# The Impact of Chatbot Usage on Customer Loyalty through Customer Satisfaction: Evidence from Shopee Users at STIE Amkop Makassar

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**Abstract.** This study examines the impact of chatbot usage on customer loyalty, with customer satisfaction as a mediating variable, among Shopee users at STIE Amkop Makassar. Employing a quantitative approach, data were collected from 101 respondents using structured questionnaires. Descriptive analysis revealed that respondents generally perceived Shopee's chatbot as highly responsive, available, and clear, resulting in high levels of both customer satisfaction and loyalty. Path analysis showed that chatbot usage had a significant and positive effect on customer satisfaction ($\beta = 0.725$, $p < 0.001$), and that customer satisfaction, in turn, had a significant effect on customer loyalty ($\beta = 0.531$, $p < 0.001$). Additionally, chatbot usage directly influenced customer loyalty ($\beta = 0.415$, $p < 0.001$), and customer satisfaction was found to significantly mediate this relationship, as confirmed by the Sobel test ($Z = 6.13$, $p < 0.05$). These findings indicate that chatbot services not only enhance the customer experience but also strengthen long-term loyalty through improved satisfaction. The study highlights the importance of continuous investment in AI-driven customer service tools to maintain competitive advantage in e-commerce.

**Keywords:** Chatbot, Customer Satisfaction, Customer Loyalty, Shopee, E-commerce.

## Introduction

Over the past decade, the rapid advancement of information and communication technology (ICT) has fundamentally transformed the way consumers interact with businesses. These technological developments, particularly the proliferation of mobile devices and internet connectivity, have simplified daily activities and enabled more efficient interactions, even across great distances. One of the most prominent innovations in this context is the adoption of artificial intelligence (AI)-powered chatbots, which have revolutionized customer service by providing immediate, round-the-clock responses to consumer inquiries (Jamiluddin et al., 2022; Ramadhani et al., 2024).

In the business sector, especially in e-commerce, the integration of chatbot technology has become increasingly important. Chatbots serve as virtual assistants capable of interacting with customers via messaging applications, websites, and other digital platforms. They offer several advantages, such as 24/7 availability, rapid response times, and the ability to handle routine queries efficiently. This not only enhances customer satisfaction but also increases operational efficiency for businesses (Nurakhmawati et al., 2022; Aprilia Putri et al., 2023).

Shopee, one of the leading e-commerce platforms in Indonesia, has implemented its own AI-powered chatbot, known as "Choki," to facilitate communication with users. This chatbot aims to provide quick

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responses to customer inquiries and complaints, deliver product information, offer recommendations, and improve the overall shopping experience. The use of chatbots in Shopee and other platforms reflects a broader trend toward leveraging digital technologies to expand market reach, streamline business processes, and foster inclusive economic opportunities (Nurakhmawati et al., 2022).

The increasing adoption of chatbots in e-commerce has been associated with greater efficiency in customer service and, consequently, enhanced customer satisfaction and loyalty. Previous studies have highlighted the significant influence of chatbot implementation on customer satisfaction, particularly in the context of online product transactions and services (Aprilia Putri et al., 2023; Wulandari et al., 2023). For instance, research by Alghaniy (2024) found that AI technology accounted for 48.2% of the variance in customer satisfaction with Shopee's chatbot services. Other studies have confirmed that the responsiveness and usefulness of chatbots are critical factors in shaping customer satisfaction and loyalty (Robby Lianto, 2024; Maulida & Jaya, 2024).

Despite these benefits, there remain challenges and gaps in the use of chatbots, including limitations in providing comprehensive information, responding accurately to complex queries, and concerns regarding data privacy and security (Maulida & Jaya, 2024). These issues can negatively impact user comfort, service quality, customer satisfaction, and ultimately, customer loyalty.

Customer loyalty itself is a crucial factor for business sustainability, characterized by repeated purchases, positive word-of-mouth, and a strong commitment to a particular brand (Iriantini, 2022; Fatihudin & Firmansyah, 2019; Kotler & Keller, 2016). Customer satisfaction is recognized as a primary driver of loyalty, emerging when consumer expectations are met or exceeded through product or service performance (Manihuruk, 2023; Benedictus Tri et al., 2024; Bunga Pertiwi et al., 2022). In this context, chatbots are positioned as key mediators, with their quality of service influencing both satisfaction and loyalty.

Several empirical studies have explored the impact of chatbot adoption on customer satisfaction and loyalty. Ramadhani et al. (2024) showed that service quality delivered by chatbots significantly affects customer satisfaction in Shopee transactions. Similarly, Alghaniy (2024) found that AI-driven chatbots in Shopee have a significant effect on customer satisfaction, which can, in turn, mediate loyalty outcomes. Rashinta Adelia Khairyanti et al. (2024) reported that the quality of AI-powered chatbot services positively impacts both satisfaction and loyalty among e-commerce users in Indonesia. These findings are echoed by studies investigating the mediating role of brand image and customer satisfaction in the relationship between AI adoption and customer loyalty (Yuyuk Liana et al., 2024; Alya Ramadhani Pratiwi & Dermawan, 2021).

However, there is still a lack of research focusing specifically on the mediating role of customer satisfaction in the relationship between chatbot usage and customer loyalty on Shopee, especially among student populations. Understanding this relationship is crucial for optimizing the deployment of chatbot technology to enhance both satisfaction and loyalty in e-commerce contexts.

Based on this research gap, the present study aims to analyze the effect of chatbot usage on customer loyalty through customer satisfaction on Shopee among students at STIE Amkop Makassar. The following research questions are addressed:

1. Does the use of chatbots affect customer satisfaction on Shopee among students at STIE Amkop Makassar?
2. Does customer satisfaction influence customer loyalty on Shopee among these students?
3. Does chatbot usage directly influence customer loyalty?
4. Does chatbot usage influence customer loyalty indirectly through customer satisfaction?

The objectives of this research are: (1) to examine the effect of chatbot usage on customer satisfaction; (2) to analyze the effect of customer satisfaction on customer loyalty; (3) to determine the direct effect of chatbot usage on customer loyalty; and (4) to evaluate the indirect effect of chatbot usage on loyalty through customer satisfaction.

The conceptual framework of this study posits that chatbot usage impacts customer loyalty both directly and indirectly, with customer satisfaction acting as a mediator (Wulandari et al., 2023; Soetiyono et al., 2024; Rashinta Adelia Khairyanti et al., 2024; Maulidan & Huda, 2024).
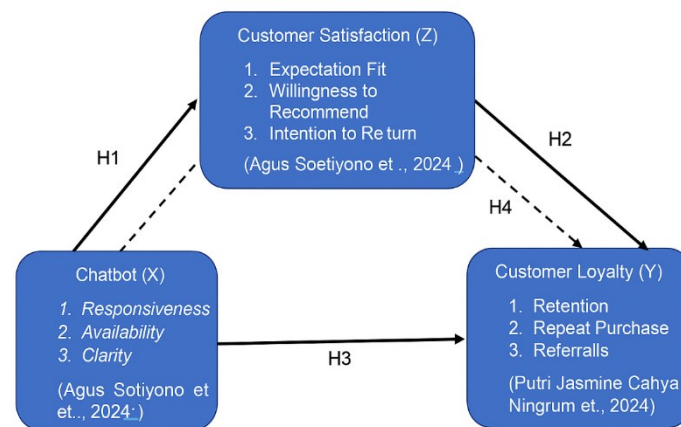


Figure 1. