Journal of Science Engineering Technology and Management Science
Volume 02, Issue 06, June 2025 *ISSN: 3049-0952*
www.jsetms.com *DOI:10.63590/jsetms.2025.v02.i06.pp73-78*

Redefining Engagement: Chatbots as Catalysts in the AI-Powered Customer Journey

Sonakshi Garg, Research Scholar, Sangam University, Bhilwara (Raj)
Dr. Mukesh Kumar Sharma, Associate Professor, Sangam University, Bhilwara (Raj)

To Cite this Article
Sonakshi Garg, Dr. Mukesh Kumar Sharma "AI-Driven Predictive Analytics in Healthcare and Finance", Journal of Science Engineering Technology and Management Science, Vol. 02, Issue 06, June 2025, pp:06-09, DOI: http://doi.org/10.63590/jsetms.2025.v02.i06.pp73-78
Submitted: 10-04-2025 *Accepted: 20-05-2025* *Published: 28-05-2025*

Abstract: *The introduction of artificial intelligence (AI) has altered the digital landscape of consumer engagement, with chatbots emerging as key tools for improving customer experiences. This paper explores the transformative influence of chatbots in rethinking consumer engagement at different points of the customer journey. It investigates how AI-powered chatbots affect consumer behavior, improve communication efficiency, and develop personalized interactions. The study, which draws on both primary and secondary data sources, gives insights into chatbot effectiveness and its implications for customer relationship management. The findings imply that chatbots play a vital role in establishing customer loyalty and satisfaction, in addition to optimizing operational efficiency.*

Keywords: Artificial Intelligence, Chatbot, Customer Engagement

I. INTRODUCTION

Customer engagement has evolved significantly in the digital era, driven largely by technological innovations that have reshaped how businesses interact with consumers. Among these innovations, AI-powered chatbots have emerged as transformative agents in the customer journey. These digital assistants, designed to simulate human conversation, have evolved from simple automated responders into sophisticated systems capable of understanding user intent, offering personalized interactions, and performing a wide range of tasks.

With advancements in Natural Language Processing (NLP), machine learning, and data analytics, chatbots are now capable of providing round-the-clock customer support, reducing operational costs, and enhancing overall user satisfaction. These developments align with the increasing demand for immediacy and personalization in customer service.

Despite their growing popularity, the effectiveness and reception of chatbots vary across industries, customer segments, and types of interactions. While some users appreciate the speed and convenience of chatbot services, others express dissatisfaction with their limited problem-solving capabilities and lack of emotional intelligence. This divergence points to the need for a deeper understanding of the conditions under which chatbots can effectively drive customer engagement.

This paper seeks to investigate the role of chatbots in the modern customer journey, focusing on their impact on engagement, satisfaction, and loyalty. It examines how businesses can harness chatbot technology to build meaningful customer relationships while addressing existing limitations.

