EXPLORING THE ROLE OF AI IN CUSTOMER SERVICE COMMUNICATION
A CASE STUDY ON CHATBOTS IN DELIVERY APPS IN UAE

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Abstract

This research covers the adoption of AI within the customer service communication domain, focusing on the effectiveness of AI chatbots used in delivery applications within the United Arab Emirates. It probes into the user's interaction with several leading delivery services operating within the region, such as Talabat, Zomato, and Deliveroo. The application of AI chatbots has been considered a popular way to promote customer support through the possibility of speed and efficiency, especially in handling inquiries and resolving basic issues. However, users' perception of the efficacy of chatbots remains mixed, and levels of satisfaction vary greatly.

Data were collected from 58 delivery application users to get a better understanding of these experiences. Results show that while many users appreciate the speed of chatbots when resolving order issues, significant challenges persist. These include irrelevant/incorrect responses, overall limited functionality, and difficulty in managing complex queries. These conditions highlight the areas of vital concern where improvement in the chatbots is urgently needed, at least in terms of understanding context, personalization, and even response accuracy.

The research then outlines recommendations that can be taken to reduce these shortcomings. Increasing the chatbot's ability to understand the user's intent, making the interaction more human-like and empathetic, and personalization in responses based on particular users' preferences would be considered key ways to increase customer satisfaction. Moreover, enhanced NLP might help chatbots capture incomplete or colloquial inputs of users

more accurately, hence leading to smoother, more effective communication.

However, although this study has been useful in providing a variety of insights, some of the accompanying limitations include: the limited sample size of 58 respondents prohibits generalizing such findings to the whole population, and the focus on just three specific delivery platforms limits the scope of the study. This research furthers the new understanding of AI chatbot adoption in the delivery industry and lays a foundation for further investigations.

Food delivery services can, therefore, develop improvements regarding the identified challenges, enhance user experience, instill trust in chatbot technology, and consequently guarantee customer loyalty. This study has underlined the need to balance automation with user-centered design to ensure AI solutions meet shifting consumer expectations within a more digitized world today.

Keywords**:** *AI, chatbot, delivery apps, personalization, technology, interaction, NLP*

Acknowledge

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1. Introduction

Artificial Intelligence embedded in many areas of the economy changed the approach towards customers, especially in the digital marketing field. Chatbot software apps based on NLP[*] and machine learning developed to be a

[*] Natural language processing (NLP) is a subfield of computer science and artificial intelligence (AI) that uses machine learning to enable computers to understand and

significant tool to assist business enterprises in trying to automate customer care processes. In the delivery application industry, it is put to use as a first contact point to approach customers through answers to their queries, guide them in placing an order, or addressing complaints. This paper investigates the influence of AI chatbots on customer satisfaction and operational efficiency in the UAE's delivery app industry.

With the UAE having one of the highest penetrations of the Internet and a tech-savvy population, it forms a perfect environment for the adoption of AI technologies (digital report, 2024). Among the delivery apps such as Talabat, Deliveroo, and Zomato, AI-powered chatbots are at work to manage the growing number of queries by customers. While chatbots promise increased efficiency and cost savings for companies, many challenges persist, especially regarding their capability to manage complex, contextual queries requiring human-like understanding. This paper tries to explore the usability of such chatbots from the user perspective and finds the areas that require further fining.

AI chatbots have grown in importance for customer service improvement, providing enterprises with the power to serve their customers efficiently and speedily. In industries related to delivery services, for example, chatbots serve as the first point of contact for users in supporting them with answers to questions, solving problems, and managing orders. That they quicken the pace of interaction makes them invaluable to enterprises that would do everything possible to enhance customer satisfaction. However, users' interaction behavior with AI chatbots has not been consistent at all. While some users view them as useful and efficient, other users complain of ineffective responses and many other functional issues. This study explores the efficacy of the AI chatbot system in a delivery app about the interactions of its users. The study helps in finding major strengths in the platform that enables it to respond to ordering and delivery-related issues, with responses that are either incorrect or out of context. This is a summary report of the general performance of delivery-based chatbots through the study of consumer feedback and insight into organizations that have used the same. In the end, this should give way to useful recommendations that might be helpful for organizations in enhancing their chatbot systems to better meet consumer expectations and the overall user experience.

2. Methodology

This research uses a mixed approach, including qualitative and quantitative data. We used **judgmental sampling**[*] in this research, selecting people based

communicate with human language, check https://www.ibm.com/topics/natural-language-processing

[*] A form of sampling in which the auditor selects a sample from a population on the basis of his or her own experience and assessment of the situation, rather than using

on their relevance to the topic. We particularly targeted customers who frequently use delivery apps and have had interactions with AI chatbots in the past six months, ensuring that their feedback was both new and useful. This strategy enabled us to collect highly relevant data while avoiding spending resources on inexperienced or irrelevant respondents. Our sample size for customers was 50. However, we were able to collect 58 responses. We conducted a survey for customers, in which we asked them questions about the effectiveness of AI chatbots and other questions about their customer satisfaction to learn more about them. The survey consisted of only 7 questions, some multiple-choice questions, and Likert scale, and others. Using multiple-choice and Likert scale questions, we can gather clear, measurable data that is easy to analyze. On the other hand, open-ended questions allow customers to express themselves in their own words, providing us with more information on their interactions with AI chatbots. These types of questions help us find out how people feel and where we can improve. A Google Forms link was sent on WhatsApp, emails, and social media platforms to people who use delivery apps. People who used AI chatbots did the survey.

3. Literature review

AI completely revolutionized the concept of customer service in many organizations these days. From just a peripheral tool, AI chatbots have grown as an integral part of most industries, especially customer-driven ones like e-commerce and logistical companies, serving customers more efficiently. Such technologies seek to enhance customer satisfaction, service efficiency, and reduction of costs. This section looks at some important research related to the impact of AI chatbots on customer satisfaction, operational efficiency, and overall user experience in terms of its benefits, drawbacks, and areas of improvement.

