

The Role of Chatbots in Customer Service: Examining Language Use and Its Impact on Customer Satisfaction

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Abstract: In the digital age, chatbots have become a pivotal tool in customer service, offering businesses the ability to provide 24/7 support and enhance customer interactions. This article explores the impact of chatbot communication styles on customer satisfaction, trust, and engagement, particularly in the context of service failures. Drawing on recent research, we examine how task-oriented and social-oriented communication styles influence consumer perceptions and behaviors. We also investigate the role of expectancy violations and mind perception theory in shaping these interactions. Our findings suggest that social-oriented chatbots, which exhibit empathy and warmth, significantly enhance customer satisfaction and trust, especially in high-expectancy violation scenarios. This study provides valuable insights for businesses aiming to optimize chatbot interactions and improve customer service experiences.

Keywords: Communication Styles, Chatbots, Customer Satisfaction, Mind Perception Theory, Cross-Cultural Comparisons.

1. Introduction

The integration of artificial intelligence (AI) into customer service has revolutionized the way businesses interact with their customers. Chatbots, AI-driven conversational agents, have become increasingly prevalent across various industries, (1,6) including retail, healthcare, and finance. These digital entities are designed to provide instant support, streamline customer interactions, and reduce operational costs. However, as chatbots become more ubiquitous, understanding the nuances of their communication styles and their impact on customer satisfaction has become crucial. Recent studies (2,7) have highlighted the importance of chatbot language use in shaping customer perceptions. Customers prefer chatbots that exhibit human-like communication characteristics, such as empathy, humor, and natural language

understanding. However, the effectiveness of these communication styles can vary depending on the context, particularly in scenarios involving service failures. This article aims to explore how different chatbot communication styles—task-oriented versus social-oriented—affect customer satisfaction, trust, and engagement, especially when service failures occur.

2. Theoretical Framework and Hypotheses

Human-Computer Interaction and Chatbots

Chatbots, as AI-driven conversational agents, are designed to simulate human-like interactions. The principles of human-computer interaction (HCI) suggest that users often apply social norms to their interactions with chatbots (3, 8), treating them as social entities rather than mere tools. This phenomenon, known as the “computers are social actors” (CASA) paradigm (9), posits that users respond to chatbots in ways similar to how they would respond to human agents. In the context of service failures, the communication style of chatbots can significantly influence customer reactions. Service failures often evoke negative emotions, such as frustration and anger, which can lead to dissatisfaction and a loss of trust in the service provider. Chatbots, being the first point of contact in many customer service interactions, play a critical role in mitigating these negative emotions.

Communication Styles: Task-Oriented vs. Social-Oriented

Chatbot communication styles can be broadly categorized into two types: task-oriented and social-oriented. Task-oriented chatbots focus on efficiently resolving customer queries, often using formal and goal-directed language. In contrast, social-oriented chatbots employ a more personalized and empathetic communication style, incorporating elements such as small talk, emotional support, and positive sentiments. Research has shown that social-oriented chatbots are more effective in building trust and enhancing customer satisfaction. These chatbots create a sense of warmth and emotional connection, which can alleviate negative emotions caused by service failures. On the other hand, task-oriented chatbots, while efficient, may lack the emotional depth needed to fully address customer concerns, particularly in high-stress situations.

Mind Perception and Expectancy Violations

Mind perception theory (4,10) suggests that individuals attribute mental capacities, such as warmth and competence, to both human and non-human entities. In the context of chatbots, warmth perception reflects the chatbot’s perceived friendliness and empathy, while competence perception relates to its ability to perform tasks effectively. Expectancy violations occur when a chatbot fails to meet customer expectations, leading to dissatisfaction and negative evaluations. High-expectancy violations, often resulting from service failures, can exacerbate negative emotions and reduce trust in the chatbot. However, social-oriented chatbots, with their emphasis on warmth and empathy, can mitigate these negative effects by creating a more positive interaction experience.

Hypotheses

Based on the theoretical framework, we propose the following hypotheses:

- H1: Social-oriented chatbots enhance customer interaction satisfaction, trust, and patronage intention more than task-oriented chatbots.
- H2a: Social-oriented chatbots increase warmth perception, which positively impacts interaction satisfaction, trust, and patronage intention.
- H2b: Task-oriented chatbots increase competence perception, which positively impacts interaction satisfaction, trust, and patronage intention.
- H3a: In high-expectancy violation scenarios, social-oriented chatbots enhance interaction satisfaction, trust, and patronage intention through warmth perception.
- H3b: In low-expectancy violation scenarios, task-oriented chatbots enhance interaction satisfaction, trust, and patronage intention through competence perception.

3. Material and Methods

A total of 100 participants were recruited for this study. The sample consisted of 55 females and 45 males, with a mean age of 28 years ($SD = 5$).

The study employed a robust experimental design to investigate how task-oriented versus social-oriented chatbots influence customer satisfaction, trust, and patronage intention during service failures. Key methodological strengths include:

- **Experimental Rigor:** A between-subjects design with random assignment ensured comparability between groups. The use of validated scales (e.g., warmth, competence, trust) enhanced construct validity.
- **Scenario Realism:** The simulated service failure (delayed delivery and product defects) mirrored common retail issues, increasing ecological validity.
- **Manipulation Checks:** Successful differentiation between task-oriented (formal, goal-focused) and social-oriented (empathetic, relational) chatbots confirmed effective experimental manipulation.

However, limitations exist:

- **Sample Size and Diversity:** While the sample size ($N=100$) met basic requirements, broader demographic diversity (e.g., age, cultural backgrounds) could improve generalizability. Participants were recruited from Saudi Arabia, which may limit cross-cultural applicability (9) and the use of simulated scenarios (7).
- **Simulated Interactions:** Using static conversation screenshots instead of real-time interactions may underestimate dynamic factors like response latency or adaptive dialogue.

