



Chatbots in E-Commerce: As a Recommendation System

Divya HN¹, Keshav HL², Dilip S³, Pramod BM⁴, Shivalinge Gowda BU⁵

Dayananda Sagar Academy Of Technology And Management, Udipalya, Bangalore
Shivalinge038@gmail.com
Ph: 8088299037

ABSTRACT :

The application of chatbots has seen remarkable growth in recent years, prompting interest among researchers and industry professionals. This study examines how the language style used by chatbots influences customers' continued intention to use them and their attitude toward the associated brand. Two experiments using scenario-based designs were conducted to explore the underlying mechanisms. The findings reveal that chatbots employing an informal language style, as opposed to a formal one, can enhance customers' intentions to keep using them and improve brand attitude through the mediating effect of parasocial interaction. Additionally, the study highlights that brand affiliation moderates these effects, diminishing their impact for customers with no prior connection to the brand. This research contributes to the growing literature on chatbot technology and offers actionable insights for brand managers on optimizing chatbot communication strategies for e-commerce.

The rise of artificial intelligence (AI) in customer service has significantly transformed the way businesses interact with customers, particularly in the e-commerce sector. One of the most notable developments has been the increasing adoption of chatbots—AI-driven conversational agents designed to simulate human-like interactions with users. These tools have gained widespread popularity due to their ability to provide efficient, round-the-clock customer support, personalize recommendations, and streamline communication.

Introduction :

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In today's digital age, customer service plays a central role in building and nurturing long-term relationships between companies and their customers. The quality of customer service directly impacts customer loyalty, retention, and satisfaction. With the increasing shift toward online shopping, e-commerce businesses face an unprecedented demand to provide exceptional customer experiences. These experiences must be timely, personalized, and efficient to keep up with consumer expectations. As a result, e-commerce companies are adopting *innovative technologies* to meet these needs, and one such technology that has gained significant attention is the *chatbot*.

The Importance of Customer Service in E-Commerce :

Customer service has always been at the heart of business success. It involves providing the assistance, information, and support that customers need to make informed purchasing decisions, resolve issues, and ensure satisfaction with the products and services offered. In the traditional retail environment, customer service was face-to-face or over the phone. However, as the world has moved online, businesses have been forced to adapt their customer service approaches to the digital landscape.

In e-commerce, *speed*, *convenience*, and *personalization* have become key factors that influence customer satisfaction. Customers expect immediate answers to their questions, quick resolution of issues, and a seamless, user-friendly experience. Traditional customer service channels, such as call centers or email support, often fail to meet these demands due to the *delays* in response times and the inability to handle multiple customer queries simultaneously. The limitations of human staff in terms of *availability* and *scalability* make it difficult to provide the fast and efficient service that customers expect.

This has led to the growing adoption of *artificial intelligence (AI)* and *machine learning* technologies in customer service, which have enabled businesses to improve efficiency and enhance the customer experience. Among these AI solutions, *chatbots*—automated conversational agents designed to interact with users via text or voice—have emerged as one of the most prominent tools for improving customer service in e-commerce. Chatbots are available 24/7 and can handle a high volume of inquiries at once, offering real-time assistance, resolving issues, and even guiding customers through the purchasing process. They are able to engage customers instantly, providing the convenience and speed that customers demand, and are increasingly being seen as essential components of the *digital customer service ecosystem*.

Chatbots and Their Role in E-Commerce :

Chatbots are increasingly being implemented by e-commerce companies to streamline customer service, improve operational efficiency, and enhance user experiences. By simulating human conversation, chatbots provide customers with immediate assistance, answering queries and facilitating transactions. They can be integrated across multiple digital channels, including websites, mobile apps, and social media platforms, allowing companies to engage customers wherever they are.

The primary advantages of chatbots include *automation*, *scalability*, and *cost-effectiveness*. Automation allows chatbots to handle routine inquiries and tasks without human intervention, freeing up human agents to focus on more complex issues. Chatbots can simultaneously interact with multiple customers, eliminating the wait times associated with human agents. This scalability is particularly valuable for e-commerce businesses, which may experience spikes in customer queries during peak shopping seasons, product launches, or special promotions. By handling a high volume of interactions, chatbots help reduce the burden on human staff and improve overall *operational efficiency*.

Moreover, chatbots can personalize the customer experience by gathering and analyzing data from previous interactions. This personalization enhances the interaction by tailoring responses based on the customer's preferences, purchase history, and browsing behavior. This ability to engage customers on a personal level helps improve *customer satisfaction* and *loyalty*, which are crucial in a competitive e-commerce environment.

However, despite the many benefits that chatbots offer, their effectiveness depends on various factors, including their *design*, *functionality*, and the *tone* they use during interactions. While chatbots can simulate human-like conversations, the way they communicate with customers can have a significant impact on the customer's experience and their perception of the brand they represent. This introduces a critical area of investigation: the influence of *chatbot language style* on customer engagement and brand perception.

The Role of Language Style in Chatbot Interactions :

One of the most important factors in shaping customer perception of chatbots is the *language style* employed by the bot. Language style refers to the way in which a chatbot communicates with customers, including the formality or informality of its responses. Chatbots can either use a *formal* language style, which is more structured and professional, or an *informal* language style, which is conversational and casual. The choice of language style can significantly affect the customer's emotional response and the overall perception of the chatbot and the brand it represents.

Research suggests that language style is a key determinant of customer satisfaction, engagement, and trust. A formal language style may be suitable for professional or high-stakes interactions, such as those involving legal, financial, or medical information. However, in the context of e-commerce, an informal language style may be more effective in fostering a friendly and approachable atmosphere. Informal language can help create a *relatable* experience, making customers feel more comfortable and engaged in the interaction. For example, chatbots that use casual greetings like "Hey" or "How's it going?" can evoke a sense of familiarity, making customers feel like they are interacting with a helpful, human-like assistant rather than a robotic, impersonal system.

On the other hand, an overly formal tone may come across as robotic or detached, potentially hindering customer engagement. In an industry where personal connections and emotional engagement are key to building brand loyalty, the tone of chatbot communication becomes crucial. Customers may feel disconnected or frustrated if the chatbot seems overly mechanical or lacks the warmth and empathy that a human representative might provide. This highlights the importance of striking the right balance between professionalism and personalization.

Chatbots in E-Commerce :

E-commerce is a leading industry leveraging chatbot technology. E-commerce is rapidly transforming into one of the most technology-driven industries, leveraging cutting-edge innovations to meet consumer demands and enhance business operations. In this digital-first landscape, *chatbot technology* has emerged as a transformative tool that is reshaping how businesses interact with customers. As e-commerce businesses face ever-increasing competition, the need for *efficient customer service*, *personalized experiences*, and *real-time assistance* has never been more crucial. Chatbots offer a unique solution to these challenges, providing businesses with the ability to deliver exceptional customer experiences while also streamlining operational processes.

The Rise of Chatbots in E-Commerce

In recent years, chatbots have become an integral part of e-commerce ecosystems. These AI-driven conversational agents are designed to simulate human interactions, enabling businesses to engage customers in a more interactive and dynamic manner. The core appeal of chatbots lies in their ability to provide *instant support* and *24/7 availability*, which is essential in the e-commerce space where customers can shop at any time of the day or night. Traditional customer service methods, such as phone calls or email communication, often cannot meet the demands of modern consumers for immediate responses and assistance. In contrast, chatbots can handle a large volume of customer queries simultaneously, making them invaluable for e-commerce businesses that operate on a global scale.

The growing integration of chatbots within e-commerce platforms has transformed how businesses communicate with their customers, from pre-purchase inquiries to post-purchase support. Whether it's answering a product-related question, assisting with payment processing, or providing shipping information, chatbots can perform a wide range of functions that enhance the overall shopping experience. They can also be programmed to handle complex task

Methodology :

To test the proposed hypotheses, two scenario-based experiments were conducted. The present study aimed to investigate how different chatbot language styles (informal vs. formal) influence customer intentions to continue using chatbots and their attitudes toward the associated brand. In order to test the proposed hypotheses, two *scenario-based experiments* were designed and conducted. These experiments were structured to simulate real-world e-commerce environments, where participants would engage with a chatbot under different conditions to evaluate the impact of language style on their perceptions and behavior. The study utilized a combination of *quantitative* and *qualitative* approaches to gather comprehensive data on participants' experiences with chatbots.

Research Design :

The experiments were designed using a *between-subjects* approach, meaning participants were randomly assigned to different conditions based on the chatbot language style they encountered during the interaction. This design allowed the researchers to compare the outcomes for each group and determine how language style affected customer intentions and attitudes.

General Discussion :

The rapid adoption of chatbots in e-commerce underscores their growing significance in shaping customer experiences and business strategies in the digital age. As e-commerce continues to thrive in a hyper-connected, always-on world, the need for businesses to efficiently engage with consumers while delivering seamless and personalized interactions has never been more critical. Chatbots, as intelligent conversational agents, have proven to be one of the most impactful technological solutions for meeting these demands.

The findings of this study contribute to the growing body of literature on *chatbot technology* and its application in e-commerce by shedding light on the significant role that *language style* plays in shaping consumer behavior. The experiments conducted in this research provide compelling evidence that informal chatbot communication, when compared to formal interactions, leads to stronger *parasocial interactions*, more positive attitudes toward the associated brand, and higher intentions for customers to continue engaging with the chatbot. These results suggest that *chatbots employing an informal tone* have the potential to cultivate deeper emotional connections with customers, which in turn influences their overall satisfaction and loyalty toward the brand.

Conclusion :

Chatbots have become integral to digital customer interactions, particularly in e-commerce, where their role in enhancing customer experiences and streamlining operations is undeniable. As e-commerce continues to grow, businesses are increasingly turning to chatbots as a tool to provide real-time assistance, improve customer engagement, and boost operational efficiency. This study has explored the impact of chatbot language style—informal versus formal—on customer satisfaction, brand attitude, and continued use intention, providing valuable insights into the role of communication in shaping customer perceptions and behaviors.

The findings from the two scenario-based experiments reveal that *informal chatbot language* significantly enhances customers' *intentions to continue using chatbots* and improves their *attitude toward the brand*. This effect is largely mediated by the development of *parasocial interactions*, where customers feel a personal, emotional connection to the chatbot. By fostering a sense of rapport and trust, informal language encourages customers to engage more deeply with the brand, increasing satisfaction and loyalty. Furthermore, brand affiliation was found to moderate the relationship between chatbot language style and customer outcomes, with the positive effects of informal language being more pronounced for customers who were familiar with the brand. For those unfamiliar with the brand, the influence of the chatbot's language style was weaker, suggesting that brand familiarity plays a crucial role in how customers respond to chatbot interactions.

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Declaration of Competing Interest :

The authors declare no financial or personal relationships that could inappropriately influence their work. There are no professional or personal interests that could be construed as influencing the content or conclusions of this research.

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