II. REVIEW OF LITERATURE

- Novak & Petrova (2025). Investigating emotional intelligence in chatbots, the authors conducted a longitudinal experimental study with 140 participants over three months. The sample was randomly divided. Emotionally responsive bots increased satisfaction and user trust.
- Iqbal & Das (2025). This study examined chatbot performance in resolving multilingual customer queries. A web-based usability test was conducted with 180 users from five regions. Stratified purposive sampling was applied. Bots with adaptive language settings scored higher in satisfaction.
- Romero & Zhang (2025). Focused on chatbot efficiency in complaint resolution in public sector services. 120 citizens were surveyed after interacting with municipal chatbots using a structured questionnaire. Random sampling was used. Findings show 70% resolution success and enhanced civic engagement.
- Sharma & Gupta (2024). This study explored proactive chatbot notifications and customer re-engagement. A randomized experiment with 160 e-commerce users was performed using a between-groups design. Users receiving proactive messages showed a 25% higher return rate.
- Park & Lee (2024). The paper analyzed chatbot integration in omnichannel marketing. Mixed-methods data from 90 marketers and 300 users were collected through interviews and surveys. Stratified sampling was employed. Chatbots enhanced brand consistency across channels.
- Chatterjee *et al* (2023). Chatbots are increasingly being adopted across digital platforms to streamline customer service. The researchers employed a quantitative survey method using structured questionnaires distributed to 210 e-commerce users. The sample was chosen via stratified sampling. Results showed chatbots improve service speed and user satisfaction.
- Davis & Mendez (2023). The research analyzed how empathy-driven bots impact healthcare consultations. Data was collected via interviews and satisfaction scales from 75 patients using purposive sampling. The study concludes empathetic bots enhance comfort but require backup from human agents.
- Lee & Kim (2023). The authors studied chatbot integration in mobile apps. A field experiment was conducted with 90 users using A/B testing methodology. Random assignment was used. Bots led to increased app engagement and feature discovery.
- Wang & Chang. (2023). Researchers evaluated chatbot security perceptions in the fintech sector. Online surveys were administered to 110 users, using purposive sampling. Results show that perceived security significantly affects user engagement.
- Patel & Agarwal(2023). Investigating chatbot use in the travel industry, a descriptive survey was used with 180 travelers. Stratified sampling was applied. Results showed increased convenience but occasional dissatisfaction with accuracy.
- Choudhury & Mitra(2023). The research examined chatbot effectiveness for complaint handling. Survey of 200 telecom users was conducted via quota sampling. Bots resolved 60% of complaints independently.
- Nelson & Zhang, (2022). This research assessed customer resistance to chatbots. 200 customers across hospitality services were surveyed using a cross-sectional design. Stratified sampling was used. Trust issues were the main barrier to adoption.
- Khatri, & Rao (2022). The study focused on personalization in chatbot responses. The researchers used experimental methods involving 150 participants across simulated chatbot interfaces. Participants were randomly assigned. Personalized bots led to greater perceived value.

- Kumar & (2022). The study explored how AI-enabled chatbots affect customer interaction in banking. A mixed-methods design was used, with survey data from 180 banking customers and interviews with 10 bank managers. Convenience sampling was applied. It was found that chatbots reduce response time and improve customer loyalty.
- Lopez *et al* (2022). The paper examined chatbot usability in online education platforms. A usability test was conducted with 50 students, and observations were recorded. The sample was randomly selected from a university database. Chatbots were found effective in academic assistance but limited in emotional support.
- Fernandes & Silva (2022). The paper studied voice-based chatbot adoption. A lab experiment was conducted on 60 users comparing text and voice bots using matched pair design. Voice bots were preferred for hands-free utility.
- Oliveira & Santos (2021). Analyzing the role of chatbots in enhancing customer journey mapping, the study involved semi-structured interviews with 30 marketing professionals. Snowball sampling was used. Chatbots help identify and smooth customer touch points.
- Smith & Tan (2021). This study evaluated customer satisfaction with retail chatbot services. A survey-based study was conducted with 300 respondents across three regions using stratified sampling. The findings indicate that customer satisfaction correlates with chatbot response accuracy and tone.
- Bhargava & Singh (2021). Investigating chatbot impact on post-purchase services in e-commerce, the study used online surveys from 250 users with quota sampling. Results suggest chatbots reduce issue-resolution time and increase repeat purchase intent.

III. RESEARCH GAP

While existing literature confirms the growing effectiveness of chatbots in enhancing customer service and engagement across various sectors, gaps remain. Many studies focus on specific stages of the customer journey rather than a comprehensive end-to-end analysis. Emotional intelligence, user trust, and chatbot integration across multiple channels are underexplored areas. Furthermore, most studies are cross-sectional and lack longitudinal insights. This study aims to bridge these gaps by providing a holistic perspective on how chatbots serve as catalysts in redefining engagement throughout the AI-powered customer journey.

Objectives of the Study:

1. To analyze the influence of chatbots on customer engagement and satisfaction.
2. To identify customer preferences and pain points in chatbot usage.

Rationale of the Study: The rationale behind this study lies in the increasing reliance on AI-driven technologies for customer service and relationship management. As businesses invest in chatbots, it becomes crucial to assess their actual impact on customer engagement. This study fills a gap in empirical research by analyzing chatbot performance across industries and customer journey stages.