3.1 Previous studies

A lot of research has looked into how artificial intelligence (AI) is being used in different industries, and customer service stands out as one of the most significant areas. In this section, we'll dive into some of the key studies in this field..

Adam et al. (2020) emphasize how AI chatbots significantly improve service efficiency by reducing wait times and handling a high volume of inquiries simultaneously. Their findings underline chatbots' strengths in addressing routine tasks, such as order tracking and answering frequently asked questions, allowing human agents to focus on more complex matters. However, the study also notes a critical limitation: chatbots struggle to handle queries requiring

statistical sampling techniques, please check https://www.oxfordreference.com/display/10.1093/oi/authority.20110803100026339

emotional intelligence or deep contextual understanding. These shortcomings can lead to customer frustration, particularly when users face issues that require empathy or nuanced communication.

The SERVQUAL model, used by Misischia et al. (2022), provides another lens to assess chatbot performance. Their research highlights how dimensions like assurance, responsiveness, and tangibles (e.g., design and visual appeal) shape customer satisfaction. For instance, chatbots that consistently provide reliable and accurate information instill trust and confidence in users, enhancing overall satisfaction. Additionally, well-designed chatbots with user-friendly interfaces can significantly influence customer perceptions of service quality. Misischia et al. argue that chatbot aesthetics and functionality are as important as their technical capabilities, as they directly impact the user experience.

Similarly, Vergaray et al. (2023) explore chatbots' role in e-commerce platforms, emphasizing their efficiency in automating routine inquiries and reducing operational costs. Their study underscores the importance of equipping chatbots with advanced AI functionalities to handle more complex queries. They advocate for seamless integration with human agents for situations beyond a chatbot's capabilities, ensuring that customers receive personalized and effective resolutions when needed. This approach, they suggest, balances the benefits of automation with the need for human intervention in complex cases.

Joshi et al. (2019) and IEEE (2020) focus on chatbots in the UAE's retail and hospitality sectors, shedding light on their unique contributions to diverse and competitive markets. Joshi et al. highlight how chatbots enhance customer engagement through personalized interactions, such as localized promotions and multilingual support. This is particularly relevant in the UAE, where a culturally and linguistically diverse customer base demands tailored communication. The IEEE study expands on this by noting how chatbots improve customer satisfaction by addressing specific regional challenges, such as providing multilingual support and quick responses. Both studies underscore the dual focus on efficiency and personalization, which is essential for meeting the elevated service expectations in the UAE.

Lastly, Mohasses (2019) examines Dubai's integration of chatbots into its broader digital transformation strategy. The study highlights how chatbots contribute to the city's vision of becoming a global smart city by enhancing both public and private sector services. Real-time, personalized, and multilingual interactions facilitated by chatbots align with Dubai's commitment to innovation, providing efficient and seamless digital experiences for its residents and visitors.

Together, these studies paint a comprehensive picture of the role of AI chatbots in customer service. They demonstrate that while chatbots excel in efficiency,

scalability, and routine problem-solving, their limitations in emotional intelligence and contextual adaptability present ongoing challenges. To maximize their potential, businesses need to prioritize advancements in AI capabilities, such as sentiment analysis and hybrid systems that combine chatbot automation with human expertise. Additionally, factors like design, personalization, and cultural relevance remain critical for ensuring a positive customer experience.

4. Results

4.1 Overview of AI technologies applied in customer service communication

Before we dive deep into our primary results, it is necessary to know some facts about using AI in customer service. Nowadays, it is current AI technologies' turn to set afresh the whole landscape of communications via customer support. It came to mean, among others, the use of chatbots for 24/7 support, where responses are instantaneous, or faster, for frequently asked questions, improving the customer's perception and reducing said customer's wait time for support. On top of that, with the power of analytics and artificial intelligence, organizations can derive much-needed insights from customer interactions and provide much more relevant and timely service offers. For instance, the application of cyborg technologies combines advanced artificial intelligence with human capabilities, thus blending efficiency and empathy in service interactions effectively (Garry et al., 2019). This envisioned interplay of human and technology capabilities will significantly alter frontline service jobs, whereby an organization leverages both humans and technology in the pursuit of this multifaceted set of service demands. As companies continue to implement these AI solutions, the impacts to customer service interactions will dramatically become more important, thus compelling revisiting current approaches and architectures.

4.2 Customer Service Data

Through marketing state reports, from scaling creativity to automating processes, AI holds a lot of promise — and a growing number of marketers are looking to take advantage. In 2022, 68% of marketers had a defined AI strategy. Seventy Five Percent of marketers are already rolling up their sleeves and experimenting with or fully implementing AI. Yet a closer look reveals an uneven landscape.

It is worth mentioning that marketers focus more on customer service data as the main strategy for tailoring the right message to their customers. check these two charts for more clarification (State of Marketing, 2023).

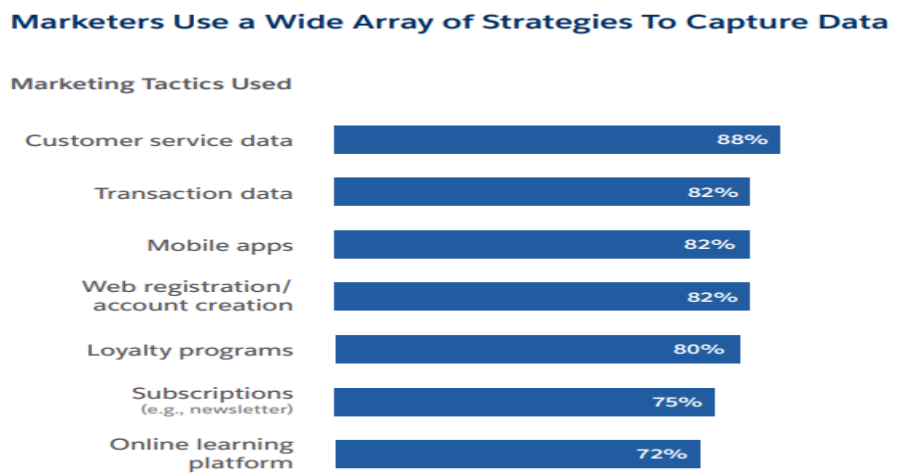


Figure (1)

It's well known that Chatbots help with predictive data as well, here in this graph we can see the increase of using predictive data.

