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A Study on Chatbots in Food Service Sectors

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Abstract

Changes in the food service industry are fast organizations are shifting towards using digital technologies as part of their daily operations. Chatbots have been particularly popular among these types of technologies that are able to enhance the interaction with customers and make services more convenient and rapid. A chat bot is an artificial intelligence based system with an ability to chat with the customers either via text or voice just like a human helper. Chatbots are now commonplace in restaurants, cafes and online food delivery services where they are used to place orders, answer customer queries, provide menu information as well as give recommendations on food through customer preferences. This paper is aimed at identifying the purpose of chatbots within the hospitality industry and ways in which they assist consumers and corporations. With the chatbots, the food service organizations would save on waiting time, save on order errors, and offer 24/7 customer services without the need of having more staff on board. It is also advantageous to the customers who are able to get prompt responses to their inquiries, order confirmation and personalized service which enhances their general dining experience. Another important point is that the research reveals the usage of chatbots by businesses to accept high volumes of orders during the busiest hours and offer customers special deals or discounts. This will not only enhance operational effectiveness but customer satisfaction and loyalty as well. Nevertheless, the research acknowledges that chatbots are not to replace the human work force outright but are to collaborate with the human workforce in order to offer the most desirable service. In general, chatbots are the significant digital instrument in the field of food service. They ensure quick, efficient, and convenient service that makes them useful in enhancing service delivery and business development in a very competitive market.

Keywords *Cahtbots, Food Service Industry, Artificial Intelligence, Customer Interaction, Online Food Ordering, Digital Technology,*

INTRODUCTION

As the digital technology expands, the manner in which individuals order food and communicate with restaurants has evolved greatly. We are living in the era when a lot of customers are willing to order online, ask questions via mobile applications, receive immediate help without attending long lines and making phone calls. In order to achieve these demands, food service companies are implementing chatbots in their day-to-day activities. Chatbots are artificial intelligence based computer programs that can hold a conversation with customers in either a text or voice format like a human assistant. Chatbots are widely used in food service industry websites, food delivery apps, and social media to allow customers to browse menus, order, follow orders, and provide answers to their inquiries. This simplifies the whole process of ordering. Through chatbots, restaurants, and food outlets can process a large number of customer requests at the same time, even in the busy times. This saves time of waiting and enables the staff to concentrate on food preparation and serving the customers. Chatbots are also fast in responding, precise in order details, and offer personalized recommendations to customers, which enhances their customer experience. In general, chatbots have already become a significant digital resource in the contemporary food service business. They do not only enhance the efficiency of operations, but they also contribute to the development of the improved relations between the business and customers since restaurants and food delivery platforms are attempting to address the increasing number of people seeking fast, simple, convenient, services. Customers are now living in the busy world and they would rather place their orders, ask questions and receive

assistance without the need to wait on phone, stand in line and chatbots can do that through the mobile applications and websites as well as social media where customers receive instant responses. These are artificial intelligence (AI) systems that will resemble virtual assistants to guide customers through menus, order dishes, and deliveries and even address widespread issues like incorrect orders or missed orders. Chatbots are employed by such popular services as Swiggy, Zomato, and Uber Eats to address thousands of customers simultaneously and to enhance the speed of the provided service and decongest the human resource. . Simultaneously, chatbots should gather valuable data regarding customer tastes, order patterns, and reviews, which assists business organizations to make personalized recommendations, discounts, and enhanced services in the future. On the whole, chatbots are simplifying the way customers order and enjoy food and making it more efficient in business, demonstrating how technology is transforming the process of ordering and enjoyment of food.

STATEMENT OF THE PROBLEM

Although chatbots are common in the food service industry, they frequently experience errors, inability to comprehend customer demands and complex inquiries. This results in the difference between expectations and the service delivered by the customers. Thus, the question of the actual support of the food service business and customer satisfaction, which chatbots provide, is to be investigated.

OBJECTIVES

- ➢ To study the role of chatbots in food service operations
- ➢ To study the accuracy of chat bot-based orders
- ➢ To study chat-bot assistance in customer queries

SCOPE OF THE STUDY

The research area is narrowed down to the study of chatbots application within the food service industry. It studies the application of chatbots in restaurants, cafes, and Internet food delivery systems to provide the customer with interactions and process orders. The research focuses on the customer views on the accuracy and efficiency of chatbot-based services. It further discusses how chatbots can be used to address customer requests and give them one-to-one recommendations. The study incorporates the application of chatbots in advertising events like promotions and offers. The researchers are restricted to the customers using the online ordering food applications. The research does not cover the technical elements of chatbot development. The views of the employees are also not a part of the research. The study is meant to know customer satisfaction and efficiency of services. In general, the research brings into focus the role of chatbots in enhancing food service experiences.