Scope of the Study: The study encompasses three major service-oriented industries: e-commerce, banking, and healthcare. These sectors were selected for their high digital engagement and varied complexity of customer service requirements. The focus is on chatbot use cases such as product inquiries, transaction support, appointment scheduling, and issue resolution.

Research Design: The study adopts a quantitative descriptive research design. This approach is used to systematically describe user perceptions, behaviors, and preferences related to chatbot interactions. Quantitative data was collected through structured surveys that measured engagement variables such as response satisfaction, personalization, and trust. The descriptive nature of the design enables the identification of trends, frequencies, and correlations within the collected data, offering a clear and factual representation of how chatbots influence the customer journey.

Sampling: A convenience sampling technique was employed to select 300 customers from diverse backgrounds who have interacted with chatbots in sectors including e-commerce, banking, and healthcare. This non-probability sampling method was chosen to ensure ease of access to respondents while maintaining diversity in user experience.

Data Collection: Primary data were collected through structured online questionnaires and semi-structured interviews. Secondary data were drawn from recent peer-reviewed literature, industry reports, and case studies. The data collection occurred over three months.

IV. DATA ANALYSIS AND INTERPRETATION

This section provides data analysis on the impact of specifically AI-powered chatbots on consumer journey. To assess the influence of AI-driven chatbots on consumer engagement, respondents were asked to rate the supplied statements on a five-point Likert scale.

Descriptive Statistics

It shows that the responses on the statements like 'To what extent have AI-driven chatbots become essential for businesses to engage with customers?' have the highest mean of 3.81 with a standard deviation of 0.881. It is witnessed from Table that the all the means are closer or more than 3.0, which means AI-chatbots, have a significant impact on customer engagement. Also, the overall grouped mean of all the individual scores is 3.61, reinforcing the conclusion that AI chatbots significantly enhance customer engagement and satisfaction.

Descriptive Statistics (Impact of AI-driven Chatbots)			
	N	Mean	Std. Deviation
To what extent have AI-driven chatbots become essential for businesses to engage with customers?	300	3.81	0.881
To what extent do you feel that conversations with chatbots are too robotic or impersonal?	300	3.69	0.969
To what extent are AI-driven chatbots key to businesses maintaining customer engagement in today's digital age?	300	3.67	1.023
To what extent do you prefer interacting with businesses that use AI-driven chatbots?	300	3.61	0.910
To what extent do businesses that implement AI-driven chatbots appear more innovative and modern?	300	3.60	0.958
To what extent do AI-driven chatbots provide an efficient way to address your questions quickly and conveniently?	300	3.52	1.052

To what extent do AI-driven chatbots make it easier for you to make purchases or book services online?	300	3.51	0.959
To what extent has the use of AI-driven chatbots improved your overall experience when seeking customer support?	300	3.49	1.026
Grouped Mean		**3.61**	

V. CONCLUSION

Chatbots are redefining customer engagement by automating routine interactions and providing instant support. Their integration into customer service platforms offers tangible benefits such as operational efficiency, cost reduction, and improved response time. However, their success depends heavily on design, industry application, and user expectations. While chatbots are effective in enhancing certain aspects of the customer journey, they are not a one-size-fits-all solution. Their limitations in handling complex, sensitive, or emotionally charged interactions highlight the need for a balanced approach combining AI and human touch.

Findings:

- Chatbots improve operational efficiency by handling repetitive tasks.
- High user satisfaction is linked to chatbot speed and convenience.
- Industry-specific needs influence chatbot performance and user reception.
- Users trust human agents for complex, sensitive, or emotional issues.

