Analyzing The Potential of Chatbots in Improving Customer Service and Sales

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Abstract:

Communicating with customers is essential for businesses to develop profitably and efficiently. Clients of an organization are associated with the market each day and have a different perspective than the organization itself. Their observations on issues including new technologies and market demands can help a company prepare for the next threat, or provide early predictions of opportunities. Additionally, remaining in consistent contact with clients provide high customer engagement and loyal customers. This paper aims to help in assessing the usefulness of chatbots in increasing customer engagement and to help businesses grow effectively and efficiently. Additionally, we will highlight pertinent instances of effective chatbot deployments and their effects on enterprises. We can learn more about how chatbots will influence customer service and sales in the contemporary business environment by looking at their capabilities.

Introduction:

Given the modernization and digitalization of the economy, the issues surrounding corporate growth are especially relevant. The company's capacity to grow depends on its ability to scale. Sales and earnings rise when corporate processes are implemented correctly, and contemporary marketing methods are employed. One potential constraint could be the sluggishness of the predictions made by entrepreneurs and shareholders when formulating a business strategy concerning the scale and prosperity of the enterprise. Modern marketing technologies, such as those that automate business and marketing activities, are crucial to growing a business. The requirement to automate certain operations has become a common occurrence.

Chatbots are a means of connecting with potential consumers and fostering connections. They can be used to send letters with advice, stay in touch with them after a transaction, engage with them on social media, and even predict when they will be ready to buy. With the use of marketing automation solutions, targeted messages can be sent to the potential customers and reduce the length of the marketing campaign.

Chatbot is an artificially intelligent conversational agent that simulates human-like conversation that, for example, allow users to type questions (i.e., queries) and, in return, generates meaningful answers to these questions. A chatbot is a conversational software programme that may mimic human communication skills in order to communicate with a user via chat. The chatbot evaluates the user's input and connects it to a database of potential solutions. They are designed to communicate in real-time with the interlocutor in order to advise, assist, or simply have a conversation with them. This programming is based on natural language processing.

Chatbots consist of software that can establish a sequential conversation looking for a certain result as a facilitating tool for humans with whom it interacts. Wallace, in his interpretation of the chatbot ALICE, defines chatbots as "expert systems that use case-based reasoning (CBR). The purpose of these systems is to simulate an intelligent dialogue with a human interlocutor, it can be by text message using a console or it can be a voice chat." Chatbots have immense potential to boost user engagement for any business, and this consequently may lead to more conversions and sales.

A study found that 32% of consumers demand a response within 30 minutes, 50% of user requests are returned unanswered, and 52% of customers hang up on customer care agents before their problem is fixed. This suggests that in order to avoid losing consumers, clients want customer service teams to reply to their inquiries promptly. Today, chatbots are viewed as a crucial part of any customer support solution. According to Outgrow infographics, the usage of chatbots is growing, which has led to a reduction in customer care operations of more than 30%. In order to receive prompt responses to frequent questions, 69% of consumers prefer to use chatbots. 50 respondents participated in a Gartner Customer Service and Support

(CSS) survey performed online in January and February 2022, and the results showed that 54% of respondents use a chatbot, virtual conversation assistant (VCA), or other conversational AI platform for customer-facing applications.

Literature Review: -

Misischia et al. divided chatbots into two categories: "fulfilment of customer's expectations" and "improvement of service performance" These are expected to address the chatbots' targets, which thusly accomplish the chatbots' last useful objective of upgrading administration quality.

Muhammad et al. say that the execution of man-made reasoning in e-administrations is at this point not a unique case, so that likewise chatbots are turning out to be progressively notable and well known in client care, being generally usually doled out to the business (41%) and support capabilities (37%) in the online business region.

Zumstein et al. study, explains that it is frequently inefficient to browse a large website because the necessary information or answers are difficult to locate or even absent. If questions remain unanswered, it is necessary to contact customer service, which typically entails lengthy wait times and rigid working hours. Customers become irritated as a result, and as a result, dissatisfied with the business in question. Chung and others demonstrate that Chatbots can precisely provide this: an innovative, interactive, and more convenient alternative to conventional customer service.

Zumstein et al. stated that a chatbot is always ready to provide support round-the-clock, seven days a week, whenever a customer requires assistance or contact with the business. Chatbots may guarantee an immediate response to every concern in real-time, regardless of whether a FAQ-answer, information about a specific product, a price, or a contact, such as in the event of a complaint or refund, is required.

According to **Nguyen et al., and Köhler et al.** Chatbots have the capability of recording a conversation history that they can use as a reference point by utilizing their artificial memory in order to formulate responses that are more satisfying and individualized.

According to **Murtarelli et al**., chatbots help businesses better understand consumer behaviour patterns by aggregating large amounts of customer data. This enables businesses to adapt, rethink, and optimize their decision-making processes.

Kaplan et al., the chatbot's operating rules are related to its capacity to carry out such decision-making tasks with the least amount of error possible and to provide individualized solutions that fulfil the requirements of the user.