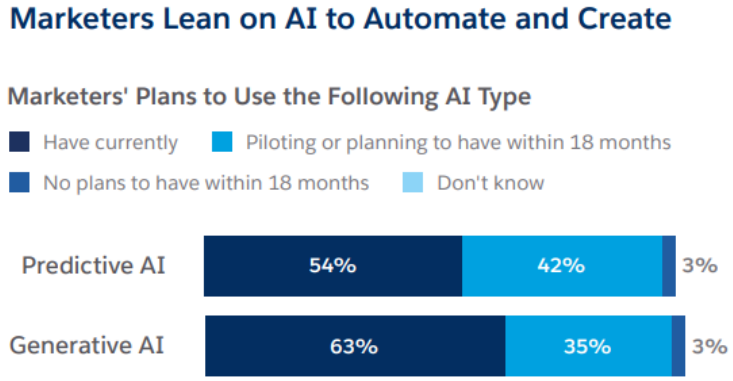


Figure (2)

4.3 Personalization and responsiveness through AI chatbots

The incorporation of AI chatbots in customer service is fundamentally reshaping how businesses approach personalization and responsiveness. These systems leverage advanced algorithms to analyze customer data, enabling them to deliver tailored interactions that resonate with individual preferences and behaviors. For instance, studies indicate that AI-driven customization significantly enhances customer satisfaction and loyalty, particularly in fast-paced sectors like e-commerce and the beauty industry, where personalization is key to meeting consumer expectations (Coelho et al., 2024). Furthermore, the dynamic interplay between human agents and chatbots fosters a deeper level of customer engagement by providing immediate responses while maintaining a human touch when necessary. This balanced approach not only streamlines communication but also builds trust, allowing companies to efficiently meet diverse user needs (Kyrylenko et al., 2024). As a result, businesses that effectively integrate personalization through AI chatbots are likely to see enhanced customer retention and loyalty, illustrating the pivotal role of technology in modern customer service.

4.4 Reduction of operational costs and improved service speed.

Editing Paragraphs AI has been instrumental in customer service communication by helping organizations reduce operational costs while increasing service speed. Through chatbots and virtual assistants, an organization reduces the need for a massive amount of human resources by automating responses to routine inquiries and reserves actual employees for more complex customer issues that require personal attention. Also, AI-driven modules can work 24*7, ensuring quick response times that contribute towards customer satisfaction. It allows flexibility in making the information systems architecture more efficient, as noted by specialists in the area; this reduces bottlenecks, managing data and decision-making (Bastos et al., 2024). With this, the organization can allocate resources more strategically for lower costs and service delivery. Convergence on cost efficiency and speedier communication are the key issues for an organization to remain competitive in today's market.

4.5 Customer Survey Analysis

The survey results provide valuable insights into how users interact with AI chatbots in delivery apps, shedding light on both their strengths and areas for improvement. Below is a more relatable interpretation of the findings.

Frequency of Chatbot Usage

The survey responses ranged widely across the level of enthusiasm for AI chatbots. Of the total responses, 18 showed frequent use of chatbots, 13 used it

occasionally, and another 13 said they use it very frequently. Only two said they had never used a chatbot. This result shows the habitual reliance on chatbots among a significant part of the user community, thus more and more it has become an important feature when it comes to customer service.

The mean utilization standard deviation stands at 5.86, depicting heterogeneity in user interaction patterns. In the case of regular and highly engaged users, chatbots probably form a basic element of their customer support experience and thus indicate that this channel has become preferred for the resolution of issues or quick access to information. At the same time, less frequent users may be in need of support or additional functions that better integrate them, so that they can make more effective use of the chatbot. Justification of Using Chatbots.

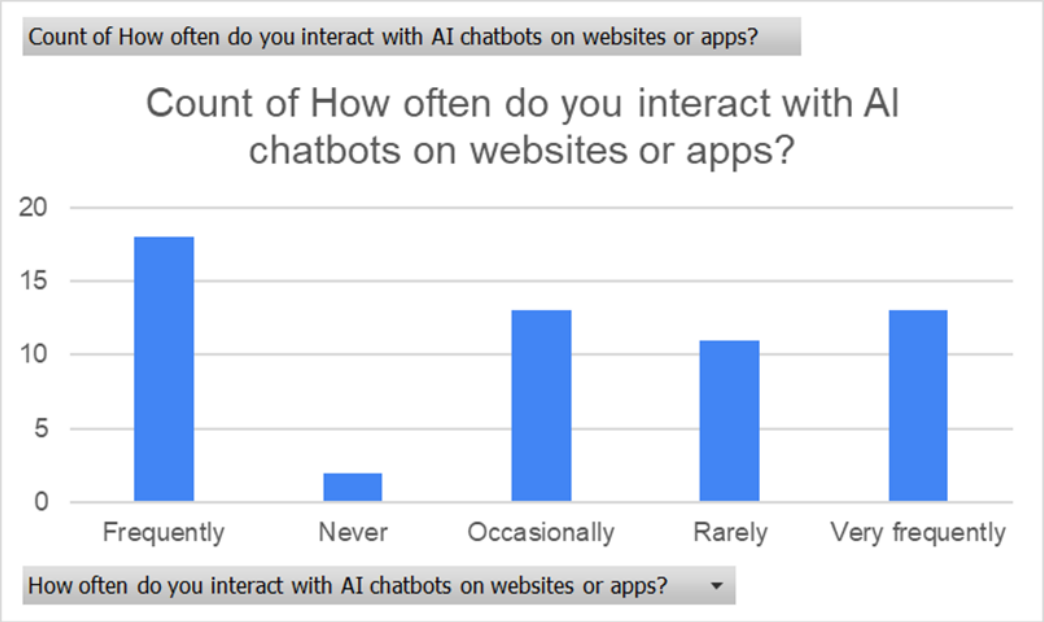


Figure (3)