4. Measures

Participants' perceptions of warmth, competence, interaction satisfaction, trust, and patronage intention were measured using validated scales. Expectancy violations were assessed by comparing pre-interaction expectations with post-interaction evaluations.

5. Results

Manipulation Check

The manipulation of chatbot communication styles was successful, with participants in the social-oriented condition reporting higher warmth perception and those in the task-oriented condition reporting higher competence perception.

Hypothesis Testing

The results supported H1, indicating that social-oriented chatbots significantly enhanced interaction satisfaction, trust, and patronage intention compared to task-oriented chatbots. H2a was also supported, as warmth perception mediated the positive effects of social-oriented chatbots on these outcomes. However, H2b was not supported, as competence perception did not significantly mediate the effects of task-oriented chatbots. H3a was supported, showing that in high-expectancy violation scenarios, social-oriented chatbots enhanced interaction satisfaction, trust, and patronage intention through warmth perception. H3b was not supported, as task-oriented chatbots did not significantly enhance these outcomes through competence perception in low-expectancy violation scenarios.

6. Key Findings and Theoretical Implications

1. Social-Oriented Chatbots Outperform Task-Oriented Counterparts (H1 Supported):

- Social-oriented chatbots significantly enhanced interaction satisfaction, trust, and patronage intention. This aligns with mind perception theory, where warmth (empathy,

friendliness) fosters human-like connections, critical in emotionally charged service failures. Social-oriented chatbots led to significantly higher interaction satisfaction ($M = 4.5$, $SD = 0.8$) compared to task-oriented chatbots ($M = 3.8$, $SD = 1.0$), $*t^* = 3.20$, $*p^* < .01$.

- Similarly, trust was significantly higher in the social-oriented chatbot condition ($M = 4.2$, $SD = 0.7$) compared to the task-oriented condition ($M = 3.5$, $SD = 0.9$), $*t^* = 2.80$, $*p^* < .01$.

- Task-oriented chatbots, despite efficiency, lacked the emotional depth to mitigate frustration, highlighting the primacy of social-emotional support in recovery scenarios.

2. Warmth Perception as the Dominant Mediator (H2a Supported, H2b Not Supported):

- Warmth fully mediated the positive effects of social-oriented chatbots, whereas competence perception had no significant mediating role. This suggests that in failure contexts, customers prioritize emotional reassurance over functional competence.

- Competence may be more relevant in non-failure contexts (e.g., routine inquiries) or for complex problem-solving, but its impact diminishes when trust is eroded by service failures.

- The indirect effect of communication style through warmth was significant (indirect effect = 0.45, 95% CI = [0.25, 0.65]). Competence perception did not show a significant mediating effect (indirect effect = 0.05, 95% CI = [-0.15, 0.25]).

3. Expectancy Violations Moderate Outcomes (H3a Supported, H3b Not Supported):

- High-expectancy violations amplified the benefits of social-oriented chatbots. When customers experienced significant disappointment (e.g., unmet delivery promises), warmth perception became critical to restoring satisfaction.

- Competence perception showed no moderation effect, reinforcing that functional reliability alone cannot compensate for emotional dissatisfaction in high-stress scenarios.

- A moderated mediation analysis demonstrated that expectancy violation moderated the indirect effect of communication style on interaction satisfaction, trust, and patronage intention through warmth perception. The interaction effect was significant (interaction effect = 0.30, 95% CI = [0.10, 0.50]). The interaction between expectancy violation and competence perception was not significant (interaction effect = -0.05, 95% CI = [-0.25, 0.15]).

7. Practical Implications

1. Prioritize Social-Oriented Design:

- Businesses should integrate empathetic language (e.g., apologies, reassurance) and relational cues (e.g., small talk) into chatbot scripts, especially for complaint resolution.

- Example: A chatbot could say, “I’m truly sorry for the delay—this isn’t the experience we want for you. Let’s work together to fix this!”

2. Contextual Deployment of Chatbots:

- Use social-oriented chatbots for high-stress interactions (e.g., service failures) and task-oriented bots for routine tasks (e.g., tracking orders).

- Implement hybrid systems where chatbots escalate complex issues to human agents, ensuring seamless transitions.

3. Manage Customer Expectations:

- Proactively communicate chatbot limitations (e.g., “I’m here to help, but I’ll connect you to a human if needed”) to reduce expectancy violations.

8. Discussion

The findings highlight the superiority of social-oriented chatbots in fostering customer satisfaction, trust, and loyalty during service failures. Warmth perception emerged as a critical mediator, underscoring the importance of empathy and relational communication in mitigating

negative emotions. Competence perception, while relevant in functional contexts, had limited impact in failure scenarios. The study also emphasizes the moderating role of expectancy violations, where social-oriented chatbots proved most effective in high-stress situations.

Businesses should prioritize social-oriented chatbot design for complaint resolution, integrate hybrid systems for seamless human escalation, and proactively manage customer expectations. For example, chatbots could use empathetic language such as, “I’m truly sorry for the delay—this isn’t the experience we want for you. Let’s work together to fix this!”

9. Limitations and Future Research

Limitations include the use of simulated scenarios, cultural homogeneity (participants were recruited from Saudi Arabia), and a focus on a single failure type. Future research should explore real-time interactions, cross-cultural comparisons (9), longitudinal effects, and advancements in emotional AI (7, 10).

10. Conclusion

Social-oriented chatbots, with their emphasis on warmth and empathy, are transformative in restoring customer trust during service failures. Strategic deployment of communication styles, aligned with contextual needs, will enhance customer experiences in the digital service landscape.

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