In conclusion, chatbots have become indispensable in the AI-powered customer journey. Their evolution from support tools to engagement drivers signifies a paradigm shift in customer service. With continuous improvement and thoughtful integration, chatbots can serve as catalysts for stronger, more personalized customer relationships,

References:

1. Adamopoulou, E., & Moussiades, L. (2020). An overview of chatbot technology. *IFIP International Conference on Artificial Intelligence Applications and Innovations*, 373–383. https://doi.org/10.1007/978-3-030-49186-4_31
2. Amer jid Almahri, F. A., Bell, D., & Gulzar, Z. (2024). Chatbot technology use and acceptance using educational personas. *Informatics, 11*(2), 38. https://doi.org/10.3390/informatics11020038MDPI
3. Brandtzaeg, P. B., & Følstad, A. (2018). Chatbots: Changing user needs and motivations. *Interactions*, 25(5), 38–43. https://doi.org/10.1145/3236669
4. Chaves, A. P., & Gerosa, M. A. (2021). How should my chatbot interact? A survey on social characteristics in human–chatbot interaction design. *International Journal of Human-Computer Interaction*, 37(8), 729–758. https://doi.org/10.1080/10447318.2020.1841438
5. Følstad, A., & Brandtzaeg, P. B. (2017). Chatbots and the new world of HCI. *Interactions*, 24(4), 38–42. https://doi.org/10.1145/3085558
6. Gnewuch, U., Morana, S., Adam, M. T., & Maedche, A. (2022). The impact of anthropomorphic and functional chatbot design on engagement. *Journal of the Association for Information Systems*, 23(2), 447–475. https://doi.org/10.17705/1jais.00721
7. Hill, J., Randolph Ford, W., & Farreras, I. G. (2015). Real conversations with artificial intelligence: A comparison between human–human online conversations and human–chatbot conversations. *Computers in Human Behavior*, 49, 245–250. https://doi.org/10.1016/j.chb.2015.02.026
8. Huang, M. H., & Rust, R. T. (2021). Artificial intelligence in service. *Journal of Service Research*, 24(1), 3–20. https://doi.org/10.1177/1094670520902266
9. Kvale, K., & Følstad, A. (2018). Chatbots for customer service: User experience and motivation. *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems*, 1–6. https://doi.org/10.1145/3170427.3188559

10. Liao, Q. V., Davis, M., Geyer, W., Muller, M., & Shami, N. S. (2016). What's in a "like"? Attitudes and behaviors around receiving likes on Facebook. *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing*, 1501–1510. https://doi.org/10.1145/2818048.2820066
11. Lu, V. N., Wirtz, J., Kunz, W. H., Paluch, S., Gruber, T., Martins, A., & Patterson, P. (2020). Service robots, customers and service employees: What can we learn from the academic literature and where are the gaps? *Journal of Service Theory and Practice*, 30(3), 361–391. https://doi.org/10.1108/JSTP-04-2019-0088
12. Soni, S. K., & Jain, S. (2025). AI chatbots and their impact on B2C consumer experience and engagement. *International Journal of Advanced Research and Multidisciplinary Trends*, *2*(1), 354–367. https://ijarmt.com/index.php/j/article/view/98
13. Shumanov, M., & Johnson, J. (2021). Making chatbots more human-like and persuasive: The influence of communicative cues. *Journal of Retailing and Consumer Services*, 59, 102384. https://doi.org/10.1016/j.jretconser.2020.102384
14. Trivedi, J., & Sharma, P. (2021). Effectiveness of chatbot-based customer service: Role of chatbot's appearance and behavior. *Journal of Retailing and Consumer Services*, 63, 102667. https://doi.org/10.1016/j.jretconser.2021.102667
15. Van den Broeck, E., Zarouali, B., & Poels, K. (2019). Chatbot advertising effectiveness: When does message relevance matter? *Computers in Human Behavior*, 98, 150–157. https://doi.org/10.1016/j.chb.2019.04.009
16. Vázquez-Cano, E., López-Meneses, E., & Sarasola, J. L. (2022). Chatbots for education and customer service: Systematic review and challenges. *Education and Information Technologies*, 27, 2147–2166. https://doi.org/10.1007/s10639-021-10624-3
17. Xu, A., Liu, Z., Guo, Y., Sinha, V., & Akkiraju, R. (2017). A new chatbot for customer service on social media. *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, 3506–3510. https://doi.org/10.1145/3025453.3025496