Reasons for Using Chatbots

When analyzing why users interact with AI chatbots, the two most common reasons were asking general questions and seeking customer support, each chosen by 24 respondents. These findings indicate that chatbots are primarily used for transactional and support purposes. The lower frequency of other reasons, such as clearing up concerns (1 respondent) or getting product information (8 respondents), highlights potential underutilization of chatbot functionalities in these areas. The significant standard deviation of 11.62

reflects the disparity in how users utilize chatbots, emphasizing the need for chatbots to expand their capabilities beyond basic support to meet diverse user needs. The dominance of transactional interactions, such as status inquiries or issue resolution, reinforces the importance of ensuring chatbots are optimized for these tasks to build user trust and satisfaction.

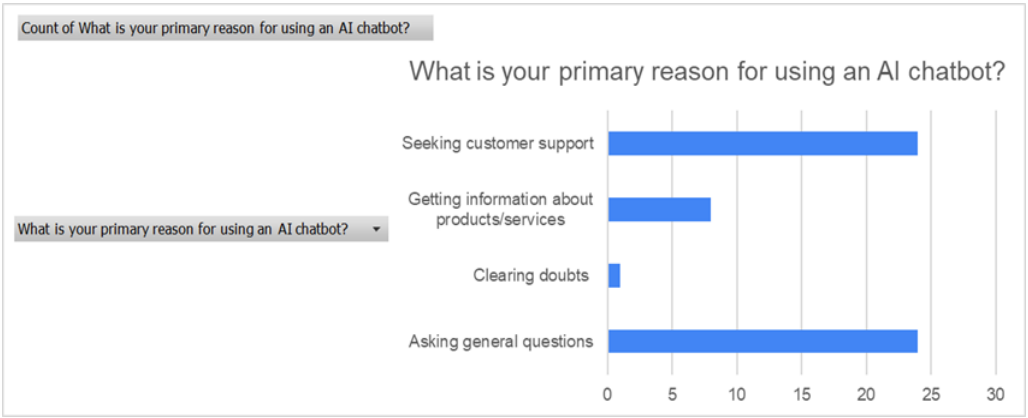


Figure (4)

Satisfaction of Chatbot Responses

The level of user satisfaction regarding AI chatbots was varied; 43%, or 25 of the respondents, recorded a neutral opinion. At the same time, sixteen users reported satisfaction, six very satisfied, five disappointed, and three extremely dissatisfied. These neutral levels of satisfaction, along with a standard deviation of 9.30, do certainly indicate large variations among respondents. The median level of satisfaction, at 6, again has to reiterate that for many users, the interactions were neither distinctly positive nor distinctly negative. Though neutral ratings do indicate sufficiency, they also portray the possibility of further improvement in the level of user satisfaction by enhancing areas like accuracy, contextual understanding, and responsiveness. Such frustration among users could easily be taken care of-let's say, by clear responses or the ability to deal with complex queries-each would significantly lessen negative experiences and increase overall satisfaction.

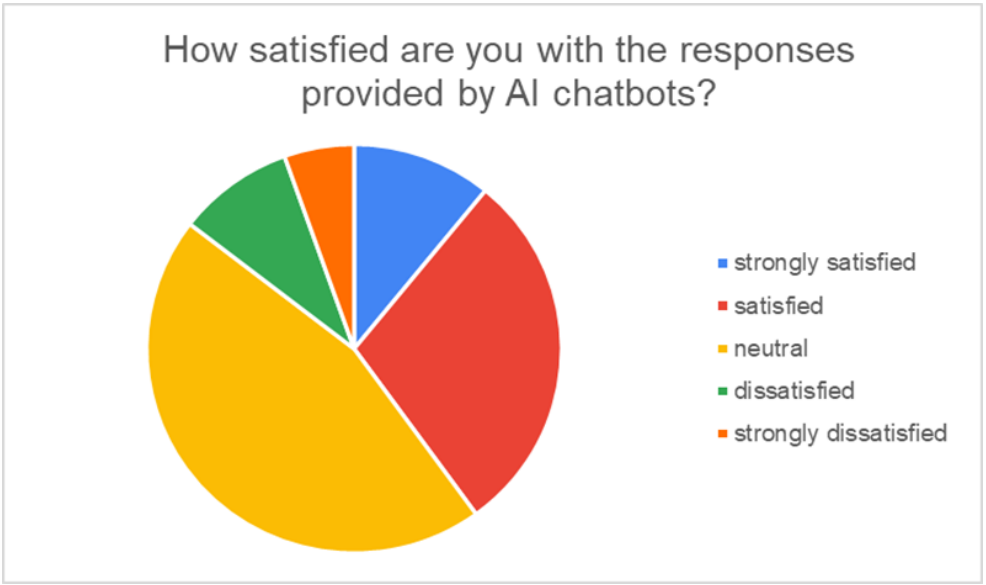


Figure (5)

Positive Experience

The helpful interactions with chatbots were divided into six main domains. The most frequent domain was about issue solving concerning orders and deliveries; 15 participants mentioned this domain. Receiving technical support was the second most frequent positive experience mentioned by the participants 13 times.

Other categories included helping with account settings 6, refunding 5, suggestions and promotional offers 5, and pace and speed of the service 4. The average of 8 helpful interactions within these categories, with a standard deviation of 4.73, demonstrates some variability in the experiences that emphasize the logistical and technical supports. Results have shown that while the chatbots are very efficient in managing the operational challenges, their full capability to engage the user through custom suggestions or special offers has not been realized so far. Further development of such capabilities may extend the positive effect of chatbots on customer service.

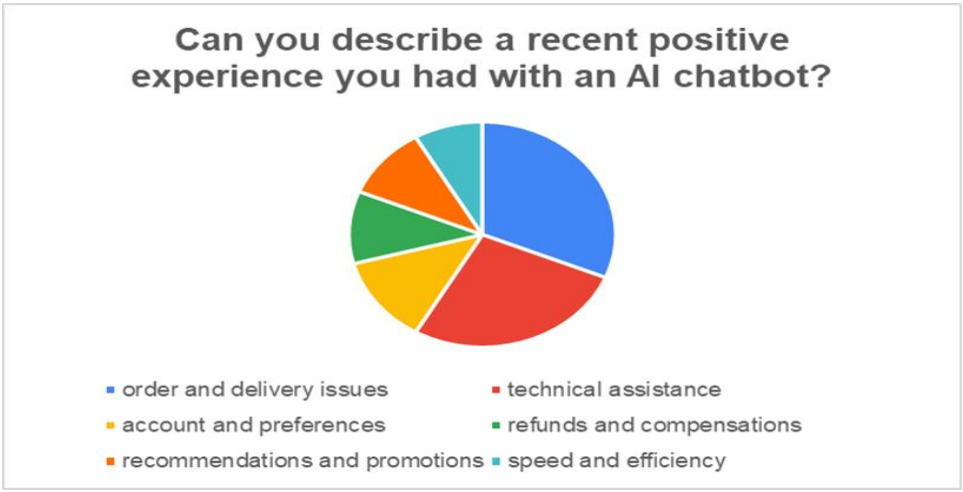


Figure (6)

Recognized Enhancement in Client Experience

Most of the respondents believed that chatbots enhanced their customer experience overall. Of the 50, 20 agreed, 21 were neutral, while 8 strongly agreed, but 7 participants disagreed, and 1 strongly disagreed. The median of 8 is indicative that a considerable proportion of the respondents rated the usefulness of the chatbot positively, but at the higher standard deviation of 8.73, considerable variability existed within the responses of the participants.

Neutral responses, which formed a large proportion, showed that while chatbots are useful to some users, others do not see much value or still face limitations in their ability to operate properly. This points to the need to take care of user concerns, particularly in cases of people who still remain indifferent or less than satisfied with their experience with chatbots.

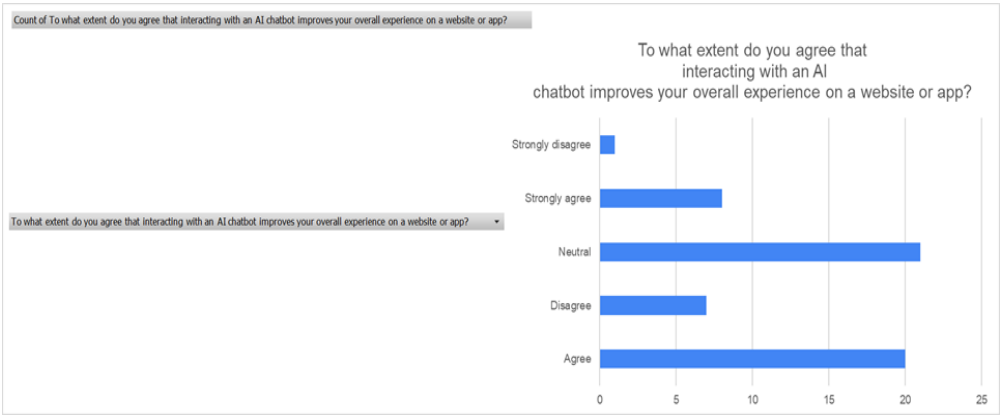


Figure (7)

Challenges Faced by Users

Difficulties of the Users when asked about the problems encountered, the user responses were dominated by irrelevant response issues (33 occurrences) and limited capabilities (17 occurrences). Other issues included difficulty understanding the response provided by the chatbot (6 occurrences), as well as slow response time (1 occurrence). Such issues explain clear areas that need to be improved. A high mean of 14 and standard deviation of 14.17 indicate great variation of user problems where irrelevant responses become a significant issue for many users.

This shows a dire need for chatbots to come up with more accurate and contextually relevant responses; along with increasing their functionalities, they are supposed to perform better to meet user needs.

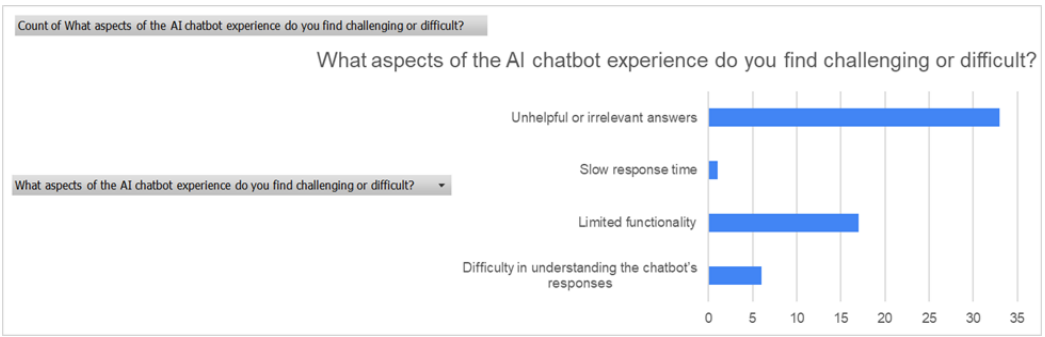


Figure (8)