RESEARCH METHODOLOGY

The research methodology is the manner in which the study of the role and effectiveness of the chat-bots in the food service industry is conducted in a systematic manner. The research is aimed at determining the perceptions of customers regarding the use of chat-bots, the correctness of the services provided by the chat-bots and their effects on how customers interact with them and their satisfaction.

I. SOURCE OF DATA

The current research is founded on the primary data and secondary data to assess the importance of chat-bots in the food service industry.

II. Data Collection Method

The questionnaire was mostly based on multiple choice questions that were done to gather data on customer awareness, usage, satisfaction and perceptions of chat-bots within the food service industry.

- ● **Primary Data**

The current study utilized primary data that was gathered firsthand by use of a structured questionnaire to the respondents. The questionnaire was drawn up on the basis of Google Forms and contained mostly multiple

choice questions associated with the employment of chatbots in the food service industry. The questions addressed the customer awareness, how often they use the chat-bot, how correctly their orders are presented, how they are treated when they have some questions, their emotions about using the chat-bot services in general. The sample size comprised customers who habitually apply online food delivery applications and restaurant websites where the use of chatbots is prevalent. The data obtained indicates the true opinions and experiences of the users, hence it is applicable and valid in terms of the study

● **Secondary Data**

The current study acquired secondary data by researching through different published and online sources. These are research journals, scholarly articles, books, websites, reports and past studies on chatbots, artificial intelligence and food service industry. The theoretical knowledge and background information on chatbot technology and the application of the technology in the operations in the food service were attained using secondary sources. This information was useful in interpreting the available research, trends in the industry, and facilitated the analysis of the primary data.

III. Area of the study

The study area is the field of the food service industry, especially restaurants, cafes, and online food delivery services that involve the use of chatbots as a means of communication with customers. The research primarily focuses on patrons utilizing food service apps and services where chatbots will help to place orders, answer questions, and get service support. The study is also restricted to insights into the customer experiences and perceptions regarding the application of chatbots in the food service practices.The research targets the application of chatbots within food service industry in Coimbatore city, Tamil Nadu.The research will be geographically confined to food service providers and consumers in the Coimbatore city.

IV. Sampling size

The current study will involve 100 respondents as the sample size. The sample of the respondents consisted of the customers of online food delivery applications and restaurant websites where chatbot services are offered. This was deemed to be a sufficient sample size to get an idea of the perceptions and experiences of the customers on the use of chatbots in the food service industry.

V. Period of study

November 2025-January 2026

VI. Statistical tools of the study

● Simple Percentage
● Rank Analysis
● Chi-square test

LIMITATIONS OF THE STUDY

● The research is grounded on a small sample and thus the results might not be generalized to use the entire customer pool within the food service industry.
● The research has a limited sample size , hence the results may not be an accurate expression of all food service companies.

REVIEW OF LITERATURE

Chandramouli (2023)[1], conducted a research on participation of chatbots in popular food delivery applications like Swiggy, Zomato, Foodpanda and Uber Eats in Hyderabad. The research indicates that chatbots are artificial intelligence platforms that can be used to interact with customers by text or voice to assist in food requests, reservation, and ordering. The chatbots will help save time and cost not only to the customers but also to the companies, which makes them a significant component of digital food services. The results indicate that

the customers primarily have high expectations of chatboats in terms of being fast to respond, and fast to communicate. Easy access to menus, information about items and easy process of ordering are also some of the features that the users like. The research, however, also has a number of limitations as such as the inappropriateness of the customer service contact and the deficiency of regional language support. Besides that, chatbots were also found to be poor in dealing with customer complaints and grievances. The problems cause unsatisfaction and the discrepancy between customer expectations and the reality offered by chatbots.

Hitti and Ramadan (2025)[2],studied the influence of AI-enhanced chatbots on the customer experience within the food service industry and discovered that the classified digital assistants have a potent impact on the perception of a customer of a brand. Their research revealed that customers feel less stressed and more assured when chatbots are responsive, provide reliable information and make accurate orders when they use food delivery or restaurant apps. This effectiveness simplifies the overall ordering process and makes it more reliable, which, consequently, directly raises the level of customer satisfaction and their desire to use chatbots in the future. The researchers have also emphasized the perceived hospitality and authenticity, in addition to speed and accuracy. Customers do not want chatbots to sound like a robot or cold, but they want chatbots to discuss in a warm, friendly, and helping manner just as a helpful employee in the restaurant. Customers will feel that the chatbots have empathy, use polite language, and give them clear guidance, thus will feel understood and valued. Consequently, the paper proposes that technical efficiency with human-like and caring form of communication is both vital in order to make chatbots more acceptable and enjoyable by customers in the food service industry.

