A sample of 80 respondents was collected. The collected data was analyzed using descriptive statistics. The study aims to understand how chatbot features such as personalization, responsiveness and trust impact customer engagement and loyalty.

### DATA ANALYSIS AND INTERPRETATION

This chapter presents the analysis of the collected data from 80 respondents. The data is analyzed using statistical techniques to understand AI chatbot shaping customer engagement and customer loyalty in e-commerce platforms. The results are presented in tables, followed by their interpretation.

OBJECTIVE :1 Demographic Profile of Respondents

| Demographic Factor | Categories    | Frequency (n=80) | Percentage (%) |
|--------------------|---------------|------------------|----------------|
| Gender             | Male          | 46               | 57.50%         |
|                    | Female        | 34               | 43.50%         |
| Age Group          | 18-25 years   | 23               | 28.70%         |
|                    | 26-35 years   | 32               | 40.00%         |
|                    | 36-45 years   | 15               | 18.75%         |
|                    | 46 and above  | 10               | 12.50%         |
| Education          | Undergraduate | 18               | 22.50%         |
|                    | Postgraduate  | 42               | 52.50%         |
|                    | Others        | 20               | 25.00%         |
| Occupation         | Student       | 19               | 23.75%         |
|                    | Employee      | 41               | 51.25%         |
|                    | Business      | 13               | 16.25%         |
|                    | Owner         | 19               | 23.75%         |
|                    | Others        | 7                | 8.75%          |

The majority of respondents are from the 26-35 age group (40.00%), indicating that young professionals are the primary and are more likely to interact with AI-powered chatbots. Most respondents (51.75%) are employed, suggesting that working professionals are key stakeholders in shaping customer engagement and

loyalty through AI chatbots experiences. Their frequent use of online service highlights the potential of ai chatbots to enhance customer satisfaction and foster long-term brand relationships in the digital marketplace.

Factors influencing Customer Engagement and Loyalty in E-commerce platforms

| Factors  | Strongly agree (%) | Agree (%) | Neutral (%) | Disagree (%) | Strongly Disagree (%) |
|--|--------------------|-----------|-------------|--------------|-----------------------|
| The chatbot is available 24/7 when i need help.              | 38                 | 30.6      | 18.8        | 9.1          | 3.5                   |
| I feel that the chatbot understands my preferences.          | 55.3               | 10.6      | 30.6        | 2.4          | 1.2                   |
| The chatbot increases my trust in the e-commerce platforms.  | 32.9               | 35.3      | 17.6        | 9.4          | 4.8                   |
| The chatbot increases my interest in browsing more products. | 31.8               | 35.3      | 18.8        | 5.9          | 8.2                   |
| The chatbot experience strengthens my loyalty to the brand   | 35.3               | 18.8      | 31.8        | 6.9          | 7.2                   |

The survey findings highlight significant customer insights regarding AI chatbot usage in e-commerce. A notable 68.6% of respondents agree that the availability and responsiveness of ai chatbots influences their interaction with online platforms, showing that play a key role in enhancing customer

engagement. A findings 65.9% personalization delivered by chatbots was identified as a major driver of loyalty, indicating that tailored responses improve customer satisfaction and foster long-term relationships. Trust in chatbot interactions also emerged as crucial factors, with 68.2% of respondents

agreeing that clear information shared by chatbots builds confidence in the platform. This underscores the importance of maintaining consistent and reliable chatbot communication. Customer engagement through chatbot interactions was also identified as a key factor with 67.1% of respondents agreeing to its

importance. customer loyalty was recognized as an important outcome of chatbot interactions, with 54.1% of respondents indicating that their loyalty to the brand increased through chatbot experiences.

**Correlation Analysis: AI Chatbots and Customer Engagement.**

A Pearson Correlation Analysis was conducted to examine the relationship between AI chatbot interactions and customer engagement and loyalty in e-commerce platforms.

| Variables                           | Pearson Correlation coefficient(r) | p-value      | Strength of correlation       | Significance |
|-------------------------------------|------------------------------------|--------------|-------------------------------|--------------|
| AI Chatbots and Customer Engagement | 0.80                               | 0.001(<0.05) | Strongly positive correlation | Significant  |

The analysis showed a correlation coefficient (r) of 0.80 with a p-value of 0.001 (<0.05), indicating a strong positive correlation who interacted with chatbots reported higher satisfaction level due to features such as instant responses, 24/7 availability and personalized assistance. This suggests that AI chatbots play a vital role in enhancing the overall digital experience and maintaining active customer involvement.

benefit greatly by integrating intelligent and user-friendly chatbot systems.

**IV. FINDINGS**

The study found that AI chatbots significantly influence customer engagement and loyalty in e-commerce. Respondents reported higher satisfaction due to fast responses, personalized support, and trustworthy communication. A strong positive correlation (r =0.80) confirmed the significant impact of chatbot interactions on user loyalty. These insights suggest that effective chatbot design can improve customer relationships brand trust.

**V. CONCLUSION**

The study concludes that ai chatbots significantly enhance customer engagement and foster brand loyalty in e-commerce platforms. Features such as quick responses, personalization, and reliable communication were key drivers of positive customer experiences. The strong correlation between chatbot interaction and loyalty highlights their growing importance in digital retail. E-commerce business can

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