Suggestions for Improvement

Respondents offered several suggestions to enhance chatbot functionality and user experience. Thirteen participants emphasized the importance of delivering accurate and appropriate responses. Eight respondents suggested expanding chatbot functionalities, and another eight recommended improving chatbots' ability to understand user queries. The participation of six also showed interest in personalization, claiming the participation of friendlier and personalized dialogues. Other remarks included speed and efficiency in response, at 5 mentions; escalating to a human representative when necessary, at 3 mentions; and advanced artificial intelligence features in participation, such as speech-to-text or natural language processing, at 3 mentions. These suggestions strongly stress increasing precision, functionality, and contextual understanding, which generally corresponds to the trends observed in user difficulty and satisfaction. The average of 5.875 and a standard deviation of 3.80 show that the priorities are relatively equally spread out across the participants to support the needs across the board for improvements, rather than in one or two dimensions.

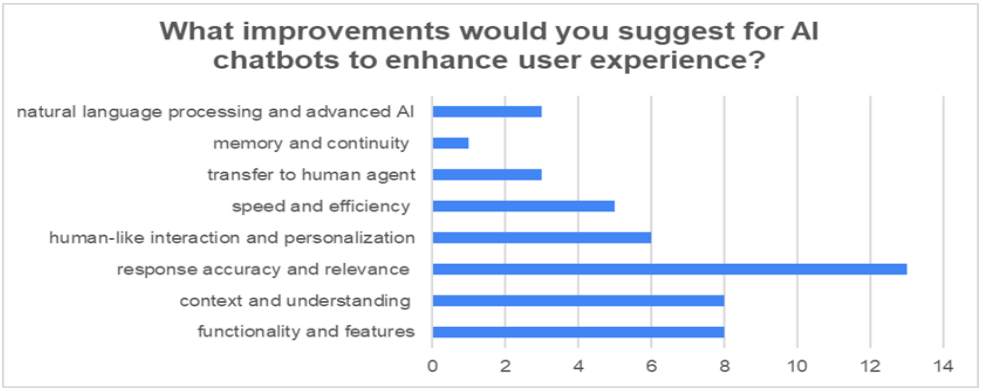
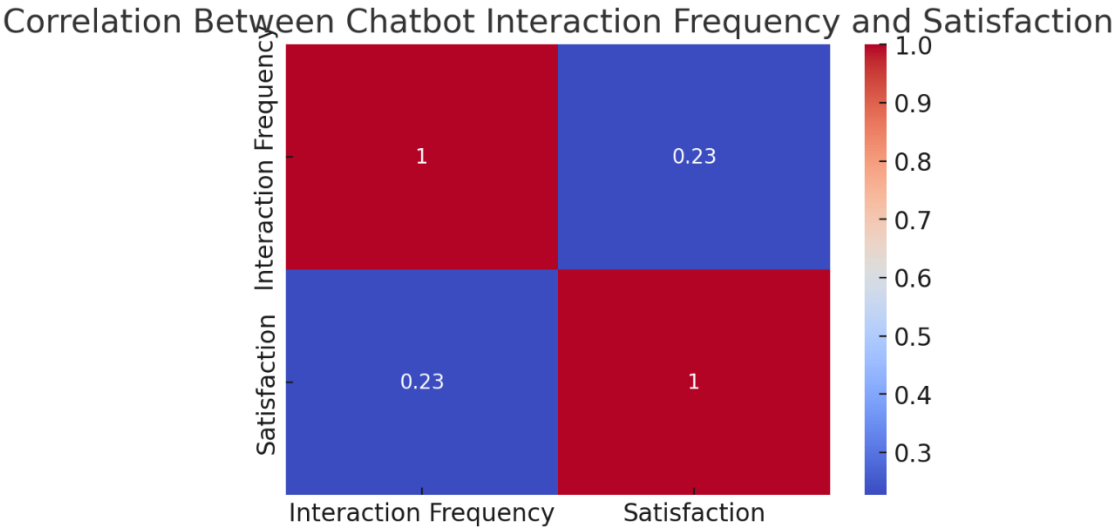


Figure (9)

Relationship between results:

Correlation between Interaction Frequency and Satisfaction = 0.23

- This indicates a weak positive relationship between how often users interact with AI chatbots and their satisfaction levels.



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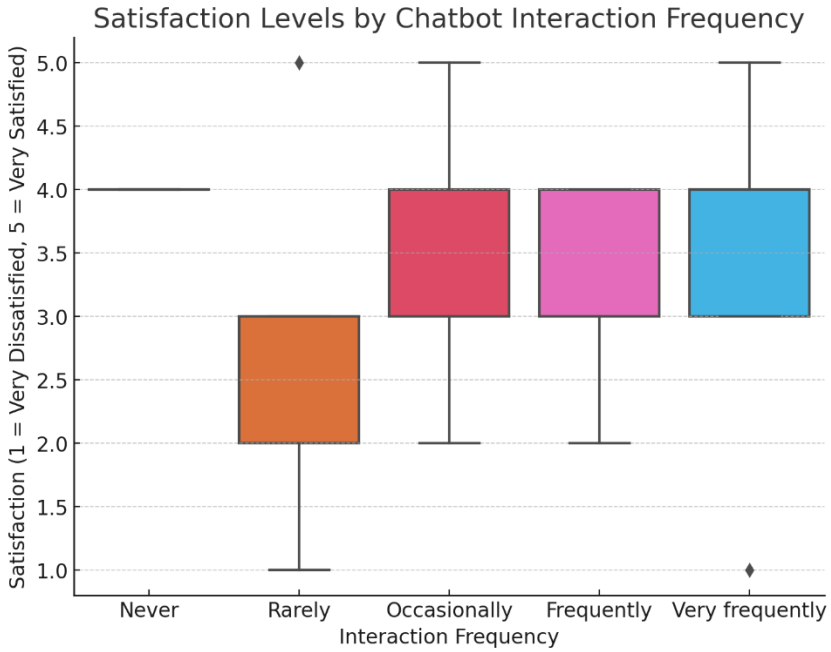

Figure (11)

Users who interact with chatbots frequently or very frequently tend to report higher satisfaction levels (median satisfaction = 4).

