An Assessment of User Preferences for Chatbots in Customer Service and Enquiries

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Abstract: *Companies have become more portable in response to digitization and automation. Chatbots are becoming an important choice for companies to keep up with the technological evolution. Artificial chats are widely used over wide range of applications and company websites to revolutionize the communication with customers. This study demonstrates the realistic perception and preferences of people towards chatbots' capabilities and effectiveness in service and enquiries. Statistical analysis has been performed on the dataset prepared from the responses of 358 respondents which brings forward the liking of people for chatbots in customer service. On one hand, the potency of chatbots, is found to have positive inclination in their ability to efficiently and adequately handle enquiries based on user experiences, while on the other hand it is reported to be dwarfed in consistently answering to customer enquiries irrespective of quick response time. The findings of the study show that the customers have developed liking for chatbots, but at the same time a careful design and development of chatbot can make the interactions better to get hold of fondness of users to a greater extent.*

Key Words: *Artificial intelligence, Chatbot, Digital transformation, Customer service, Efficiency, Statistical analysis, User preference.*

1. INTRODUCTION :

It is a huge challenge to attract and retain customers due to growing competition among companies in the era of technological developments [1]. The new impatient customers expect to reach companies anytime and anywhere, irrespective of time and location [2]. Chatbots have been considered to be an instrument to be able to respond to customers in response to the demands of digital world [3]. The popularity of chatbots has seen to alter the business landscape by affecting numerous aspects of companies irrespective of their industries. Chatbots not only improve work experience, but also play a significant role in customer service. Chatbots have always been understood as a medium to provide the initial customer interactions before they are directed to a customer representative to solve complex queries. As part of the technological development especially in Artificial Intelligence, chatbots have matured a lot over a period of time. They are intended to do conversations with the customers to solve their queries without needing a human assistant to address the complex questions. There is less research done on preference and effectiveness of chatbots particularly taking Indian respondents considering the viewpoint of customers. For this reason, the focus of this research is to study the user preference of chatbots as far as customer service is concerned based on numerous factors such as convenience, accessibility, time saving, consistency, and multi-linguality.

Chatbots have been found to have their presence in lot of sectors including customer service, health, education, and job support, e-commerce, banking, and travel, etc. Many business applications and websites have started using chatbots as a tool to interact with customers. Companies now want to be active throughout day and night and chatbots are the best way to achieve this virtually for them. For this research, we have used online questionnaire for collecting data to analyze the factors in order to understand the preference of users in using chatbots. As opposed to a direct communication with a human agent, a chatbot is a software application that facilitates online chat conversation using text or text-to-speech. A bot is software that assist clients by scripting discussions and interacting with them via chatting. Customer support, request scheduling, and information gathering are some of the common use cases of chatbots. While some bots make extensive use of phrase classification, genetic processing, and advanced Artificial Intelligence, others just scan for basic terms and construct comments using key terms from a database.

Most of the chatbots are accessed via website pop-up ads or conversational interfaces for companies across e-commerce, training, amusement, banking, healthcare, media, etc. sectors. Chatbots offer a personalized experience to the people giving them a feel of a human-like interaction for solve their queries. The most common chatbots are pre-trained with a set of frequently asked questions with the most appropriate answers. This help companies in taking off the burden of training and fatigue of customer care executives. Different companies prefer to keep chatbots of their choice. Some companies offer menu based chatbots to their users which have pre-written queries and replies. Users cannot ask any question of their choice rather than interacting through the menu. These are most appropriate for attending user enquiries and that is why they are also known as persistent menu chatbots. The other types of common chatbots seen on websites are based on natural language processing which allows users to ask text-based questions. The chatbot recognizes keywords from the free text input by the user to provide the best potential response. With the evolution of Artificial Intelligence (AI), the websites are also seen to have machine learning chatbots which use texts, voice chats, or both to replicate human interaction to offer technological competitive advantage to companies. Users can use voice recognition to interact with a conversational AI chatbot and obtain summarized, appropriate responses. The interest in this study arises with the emergence of Artificial Intelligence and development of better chatbots. There exist some studies on relationship of chatbots and customer loyalty, but studies on the preference of customers for chatbots is not much seen.

The primary objective of the paper is to study the effectiveness of chatbots on company's websites. The secondary objectives include: (1) To understand the choice of service seeking customers to interact with chatbot or traditional human assistants w.r.t. response time and accuracy of information. (2) To identify if the technological advancement has any improvement in query solving service of the customer with their domain knowledge. (3) To analyze the level of customer satisfaction after interacting with the chatbots on the company's websites. Chatbots are becoming increasingly significant gateways to digital services and information.