Thus, **Zumstein et al.** states that chatbots can have two kinds of effects on businesses: From one viewpoint, chatbots impact the way organizations convey and act with their clients, while then again, they may likewise emphatically impact and change the correspondence among them.

A study by **Ikmoro and Jawad** looked at how chatbots can be used for personalized marketing and how well they can accomplish marketing objectives. According to the study, chatbots boost customer satisfaction and provide personalized experiences in real time. Chatbots are the way to meet the increasingly sophisticated expectations of customers for personalized services in a professional manner.

Chatbots are becoming increasingly popular in a wide range of business applications, according to **Shawar and Atwell**. Companies can use chatbots to improve customer service, boost revenue, and better control costs all at the same time. They prove to be useful in customer service and sales. They can also assist representatives of sales or even conduct sales themselves.

People use messaging apps like Telegram, Instagram Direct, Twitter Direct, WeChat, LINE, Skype, WhatsApp, and Facebook Messenger daily to chat with friends, interact with brands, make calls, consume content, purchase products, and even book a restaurant reservation. These are just a few of the many options available to users of messaging apps today. What's more, advertisers use chatbots on these applications to give client care, convey content to clients, publicize as well as to sell items (**Fontanella, 2021**).

According to **Spychalska D.** chatbots have a tremendous potential to increase user engagement for any business, which may result in increased sales and conversions.

Types of Chatbots

There are three main categories of chatbots:

Retrieval Chatbots: These chatbots access and provide information from a predefined knowledge base. They are ideal for answering FAQs, order tracking, and weather updates.

Generative Chatbots: These chatbots use machine learning to generate human-like responses, allowing for more natural and engaging conversations. They can handle basic customer service inquiries and even personalize interactions.

Transactional Chatbots: These chatbots facilitate transactions such as booking appointments, placing orders, and processing payments.

Benefits of Chatbots for Customer Service

24/7 Availability: Customers can access support anytime, anywhere, regardless of business hours.

Faster Response Times: Chatbots can provide immediate responses to basic inquiries, reducing wait times and improving customer satisfaction.

Reduced Costs: Chatbots can automate repetitive tasks, freeing up human agents to focus on complex issues. This translates to cost savings in the long run.

Improved Efficiency: Chatbots can handle a high volume of inquiries simultaneously, leading to increased efficiency and productivity of the customer service team.

Personalized Service: Chatbots can collect customer data and tailor interactions to individual needs, offering a more personalized experience.

Increased Customer Satisfaction: Timely and efficient service leads to happier customers, boosting brand loyalty and positive word-of-mouth marketing.

Real-World Examples

Sephora: Sephora utilizes a chatbot named "Beauty Insider" to answer product inquiries, recommend makeup based on customer preferences, and even schedule appointments for in-store consultations.

Domino's Pizza: Domino's chatbot allows customers to order pizza through text messages, providing a convenient and personalized way to place orders.

Hilton Hotels: Hilton's chatbot, "Hilton Honors Concierge," assists guests with booking reservations, checking in, and accessing hotel amenities, offering a seamless and efficient experience.

Understanding User Perception: User Pain Points and Challenges:

Limited Understanding: A common user frustration is chatbots' inability to understand complex or nuanced questions. This can lead to repetitive loops and an inability to resolve the issue at hand.

Lack of Personalization: While some chatbots offer basic personalization, users may feel like they're interacting with a generic script rather than a helpful assistant.

Difficulty Escalating Issues: Users sometimes face challenges when needing to connect with a human agent. Chatbots should offer clear and easy ways to escalate complex issues or situations requiring human intervention.

Language Barriers: Chatbots may not always be available in multiple languages, which can be a significant barrier for non-native speakers.

Strategies to Bridge the Gap:

Focus on User Intent: Go beyond keyword matching and train chatbots to understand the underlying intent behind user queries. This allows them to provide more relevant and helpful responses.

Offer Multiple Interaction Options: Integrate text chat with voice interfaces to cater to different user preferences. Consider incorporating multimedia capabilities like images or videos for better communication.

Provide Clear Escalation Options: Offer intuitive ways for users to connect with human agents when the chatbot reaches its limits. This could be through a "Live Chat" button or clear prompts within the conversation.

Transparency and User Control: Be transparent about chatbot capabilities and limitations. Allow users to easily switch to a human agent if needed.

Continuous Learning and Improvement: Continuously analyze user interactions and feedback to improve chatbot responses and address user pain points.

Research Methodology

Questionnaire survey method

A Questionnaire survey was conducted comprising of (124) participants where 10 questions were asked to the participants to understand their views & opinions about the subject. The age of the respondents was between 18-50.

In 124 participants 76.6 % (95) were male, 24.2% (30) were female and 0.8% (1) prefer not to say.

Among this respondents 52% (64) says that they shop multiple times a month, 21.1% (26) says they rarely shop online, 15.4%(19) they shop few times a week, 8.9%(11) says one a week and only 2.4%(3) says that they shop online daily.

While shopping 73.4 % (91) says that they have interacted with chatbot. Only 6.7 % (8) said that they are highly satisfied with the assistant and 44.2 % (53) had an average experience. 20.3 % (25) get convince to make a purchase decision through a chatbot, while 35.8% (44) had and neutral opinion.

