



Enhancing Customer Satisfaction with Chatbots: An Analysis of Interaction and Problem-Solving Capabilities

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ABSTRACT

This research focuses on using Chatbots and their impact on User Satisfaction, emphasizing their interaction and problem-solving abilities. Conducted with a sample of 100 Chatbot users, the study employed Partial Least Squares (PLS) analysis. The primary goal was to assess the effectiveness of Chatbots in addressing user needs and providing satisfactory solutions.

The findings underscore Chatbots' significant role in enhancing user satisfaction, particularly through informative and responsive interactions. Users appreciate chatbots' promptness and accessibility in resolving issues. However, there is a perceived limitation in Chatbots' capacity to handle more complex problems, indicating the need for further development, particularly in AI technology.

The urgency of this research lies in the growing reliance on digital platforms for communication and marketing. As businesses increasingly adopt Chatbots as a means of customer interaction, understanding their effectiveness becomes paramount. By addressing the shortcomings identified in this study, companies can refine their Chatbot systems to meet user expectations better and enhance overall customer satisfaction.

Keywords: Chatbot, Interaction, Problem Solving and User Satisfaction.

1. INTRODUCTION

The advancement of technology has brought about various conveniences across various aspects of life, including the business world. The ease of accessing information and conducting transactions through state-of-the-art communication technology has become a new norm in the modern world. The services provided are also faster and more adequate with automated technology processed through computers, thereby enhancing energy and time efficiency. One form of computer application aimed at facilitating business activities is artificial intelligence (AI). AI is a design of several computer programs capable of developing its abilities independently through various inputted information [1]. AI is utilized in different business aspects in its development, requiring direct interaction between customers and companies. AI can interact like human frontline workers, capable of answering every customer question. One common form of AI used by business services is chatbots.

Chatbots are chat services accessible to customers through a chat room. An AI or virtual robot will answer to solve problems or answer questions related to the business service. Chatbots are generally equipped to answer frequently asked questions (FAQs), thus enabling frontline workers to avoid repetitive tasks. With chatbots, tasks are efficiently delegated to frontline workers, providing ease in responding to customers' informational needs.

[2] Explain that chatbots serve interaction, entertainment, novelty, customization, and problem-solving functions, providing more accurate, credible, and communicative information quality. The utilization of chatbots in a service can provide its quality of service in terms of reliability and efficiency in delivering information to customers [3]. A chatbot's ability to provide authentic service and communicative capability adds to its appeal to customers, who experience the quality of service obtained from using a chatbot.

This study aims to delve deeper into the effectiveness of chatbots in generating customer service satisfaction. The research results are expected to provide an overview of chatbots' role in providing services to customers and their impact on attracting interest in using a service.

2. LITERATURE REVIEW

Chatbots, defined as conversational agents designed to simulate human interaction, are increasingly utilized to provide real-time support and personalized experiences [4]. Despite their potential, chatbots face challenges in achieving high user satisfaction. Issues such as limited contextual understanding, over-reliance on pre-defined

scripts, and lack of emotional intelligence can hinder their effectiveness [5]. Consequently, enhancing interaction capabilities and troubleshooting efficiency remains a priority for chatbot developers to meet user expectations and achieve widespread adoption.

2.1. Interaction Quality and User Satisfaction

One critical aspect of chatbots is their ability to foster effective interaction. [6] the quality of interaction in chatbot systems significantly influences user satisfaction. Effective interactions are characterized by clarity, responsiveness, and a natural conversational flow, which create a more engaging user experience. The quality of chatbot services—process quality (ease of use, responsiveness), outcome quality (accuracy of information and problem resolution), and servicescape quality (the design and functionality of the chatbot interface)—plays a vital role in shaping user satisfaction [7]. While the study found that these qualities did not directly affect satisfaction and reliability, their indirect effects via satisfaction-related outcomes like immersion and reuse intention underline their importance.