Aslam et al. (De Cicco et al. (2021)[3], carried out an intensive research on how chatbots can be used in online delivery of food and shared their results that show that the digital helpers greatly enhance the overall experience of ordering the product or service. They found out that chatbots make the process of ordering food simple, as it involves menu choice, order placement, and payment in a coherent and organized manner. It was found that task- oriented chatbots are especially efficient in performing such functional tasks like confirming orders, delivering status, and solving general problems, which lessens effort and waiting of customers. Meanwhile, socially interactive chatbots, the bots that apply the pleasant language and employ human-like reactions assist in designing a more enjoyable and communicative interaction among the users. The chatbots make the customers feel that they are supported and understood and this makes them feel more comfortable and trust the service. Consequently, the study concluded that using both the efficiency of tasks and socialisation, chatbots can not only increase the performance of the services but also customer satisfaction in online food delivery websites. The study by (2025) observed factors affecting the adoption of chatbot in the ordering of food and indicated that the perception of the intelligence and human-like interaction have a strong impact on customer acceptance. Chatbots can be used to order food more often when they react naturally and in a friendly manner, and this makes customers more inclined to use chatbots when ordering food.

De Cicco et al. (2021)[4],carried out a thorough research on the usage of chatbots in online food delivery services and have discovered that such online helpers greatly enhance the total ordering experience of a customer. Their study found out that chatbots facilitate the ordering of food by assigning a user to go through the menu, making orders and paying in a guided and systematic manner. It was found that task-oriented chatbots are especially useful in managing functional tasks, including order verification, delivery status, and problem-solving, which minimize customer work and waiting times. Meanwhile, chatbots with a more social approach in their wording, human-like replies enable them to make the interaction process of the user more enjoyable and entertaining. Such chatbots leave a customer with the feeling of support and understanding, which causes them to feel comfortable and confident in the service. Consequently, the research came up with the conclusion that the introduction of task efficiency and social interaction enables chatbots to not only increase service performance but also boost customer satisfaction in the online food delivery system.

Also as stated by **Mustafa (2024)[5]**, chatbots though useful are not flawless and at times cause frustration to users. The researchers discovered that irrelevant answers from chatbots, misunderstanding of the customer queries, and failure to address issues like late delivery, missing goods, and wrong orders among others, cause customers to lose trust in the system soon. In this case, individuals have a tendency to believe that the chatbot is not actually

listening to them and hearing their issue. This is even more critical in the case when it is emotional or urgent like when food has not been delivered in time or when a client is dissatisfied with the service. During such times, customers would want to communicate to a human being who will be able to empathize, accept responsibility and provide them with a flexible solution. This research proposes that chat-bots are useful in the processes of simple and routine and that more complex and sensitive cases require human humanization, and a balance between the two is required to provide good customer service in the food delivery business.

DATA ANALYSIS AND INTERPETATION
SIMPLE PERCENTAGE ANALYSIS
TABLE 1.1
DEMOGRAPHY CATEGORY OF THE RESPONDENTS

| Demography Category	Sub-Category	Number of Respondents	Percentage(%)
Gender	Male	25	72%
	Female	20	28%
Age Group	18-20years	25	50%
	20-25years	20	40%
	25-30years	5	10%
Experience With chatbots	Frequently Use chatbots	30	60%
	Occasionally Use chatbots	15	30%
	Rarely use chatbots	5	10%
Purpose of Chatbot Use	Placing food others	28	56%
	Order Tracking	12	24
	Customer Queries	10	20%

Interpretation

The demographic analysis shows that most respondents are male (70.59%) because female respondents make up 27.45% of the total and others represent 1.96% of the total. Most respondents belong to younger age groups because 49.02% of them fall into the 18-20 age range and 39.21% belong to the 21-25 age range. The 26-30 years age group has 9.81% of respondents while only 1.96% of respondents belong to the 31-35 years age group. Young participants who have greater exposure to digital technologies tend to drive the research because they use chatbots in food service environmentS.