Those who interact rarely tend to have lower satisfaction, suggesting their limited exposure may lead to a less favorable impression.

Overall insights:

The survey results comprehensively view user interactions with AI chatbots in delivery apps. Most respondents reported using chatbots frequently or very frequently, indicating their integral role in customer service. However, satisfaction levels were mixed. While many users appreciated chatbots for resolving order-related issues efficiently, others cited challenges such as irrelevant responses and limited functionality. The variability in satisfaction highlights the need for targeted improvements to better address user expectations.

Respondents identified key areas for enhancement, including contextual understanding, accuracy, and personalization. Users noted that chatbots often failed to handle complex or nuanced queries effectively. Positive experiences were primarily related to resolving logistical issues, such as delivery tracking and order updates, showcasing the chatbots' strength in transactional support.

Conversely, dissatisfaction stemmed from their inability to provide empathetic or contextually appropriate responses.

The analysis also revealed a weak correlation between chatbot interaction frequency and satisfaction levels, suggesting that frequent use does not necessarily equate to higher satisfaction. This finding emphasizes the importance of addressing underlying issues in chatbot functionality rather than solely focusing on increasing user engagement.

5. Limitations

Several limitations made the survey a flawed instrument that may reduce the generalizability and accuracy of the findings. These limitations have therefore impacted the generalization and the accuracy of the findings from this study, which need to be interpreted with caution. Most of the limitations included a rather small sample space of 50 respondents. While this reduced sample could allow for focused insight into how AI-powered chatbots are being used in order to enhance customer service within delivery applications, it fell short of capturing a broad variety of user experiences across the UAE. Thus, a larger sample size contributes to a greater statistical reliability, enabling one to make better generalizations for wide populations of delivery application users. The question of sample size was very important in earlier studies as one is looking at the key issue of ensuring representativeness and reducing the chances of sampling error. (Taherdoost, 2016).

Another major limitation was relying on judgmental sampling directed at individuals who heavily used delivery apps. The non-probabilistic approach probably resulted in a sampling bias, given that very active users were overrepresented that are more accustomed to chatbots and therefore use them more. Such users perhaps have systematically different opinions than less active or first-time users whose experiences might balance things out. Sampling bias represents a significant concern in research since it has the potential to skew findings and result in interpretations that do not accurately represent the broader population (Etikan, Musa, & Alkassim, 2016). Subsequent studies might implement probabilistic sampling methods to achieve a more varied and representative group of participants.

That is very obvious in the Regression analysis which shows:

The sum of squares for regression (SS) is 2.7739, with a mean square (MS) of 2.7739.

The F-statistic = 2.9823 and the Significance F = 0.0898.

Since the p-value (Significance F) is greater than the conventional threshold (0.05), the regression model is not statistically significant. This means that the

predictor does not explain a significant proportion of the variance in the dependent variable.

The residual sum of squares (SS) is 51.1559, indicating a large portion of unexplained variability

6. The Future of AI in Customer Service Communication

With time, the dynamics of customer service communication have started to change, and its interaction with artificial intelligence has come to the fore-Login Form has immense opportunities and challenges. Artificial intelligence technologies are fast emerging as the game-changers of customer interaction, involving data analytics, machine learning, and NLP. These will finally allow organizations to be much more personal, quicker, and proactive in their approach to customer satisfaction, thus changing basically how organizations communicate with their customers. A notable consequence of this development is the capacity of artificial intelligence to improve personalization via predictive analytics. Predictive analytics enables organizations to forecast customer requirements by examining past data and behavioral trends. For example, AI systems are capable of recognizing persistent problems or preferences and can preemptively present solutions or suggestions, thereby promoting customer loyalty and satisfaction (Grewal et al., 2021). This degree of foresight allows companies to transition from reactive to proactive customer service-improving moments before they happen and tailor the interaction based on individual tastes and preferences.

More significant developments include the integration of AI-powered chatbots or virtual assistants into communications platforms. In addition, such systems facilitate customer interaction with a brand by automating routine processes: answering frequently asked questions, reporting on order or delivery status, and dealing with common complaints. This reduces waiting times and increases access, thus making customer service more efficient and widely available (Huang & Rust, 2021). As chatbots continue to evolve, their ability to understand and respond to complex queries through enhanced natural language processing will continue to improve, further closing the gap between human and machine interaction.

Nevertheless, the increasing prevalence of artificial intelligence in customer service prompts significant reflections on the equilibrium between automated systems and human participation.

While artificial intelligence is good at handling routine questions and processing large volumes of conversations, it often struggles when the situation is emotionally charged or complex, requiring empathy and critical judgment,

according to Xu et al. 2020. Customers with sensitive issues may prefer to interact with humans; emotional intelligence is crucial in understanding them correctly.

Businesses must therefore strategically integrate AI to complement human agents rather than replace them, ensuring a seamless transition between automated and human support when needed.