36.7% (44) say that the low-cost item are the suitable for the chatbot sales and 50% (60) support hight-cost item and niche products. Only 10.9% (13) believed that chatbot is helpful while inquiries and 76.5(91) say most of the time or sometimes chatbot is helpful.

46.2% (55) says some time chatbot understand their queries and only 10.1% (12) says chatbot is able to understand them every time.

Over 17.5% (21) prefer chatbots over humans but majority of them still prefer humans that is 72.5% (87).

Over 96.7% (117) still believe that there are yet lot of improvements to be done in chat bot when it comes to personalized responses, complex queries and better integration with existing systems.

Hypothesis Development and Research Model

Binomial test

Binomial test is an exact test of the statistical significance from a theoretically expected distribution of observations into two categories.

Chi-Square test

Chi-Square is called as goodness-of-fit test. It is used to test how observed frequencies differ from expected frequencies. It is a Non-Parametric test of hypothesis.

The following hypothesis has been tested by using Binomial test.

Hypothesis 1:

Null Hypothesis (H1$_0$): The interaction with chatbots don't make online shopping more convenient.

Alternative Hypothesis($H1_A$): The interaction with chatbots makes online shopping more convenient.

Table 1: Observed Proportion for online shopping more convenient

Category	N	Observed Proportion	Test Proportion	Significance Level
Yes	78	.63	.50	.000
No	46	.37		
Total	124	1.00		

Source: Compiled from the questionnaire

Inference

From the table 1, it shows that the significance (0.000) is less than the assumed value (0.05). So we reject $H1_0$. This means that the interaction with chatbots makes online shopping more convenient.

The following hypothesis is tested by using Chi-Square test

Hypothesis 2:

Null Hypothesis ($H2_0$): The use of chatbots can't significantly improve customer satisfaction with the purchasing experience.

Alternative Hypothesis($H3_A$): The use of chatbots can significantly improve customer satisfaction with the purchasing experience.

Table 2: Observed & Expected values for Customer Satisfaction with the purchasing experience

Dimension	Observed	Expected	Residual
Highly Dissatisfied	17	24.8	-7.8
Dissatisfied	22	24.8	-2.8
Neutral	20	24.8	-4.8
Satisfied	35	24.8	10.2
Highly Satisfied	30	24.8	5.2
Total	124		

The table 2 depicts the residual values [difference between the observed and expected values] for customer satisfaction with the purchasing experience.

Table 2(a) : Chi-Square Analysis for Customer Satisfaction with the purchasing experience

Description	Customer Satisfaction
Chi-Square	222.8
df	4
Sig	.000

(df: degrees of freedom, Sig : Significance level)

Inference

From the table 2(a), it shows that the significance (0.000) is less than the assumed value (0.05). So we reject $H2_0$. This means that use of chatbots can significantly improve customer satisfaction with the purchasing experience.

Limitations: -

The sample set for this study comprises of 124 individuals, from a specific demography of Mumbai city. The hypothesis tests used for the study are of narrow focus with the increase in sample size other testing methods can be used to make the results more accurate. This study as is only one city focused it has only taken into consideration the subset of people in the Mumbai city, from 124 respondents comprising of college students. Due to the rise of chatGPT in the recent time much more research can be done to incorporate it in assisting businesses. A google form was circulated among the students with options so no further customised responses were allowed, this is where the limitation of the hypothesis testing method lie. So various hypothesis testing methods are not used.

Future Scope: -

The sample set can be expanded by getting responses from a diverse group across various regions and demography. Customized responses of the respondents will help analyse us in depth the contemporary issues regarding ng the chatbots, this will help in addressing and making further improvements. There is a scope of researching the use of various AI tools will be very beneficial to the businesses to get as much as customer retention as possible. Building trust with customers requires robust data security protocols and clear communication regarding data usage. Chatbots should intelligently escalate issues to human agents when necessary, ensuring a smooth transition and resolution for the customer.

Conclusion: -

Chatbots are a very important tool in the businesses arsenal to boost their customer retention and acquisition making the overall buying experience better for the customer. Chatbots are becoming a more and more preferred means of customer connection for businesses and brands. Because of them, customers start working with brands in the same manner that they work with individuals more casually, instinctively, and frequently in real time. However, considering chatbots only as one of many tools on the market that can help or optimize ongoing marketing initiatives fails to capture the core of these technologies. It is undoubtedly much more than a simple piece of technology.

Given the right personality and self-optimization mechanisms, they have the potential to serve as our devoted future reflection and symbol of who we are, which will be crucial for boosting marketing conversion. But it will, accordingly, necessitate a thorough comprehension of the guidelines defining consumer-chatbot interactions. As a subject of dynamic digital change, marketing benefits from successive technologies, enabling businesses and brands to maximize widely recognized advantages even more effectively.

Future marketing effectiveness will be crucial. This will involve responding quickly to signals that are identified, whether they take the shape of offers, recommendations, guidance, accurate advertising, or simply a statement that the customer matters.

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