



Chatbots' Ascent in E-Commerce: Assessing Customer Support and Emotional Deficits

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ARTICLE INFO ABSTRACT

In every industry, artificial intelligence [AI] is the buzzword. The technological revolution accelerated, and automating certain industrial tasks will be beneficial. The 2025 digital world is the age of artificial intelligence (AI)-enabled chatbots. As artificial intelligence (AI) advances, machine learning (ML) technologies automate tasks and enhance functionality. Chatbots, in particular, are essential for e-commerce customer service and other functional areas that require round-the-clock assistance. E-commerce is expanding quickly as it becomes more integrated into daily life. This study investigates the customer's perception of chatbot services and trust. In the future, these chatbot services will either preserve a positive relationship with the consumer or replace the need for human engagement and emotion.

Keywords: AI, ML, Chatbot's, NLP, E-commerce.

1.0 Introduction:

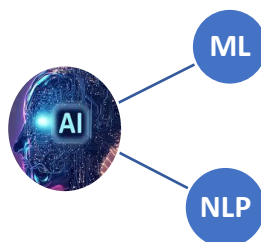
It is software that uses text data to have a conversation. Depending on the discourse, it can respond to humans. Usually, chatbots are used in computer systems to communicate with humans using text, voice, visuals, and other media. Input and output conversation can be done this way. Particularly with chatbots, artificial intelligence (AI) is crucial to social interaction and both verbal and nonverbal communication in contexts related to our daily lives. particularly in speech-based assistants and messaging apps. Popular new technologies that use AI and ML are chatbots. When it comes to customer care, these AI chatbots can offer a number of special commercial advantages. NLP and speech recognition tools enable chatbots. These use complex language and have cordial conversations with clients. Since these chatbots are computers that can operate around the clock and manage a high volume of clients at once in many locations for businesses, they are never irritated like people and are never tier-based. Customer service quality is especially important for businesses, as are resource demands and other variables. Chatbots stand for automated customer support. For instance, chatbots are used by food firms like Domino's Pizza to process orders and by e-commerce companies like Amazon and Flipkart to provide online customer service.

1.1 Technologies:

In the modern day, artificial intelligence is crucial. AI technology is being incorporated into every application to create better and more automated services in a very short amount of time. AI is one of the greatest technologies, but it's also quite complex. the theory and creation of task-performing computer systems. In this case, human intelligence is crucial to the computer systems' performance. In this case, the discussion always provides a prompt, automatic response that is easy for humans to understand. The dialogue between the AI chatbot and a human is depicted in the following image.



In the above case the AI gives a human touch to respond very quickly as per the request of the user. AI mainly uses 2 important elements [ML, NLP] for the operations of the Chatbot.



Computer learning (ML) is an algorithm that helps chatbots learn from questions. When a query triggers ML, it also helps the computer learn from previous conversations. NLP aids the chatbot in closely comprehending the textual sentences.

1.2 Chatbot and E-Commerce:

E-commerce is an acronym for electronic commerce. E-commerce is an essential part of people's daily lives. It is intolerable to live in this day and age without e-commerce. With the advancement of technology and hectic schedules in modern times, e-commerce offers conveniently accessible products with customized interfaces and segregation. Almost all age groups can choose from a wide range of products to suit their preferences and styles. Following COVID, e-commerce's growth underwent a significant shift. It significantly boosts internet sales. E-commerce is currently referred to as traditional commerce. Easy payment methods, prompt delivery, and a primary return policy for merchandise are the primary goals of e-commerce, which draws clients of all ages. Customer service has become a difficult undertaking for most e-commerce sites, such as Amazon, Flipkart, and others, as the amount of e-commerce purchases has skyrocketed. The businesses need round-the-clock assistance and won't lose their key clients. AI technologies are being integrated into e-commerce for customer service and other purposes. Customers require prompt responses from online retailers regarding goods, payments, return policies, and delivery. In this case, AI chatbots are crucial in answering the questions that clients have asked. It also offers round-the-clock assistance. Customers can now easily use chatbots to answer their questions, and by utilizing recommendation algorithms, these AI integrations can boost sales.

The e-commerce websites that use chatbots are included in the following table.

E-commerce	Chatbot	Role
Amazon	Lex, Lambda, Connect	for customer support and product recommendations
Flipkart	Flippy	for customer support and product recommendations
Shopify Chat	Sik	Assists in products search
Sephora Virtual Assistant	Platform- Messenger- Website	Recommended beauty products Provide personalized shopping
H&M	Kik	Act as a Virtual Stylist
Levis	Virtual Assistant	Find jeans, fit by style
eBay	Shopbot	Automates order tracking and customer support

Objectives:

- To comprehend how chatbots can enhance e-commerce customer support.
- To ascertain how chatbots, rather than customer care executives, affect customer service performance.
- To determine whether the lack of a human touch has an impact on customer service.