CHART 1.1
Demographic category of the respondents

Overall Gender Distribution of Respondents
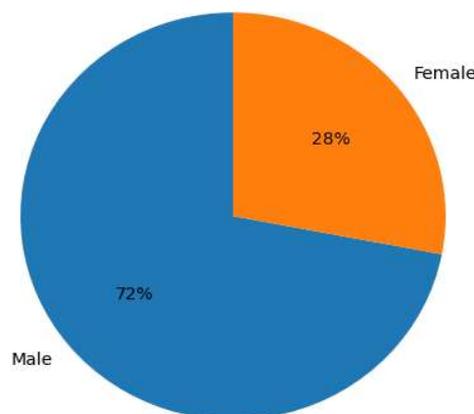
Interpretation

The pie chart demonstrates the total gender distribution of the respondents in the study regarding chatbots in the food service industry. It is noted that most of the respondents are males with 72 percent of the total number of respondents being males and 28 percent being females. It means that the survey of male participants was more active and therefore, it can impact on the general perception and usage trends of chatbots in food service business.

Table 1.2

Percentage Analysis of Customer Satisfaction with Chatbots in Food Service Sector

Level of Satisfaction	Number of Respondent	Percentage (%)
Highly Satisfied	22	44%
Satisfied	18	36%
Neutral	6	12%
Dissatisfied	4	8%
Total	50	100%

Interpretation

The table indicates the degree of satisfaction of the customers with chat-bots in the food service industry. It is noted that most of the respondents are happy with chat-bot services with 44% of the respondents being very happy with the services and 36% of the respondents being happy. Only 8% of the respondents are not satisfied and 12% of the respondents gave a neutral view. In general, the results suggest that there is a positive customer satisfaction in using chat-bots in the food service operation.

Table 1.3

Chi-square

Gender	Experience Level	Observed (O)	Expected (E)	(O−E)	(O−E)² / E
Male	Frequently use	22	21.6	0.4	0.01
Male	Occasionally use	10	10.8	-0.8	0.06
Male	Rarely use	4	3.6	0.4	0.04
Female	Frequently use	8	8.4	-0.4	0.02

Chi-Square Result

Particulars	Value
calculated χ^2 value	0.39
Degree of Freedom	2
Table Value at 5% level	5.99
Result	Null hypothesis accepted

Interpretation

The chi-square analysis was carried out to study the relationship between gender and experience with chatbots in the food service sector. The calculated chi-square value (0.39) is less than the table value (5.99) at the 5% level of significance, and therefore the null hypothesis is accepted. This indicates that there is no significant relationship between gender and experience with chatbots. It is observed that the **majority of respondents (60%) frequently use chatbots**, followed by **30% who occasionally use chatbots**, while only **10% rarely use chatbots**. Hence, chatbot experience is high among respondents irrespective of gender, showing widespread acceptance of chatbots in the food service sector.

FINDINGS

- Demographic analysis has shown that the highest percentage of the respondents is male (72), and female respondents are 28, which means that more males participated in the study on chatbots in the food service sector.

- As far as age is concerned, the largest percentage of the respondents (50) are between the age range of 1820 years with 40 of the participants being in the age range of 2025 years, indicating that younger people are more engaged and conversant with chatbot technologies.

- Regarding experience with chatbots, most of the respondents (60%) often use chatbots, 30% use chatbots occasionally and 10% use chatbots rarely suggesting that chatbots are widely used and accepted by users.

- The purpose-wise analysis demonstrates that most respondents (56%), order food with the help of chatbots, and 24% track the order and 20% ask questions to the chatbots, which represents the active significance of chatbots in food ordering.

- The analysis of satisfaction demonstrates that most of the respondents (80%) are satisfied with chatbot services (44% highly satisfied and 36% satisfied) which means that there is a positive attitude of the customer towards using chatbots in food service operations.

- The chi-square test value indicates that the relationship between gender and experience with chatbots is not significant as the calculated value (0.39) is lower than the table value (5.99). Nonetheless, the high application (60%) testifies of the fact that adoption of chatbots is high regardless of gender.

SUGGESTIONS

- To minimize order error and enhance customer satisfaction, food service organizations are advised to enhance the accuracy of chatbots.

- Chatbots are supposed to be user-friendly in order to enable customers at any age to use them.

- Real-time confirmation and tracking of orders should be enhanced since the majority of customers order food with the help of chatbots.

- Chatbots are supposed to be set in way that allows customers to be promptly linked with human personnel in cases where the queries are not straightforward.

CONCLUSION

The research concludes that chatbots are very useful in improving efficiency and communication with customers in the food service field. The results demonstrate that most of the customer commonly use chatbots to make food orders and monitor the services. The level of customer satisfaction is high, which means that the services offered in chatbots are taken positively. The chi-square test confirms that there is no correlation between gender and the use of chatbots indicating that there is a large number of users. Chatbots allow organizations in the food services sector to save on waiting time, enhance accuracy in orders and deliver a 24/7 service. On the whole, chatbots have become an effective digital technology to enhance the quality of services and customer experience in the food service market.

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