Today, customers are demanding round-the-clock service for assistance in almost all the service sectors ranging from banking and finance, education, travels, health and wellness, to e-commerce and retail and many more. This has driven companies to rapidly start looking to make chatbots and virtual assistants available on their websites and user interfacing applications to be able attend customer queries at any time of day. Insider Intelligence magazine estimates that the adoption of chatbots can save the healthcare, banking, and retail sectors $11 billion annually by 2023. The consumer retail spend via chatbots worldwide is predicted to reach $142 billion by 2024 [4]. Chatbots can answer customers inquiries in real-time which are mostly around answering repeated questions in a cost-effective manner [5]. Addressing the problems of users by providing them timely service improves user satisfaction and competitiveness of the company [6]. Due to this reason, lot of companies are choosing chatbots to offer customer service [7]. Just presenting a chatbot to the company users may not offer the above benefits to them, rather, chatbot should be effective in meeting the expectations of users. In today's world, customers have evolved as a distinct species than they were a few years back. They are more informed, more techno-savvy, better educated, and more demanding in terms of the quality of service. Only those companies who understand these traits of new technology aware customers can deal with them by capturing and focusing on their interests. Customers' preferences manifest in the services offered by the company to them. This also includes how effective the support is, in case they have any queries or enquiries.

The technological innovation in Artificial Intelligence has affected the way business are conducted today. The successful applications of AI technology have multiplied drawing great interest of users, speeding up and bringing benefits for management, by improving efficiency in business processes [8]. At the same time, it has been able to affect customers positively with increase in customer satisfaction [9]. Chatbots play a crucial role in handling customers and interfacing them. The customers prefer to interact with chatbots which exhibit an expected level of effectiveness, ranging from the way it interacts with them to how it approaches their problems. With the growth in complex business processes and the shift toward online transactions, customer preferences are often driven by the effectiveness of chatbots. Hence, an efficient and effective chatbot design is essential to develop and maintain a long-term relationship with the customers. At the same time, it is important for companies to acknowledge, address, and incorporate end user needs through chatbots. From the viewpoint of both; the company and the users, chatbots are known for the benefits that they provide as shown in figure 1. The biggest advantage customers get is its availability for 24/7 hours and due to this facility, they don't have to wait for hours to get their queries solved [10]. It saves time and gives instant replies with a built-in continuous learning capability. It provides a platform for the inexpressive customers to get into interaction easily by answering the queries. It offers personalized experience to every customer by giving them suggestions at times. For companies, the chatbots can easily be integrated to their existing applications with some simplified steps of deployment.

Figure 1: Benefits of Chatbots

The paper targets people belonging to different age groups and occupations who have experience with chatbots. The study scopes on the major findings that will help to discover the emergence of chatbots as an effective customer service tool on digital platforms and websites. It is done by considering factors like convenience of using chatbots, their availability to attend customer queries 24/7, the time taken in responding to queries, consistency in answering questions and availability in multi languages for customer support.

2. REVIEW OF EXISTING WORK :

The digital era now-a-days has added a lot of changes in the way companies operate. One of the prominent changes is the chatbot which is seen as a pop us when landing on the company's website. Equipping chatbots with company web platforms is gaining momentum due to the improved customer services [11]. Digital transformation has brought variety of ways to create value for customers, such as automation, individualization, interaction, and transparency and control. This in turn can determine the perceived benefits for customers such as convenience, relevance and better experience [12]. Today with the fastest growing communication channel, the new upgradation of chatbot has helped the people for the easy solving of questions and its constant availability. Due to this they have created a positive impact on the people and hence it is spreading with a great speed. Human chat service agents have now been replaced by conversational chatbots, which are systems designed and can communicate with human users by means of natural language [13]. Chatbots are intended to take charge of a human customer representative to assist online customers seeking information and advice, problems to their problems regardless of long queues which usually forms the reason for customers dissatisfaction [14, 15].

According to Daley et al. [16], chatbot have positively affected in the many sectors of the market and has many usages according to that. It not only limited to IT sector only, but it is expanded to many sectors like banking, education and many more. These chatbots can be seen not only attending the customer queries and collecting customer feedbacks, but also giving information on easy returns policy and handling exchange requests. Many chatbots are built to act as a personal shopping assistant to the customers. There are basically two types of chatbots; task-oriented which are single purpose program that focuses on performing on only one function and the other which data driven and predictive chatbot which are the virtual assistant and have personalized task-oriented which are based on natural language via messaging [16]. There are applications that provide emotional support to customers by the help of chatbot by doing self-assessment and providing tips to deal with stress, anxiety, depression and self-esteem. Today's generation has a number of disorders and to meet this the generation is lacking the treatments. To solve this, authors studied how the chatbots have led to the changes in mental health care. Chatbots have also been reported to provide a learning medium to the students [17] and have been created with the objectives of skill improvement, efficiency of education and motivation to boost the education with the help of chatbot.