Research Methodology:

In order to better understand how chatbots might improve customer service in e-commerce and to ascertain whether there are any notable effects from the absence of human interaction in customer service, this study is based on a meta-analysis of several earlier research publications. The goal of this study is to pave the way for future investigations on chatbot performance.

2.0 Literature Review:

2.1 E-commerce and Its Types:

To accommodate differing company, product, and customer needs, e-commerce provides a variety of models. Since technology has fully taken over our lives, the use of smartphones is also a major factor in the rise in e-commerce trends and data (**Bhat et al., 2016**). The e-commerce trends continue because the products are accessible to almost every type of customer at reasonable costs. In particular, it is anticipated that India's e-commerce market will grow to INR 4,416.68 billion by 2024. By 2029, it will have grown to INR 7,591.94 billion at an annual rate of 11.45%. It is anticipated that there will be 501.6 million e-commerce consumers by 2029. Amazon, Flipkart, and others are the major players in the e-commerce market (**razorpay.com**). A company can sell products directly to consumers using the most often used business-to-consumer approach. A company can sell a lot of products to other companies. "Business to Business" is the term used. Consumer to consumer refers to the process of facilitating the buying and selling of commodities. Consumer to Business refers to the practice of individuals selling things to businesses. (**Wang et al., 2020**)

2.2 Chatbots in Service:

In the future, the ordinary individual will converse with chatbots more frequently each day [**L. HEATHER PEMBERTORN | GARTNER**]. Previous studies have acknowledged the advantages of AI technologies in a number of domains. Robo advisers and trading bots can help investors with stock analytics in the finance industry [**Trippi and Turban 1993**]. AI applications can enhance asset management, fraud detection, and bank operational efficiency [**Fethi and Pai Sourav 2010**]. In addition to the aforementioned, chatbots are being used by numerous corporate sectors to enhance their businesses. Based on AI methods, chatbots are able to comprehend natural language processing and provide insightful answers. This is a practical technique to avoid wasting time on emails and mobile devices. Task-oriented and non-task-oriented are two categories into which chatbot applications can be divided. Not focused on tasks The goal of chatbots is to answer queries by converting clients. A project called Intelligent Chatbot investigates what may be done in the modern world with AI agents. Turning, **Alan (1912–1954)** regarded as the founder of contemporary computers. According to a remark from Microsoft CEO Satya Nadella, "Bots are the new apps." [**USA, Cava, 2016**] Many intent recognition tools can infer what the user is asking for. When a chatbot responds like a human, users become more involved in the conversation. channels for interaction, such as voice interfaces, apps, social media, and web chat. Consumer perceptions of a company or brand are now discussed in board rooms, whether positively or negatively. 82% of consumers have ceased doing business with a company as a result of negative experiences with various issues. In the previous three years, 71% of businesses have come to believe in online chat using the newest technologies, either with chatbots or human agents. Here, businesses are using cutting-edge technologies like AI, ML, and DL to enhance consumer experiences by offering round-the-clock services.

2.3 Chatbots in Solving Queries:

Around the world, just 9% of online retailers have chatbots installed on their websites. 45% went to tech help, and 46% reported the problem (**statistia.com**). Chatbots successfully answer 70–80% of regular client questions in e-commerce on average. Customer assistance is mostly provided by chatbots (**Gartner**).

Advantages:

- Engaging
- 24/7 Active
- Reduce Customer Stress
- Quick Response

Disadvantages:

- Technical Glitches
- No Proper Communication

Findings of Study:

1. Chatbots are a good solution for routinized customer services.
2. Chatbots are capable of standardizing the customer service and achieve higher level of customer satisfaction.
3. Machine learning has made it sustainable for the chatbots to derive a logic about frequent customer problems of similar nature and deliver a suitable solution for the same.
4. Chatbots can be a reliable alternative for several customer service solutions.

5. But the issues where emotional or empathetic understanding and personalized attention is required, can chatbots handle such scenario is the biggest question which opens the doors for future research.

Conclusion:

According to this study, chatbots have several benefits for customer service, including on-demand assistance, speedy resolutions, and cost savings. However, they also have drawbacks, such as the potential for data security breaches and an inability to comprehend emotions. because human emotions are too complex for a machine to comprehend. Even if technology is advancing, human interaction cannot be replaced by AI, ML, or DL.

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