Thirdly, with the increased application of artificial intelligence, ethical concerns are becoming prominent. Various issues, such as data privacy, bias in algorithms, and transparency in AI decisions, have to be encountered in order to maintain consumers' trust. For instance, ensuring that chatbots provide accurate information without breaching sensitive information about customers is critical (Mittelstadt et al., 2016). The organization needs to focus on responsible AI practices by incorporating regular assessments of AI systems into their processes to maintain ethical standards and ensure positive relations with their customers. The implications of AI also involve workforce dynamics in customer service. While AI is taking up most of the repetitive and time-consuming jobs, human agents will be in a better capacity to focus on complex and high-value interactions. This, in turn, will demand that businesses upskill their work by investing in the right tools and employee training in order to deal with specialized customer needs and interfaces within an AI system (Gnewuch et al., 2017). The future integration of AI by companies should be completely oriented towards the customers, with technologies that truly nurture the relationship with the customers. Future developments such as sentiment analysis and conversational AI hold much promise in making the systems emphatic, and context-sensitive to yield emotionally intelligent responses. This will doubtless require further research and development to fine-tune those technologies to meet the expectations set forth by the customers. In other words, AI is going to change customer service communication, offering huge opportunities to drive efficiency, and personalization, and proactively engage customers. However, its effective implementation would depend upon overcoming challenges relating to ethical considerations, emotional intelligence, and finding the right balance in the human-AI equation. Such organizations will be better positioned to build valued relationships with customers in a world that is increasingly embracing more AI.

Future studies should consider collecting demographic data, such as age, gender, and digital literacy, to better understand how different user groups perceive chatbot effectiveness. This could reveal important trends, such as younger users being more comfortable with chatbot interactions compared to older users.

7. Recommendations

The following suggestions are hereby recommended to be added to increase the effectiveness and usability of the artificial intelligence chatbot implemented into the delivery apps; they are elaborated below biased toward feasibility and usability:

Make Responses Accurate: Since irrelevant responses were the most common complaint, with 33 mentions, businesses should make improvements in chatbot accuracy using enhanced NLP and machine learning. For example, the addition of sentiment analysis allows chatbots to adjust their tone and responses according to user frustration, thus being more contextual and empathetic. It's about creating a virtuous learning cycle that will keep improving the accuracy over time. Chatbots need to capitalize on machine learning models by analyzing past conversations and user feedback in real time. This enables them to identify and correct anomalies in the responses for continuous improvement in knowledge repository building. This process should also involve frequent evaluation and improvements of the chatbot's decision trees for accuracy and relevance, especially about common questions, like delivery status or technical issues.

Improved accuracy reduces user frustration while at the same time building trust in the functions of the chatbot for continued use and reliance on the intelligent agent.

A chatbot also improves the user experience, such as one that is able to provide refreshed statuses of delivery or to handle any payment issues promptly. Creating regular performance reviews, including qualitative user feedback and quantitative metrics of accuracy, will be crucial for maintaining and improving over time.

Improve Contextual Understanding: Advanced methods in the field of NLP will go a step further in extending the usability of the chatbot by putting user queries into context-that is, training the chatbot to understand colloquial phrasal usages, abbreviations, or incomplete sentences so that users can get contextual responses for inputs that are not professional or vague. This involves sentiment analysis that would have the chatbot pick up user sentiment, such as frustration or satisfaction, and adjust its tone and responses in return.

For example, whenever the user expresses dissatisfaction with something like a delay in delivery, the chatbot is able not only to acknowledge such issues with empathy but also to offer compensatory alternatives, such as a discount on prices or expedited service. The empathy in such engagement transforms what would have been negative interactions into opportunities to build customer loyalty. In addition, chatbots should focus on identifying user intent beyond

what they state explicitly to ensure that the solutions offered truly match user expectations.

Personalize the User Experience: Personalization is key in making users' interactions with the service both great and memorable. Using the data collected on a user-for instance, previous orders, frequently asked questions, and preferences-chatbots can send personalized responses. Such personalization may refer to suggesting similar products based on previous purchases or continued conversations on previous topics. A personalized greeting to returning customers or even the smallest reward, like giving a discount to items regularly ordered, will definitely enhance the customer's experience and build loyalty. It would also be such a case when one considers the variety of instances when a chatbot greets a returning user with a phrase like, "Hello again! Would you like to reorder your favorite dish?" Alternatively, it may suggest a special promotion based on users' ordering history. Such would enrich a user's perceived value added but optimize the user's experience of using an application on multiple instances. Ensuring privacy and transparency in data usage is critical, as it builds user trust while allowing chatbots to deliver personalized and relevant content effectively.

8. Conclusion

This research looks into the role of AI in customer service communications, specifically chatbots in food delivery apps within the UAE. Although various limitations were identified, the data offer valuable insight into the potential and the challenges to be overcome while integrating AI into customer service. The frequent users of delivery apps-who represented the key sample of the current research-indicated that, overall, chatbots offer efficient, convenient, and quick solutions. These benefits align with the extant literature pointing to the rising popularity of artificial intelligence for CX improvement (Luo et al., 2019). However, this research has also revealed some significant concerns-for instance, perceived lack of empathy and inability to handle complex customer issues-which also reflect broader criticism of AI-based customer service models (Gnewuch, Morana, & Maedche, 2017).

Results have indicated that food delivery applications have to find a balance between efficient utilization of chatbots and the quality of human-like interaction. Although AI chatbots can answer routine questions, the study proposes that companies use a hybrid model: taking advantage of the functionality of a chatbot but then providing human support for more complex queries. Such a two-way approach may reduce users' frustration about chatbots' limited functionality and improve overall customer satisfaction. These approaches are consistent with the guidance offered in the discipline, which promotes the implementation of context-aware artificial intelligence to enhance advantages while minimizing drawbacks (Xu et al., 2020).

Future research will have to build upon these findings by addressing identified methodological limitations, such as increasing sample size, encouraging wider demographic participation, and enhancing survey instruments that can give a more panoramic view of users' perception. Regional and sectoral comparisons can also give wider perspectives concerning the role of cultural and contextual factors in effectiveness related to the use of chatbots. Since AI is still evolving, continuous research and adjustments are in order to unleash its full potential with regard to customer service-related communication.

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