Chatbots for the past 2 decades have been a means to strengthen customer service [18]. While the exploration into automated chat boxes as service providers has seen success it hasn't come with limitations. This has led to the increase in demand for the chatbot. Chatbots provide good customer service and increase the level of customer engagement due to their unbiased nature. With their text-based interface, they also provide ease of interaction and involves customer warmth. To increase customer engagement and satisfaction, chatbots also offer the options for customized chat by means of which companies can collect instant information about the customers. Another special customer service that the chatbots provide is the recommendations and suggestions to the customers. Chatbots can be accessed from a variety of devices including computers, smartphones, and in some cases analogue phones [19].

3. STATISTICAL ANALYSIS :

The objective of the study is to find the effectiveness of chatbots thereby knowing their preference based on several factors of convenience, accessibility, response time, consistency in answering and usage of multiple language. The study framed five hypotheses on which chi square test was applied.

Table 1: Hypotheses Framework for the Study

Sr.	Hypothesis
1	H_{01}: Preference of chatbots is independent of convenience of use.
2	H_{02}: Preference of chatbots is independent of 24/7 accessibility.
3	H_{03}: Preference of chatbots is independent of response time.
4	H_{04}: Preference of chatbots is independent of consistent answers.
5	H_{05}: Preference of chatbots is independent of multi-linguality.

3.1 DATA INTERPRETATION

The data for the study was collected through a questionnaire survey following convenience sampling. After removing missing value records, and completing data pre-processing, the sample size for the research came out to be 358. The research paper expresses the issues as it exists and so demonstrates the use of descriptive research. For data collection a structured questionnaire was designed, which consisted of questions on demographic details and factual questions. Majority of respondents i.e. 62% of total are male whereas remaining 37% of total respondents are female. Out of all the respondents, 83.4% belong to the age group 18-25, 10% of respondents fall in the age group of 26-35, 3.3% respondents are between 36-45 age and remaining 3.3% respondents are in the age group 45 and above (Figure 2). As shown in figure 3, majority of the respondents i.e. 55.9% are students, 27.5% are in job, 10.9% are self-employed, 2.8% respondents are homemaker and rest 2.8% are unemployed. On the preference of chatbots, figure 4, most people are seen to have liking to interact with a menu-based chatbot possibly because it guides them through the conversation by making the session interactive. Voice bots are preferred by more than 25% respondents followed by text-input chatbots with 9.95% and hybrid chatbots which are mostly menu based but also accept text inputs with 5.69% people's choice.
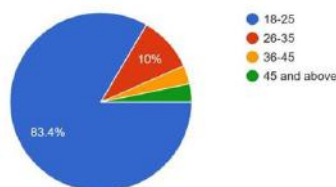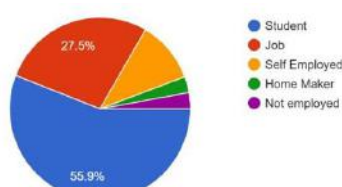

Figure 2: Age Group of Respondents
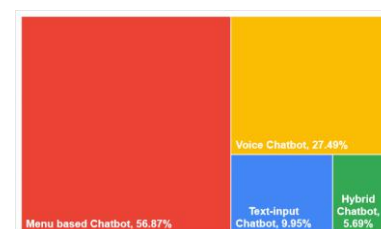
Figure 3: Job Occupation of Respondents

Figure 4: Preference of Chatbots by Respondents

As shown in figure 5, about 63% (36%+27%) people feel that chatbots are accurate in the information, while 19% (12%+7%) people feel that they don't get expected answers and find chatbots to be inaccurate. This means that people believe in chatbot and find it to answer effectively.
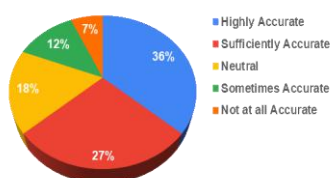

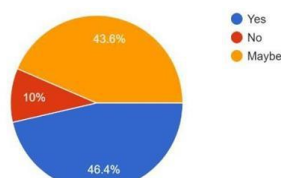**Figure 5: Respondents View on Information Accuracy of Chatbots**

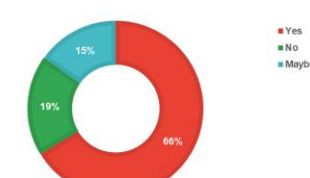**Figure 6: Respondents View on Convenience of using Chatbots**

Figure 7: Respondents View on Availability of Chatbots

Figure 6 shows that about 46% of people think that chatbots are convenient to use. The main reason behind this may be the emergence of digitization that has led to better understanding and usage of technology. As seen from figure

7, more than half of the people think similarly; the 24/7 availability of chatbots is a major factor for their preference. People like chatbots because the latter are readily available to answer their questions.