2.2. Troubleshooting and Usability

Chatbots are often employed as first-line troubleshooting tools. [8] highlights that while chatbots can efficiently handle routine issues, their limitations become apparent when addressing complex problems. This can lead to user frustration, particularly if the chatbot fails to escalate unresolved queries effectively. Chatbot services that foster satisfaction and reliability lead to a higher likelihood of reuse. Users who find chatbots reliable and satisfying are more inclined to continue using them, reflecting their loyalty [9]. This aligns with the Expectation Confirmation Theory (ECT) findings, where users' initial expectations and subsequent confirmation of those expectations influence satisfaction and continued use.

3. METHOD

The research employs a quantitative approach with an explanatory research design that elucidates the relationship among the variables under investigation. The research population consists of chatbot users visiting e-commerce sites in Indonesia. The research sample comprises students from the Universitas Pembangunan Nasional "Veteran" East Java who have used chatbots to obtain information while accessing a service by employing the purposive sampling method, a total of 100 respondents. The analysis tool utilized is Partial Least Squares (PLS), used to assess how the dimensions of chatbots influence service quality. The measurement indicators for Chatbots include Interaction Ease and Problem-solving Capability. In contrast, User Satisfaction measurement is gauged through User Experience, assessing satisfaction, enjoyment, and ease of use with the Chatbot.

4. RESULTS

4.1. Validity and Reliability Test

The results of the validity and reliability tests are shown in Table 1 below

Table 1. Test Validity and Reliability

Variable	Indicators/Items	Validity Loading)	(Outer Reliability (AVE)
Interaction	X1.1	0.767	0.520
	X1.2	0.507	
	X1.3	0.819	
	X1.4	0.750	
Troubleshooting	X2.1	0.877	0.716
	X2.2	0.893	
	X2.3	0.805	
	X2.4	0.805	
User Satisfaction	Y1	0.893	0.748
	Y2	0.895	
	Y3	0.849	
	Y4	0.820	

The validity test results showed that the Interaction, Problem-Solving, and User Satisfaction variables have an Outer Loading score greater than 0.5, so the research questionnaire can be said to be valid. In addition, judging from the Average Extracted Variance (AVE), it is known that the value is more than 0.5, so the questionnaire is reliable.

4.2, Hypothesis Testing

The results of the hypothesis test are shown in the following Table 2

Table 2. Hypothesis Test Results

Variable	P-Value	Results
Interaction -> User Satisfaction	0.03	Significant
Troubleshooting -> User Satisfaction	0.166	Not Signifiant

The analysis results indicate that interaction significantly impacts user satisfaction, with a p-value of 0.03 below the commonly used threshold of 0.05. This finding suggests that better interaction is essential in enhancing user satisfaction. On the other hand, troubleshooting does not have a significant relationship with user satisfaction, as evidenced by its p-value of 0.166, which exceeds the 0.05 threshold. This implies that troubleshooting efforts, as measured in the study, do not strongly or clearly influence user satisfaction. These results emphasize the importance of focusing on improving interactions to boost user satisfaction, while the role of troubleshooting may require further evaluation or adjustments to make it more impactful.

5. DISCUSSION

The results showed that interaction between users significantly affects user satisfaction, so the Chatbot's ability to interact with users in terms of knowledge, speed of responsiveness, and consistency in answering every question of chatbot users results in meaningful satisfaction to users. However, the ability to solve problems, including handling customer complaints, does not impact user satisfaction, so Chatbots lack satisfaction in handling or providing solutions faced by users. [10] explained that chatbots can provide more accurate, credible, and communicative information quality. However, Chatbots themselves are considered to offer fewer solutions to problems that can be solved by human labor. Chatbots are not necessarily able to answer every question. However, the ability to show emotions and relationships like humans plays an important role in building user emotions, which leads to improved user experience [11].

6. CONCLUSION

The results showed that, in general, Chatbot users are widely used for an average of 10-15 minutes. However, using chatbots is only useful for informative interactions with the ability to answer quickly or frequently ask questions. In terms of problem-solving capabilities, chatbots are still not able to provide problem-solving; therefore, in the future, there is a need for the development of much better Artificial Intelligence that interacts naturally and provides solutions for users.

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