Respondents are equally divided on the view on chatbots saving their time in resolving their queries (Figure 8). According to figure 9, about 50.7% think that chatbots do not provide consistent answers to them. They may not have received proper answers what they were looking for but on the other hand, about 31% of the people were found to be satisfied with the consistent answers leaving a positive impact on them. Figure 10 shows the use of multilingual as a positive aspect for the people which depicts that nearly half of the respondents believe that they like chatbots due to the multiple language support offered. For 31% of the people availability of chatbots in multiple languages is not a factor to decide their preference for chatbots.
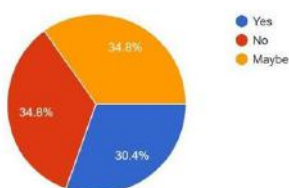

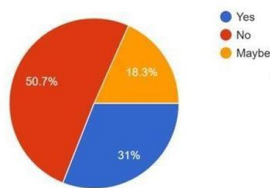**Figure 8: Respondents View on Time Saving Factor in using Chatbots**

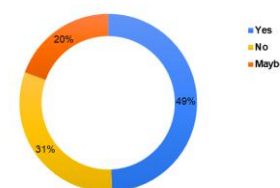**Figure 9: Respondents View on Consistency and Persistence of Chatbots**

Figure 10: Respondents View on Liking for Multi-Lingual Support of Chatbots

3.2 HYPOTHESIS TESTING

To achieve the objective of finding the effectiveness of chatbots on company's websites and other applications, the preference of chatbots is tested based on the factors of convenience of use, 24/7 accessibility, response time, consistent answers and multi-linguality. Chi square test is applied to test the study hypothesis.

Table 2: Hypotheses Testing for the Study

Sr.	Hypothesis	P value	Result
1	H_{01}: Preference of chatbots is independent of convenience of use	.008	Alternate Hypothesis
2	H_{02}: Preference of chatbots is independent of 24/7 accessibility	.027	Alternate Hypothesis
3	H_{03}: Preference of chatbots is independent of response time	.145	Null Hypothesis
4	H_{04}: Preference of chatbots is independent of consistent answers	.009	Alternate Hypothesis
5	H_{05}: Preference of chatbots is independent of multi-linguality	.082	Null Hypothesis

4. FINDINGS :

The graphical interpretation is driven by the responses captured from the target sample of customers. Among all the responses most people believe that chatbots help in the query solving and are excited about the 24 hours availability of chatbots. Majority of respondents agree that chatbots are convenient to use. The main reason behind this is the emergence of digitalization that has led to the increased usage and availability of high-speed internet. Among the types, the study reveals that people like to interact with a menu-based chatbot. The study also reveals that the factors are related to each other and also have a direct impact on the customers' preferences.

A significant association of convenience is found with preference of customers for chatbots usage. Respondents find it easier to get the solution of their queries by talking to chatbots. Also, significant association of 24/7 accessibility was tested on preference which means accessibility is another factor which affects preference of respondents affecting their preference of usage. No significant impact of response time was found on preference which means that time function doesn't motivate respondents to prefer chatbot. Also, with response time, no significant impact of multilingual facility was found in this study. This depicts that the availability of chatbot in multiple languages does not have significant impact on preference. Lastly, the study found that degree in getting consistent answers by chatbots impacts their preference.

5. CONCLUSION :

Chatbots offer a means to automate customer service drawing the attention of companies from a wide range of industries to cater the needs of customers effectively. The focus of this research is to assess the factors affecting effectiveness of chatbots in customer service thereby driving their usage preference. Statistical analysis reveals that convenience of usage, round the clock accessibility, and consistency in response have significant impact on preference

of chatbot usage by users for interacting with a chatbot. The chatbot applications contribute to service efficiency because it is easy to use, available and accessible all the time to answer customer queries without any lacking in uniformity of responses by attending as many users as possible simultaneously. On the other hand, the preference of chatbots is not dependent on factors like getting quick answers from chatbots or their availability in multiple languages. Although, the chatbots can convert long waiting queues into quick interactions whenever required, the users still prefer to talk to human assistant for getting consistent and standardized answers in their preferred language.

Customers often talk to chatbots as they are readily available as pop up to company websites or their applications to their queries or to enquire about the products/services offered by the company. Chatbots are usually friendly and helpful, but when a customer's question is answered seemingly inappropriately, the interest of customers begins to lose. A careful chatbot design needs a close attention to the chatbot's effectiveness including its response time, ease of use, consistency, and tone to create a genuine and satisfactory experience for its customers. This can bring lot of opportunities for the companies post pandemic times.

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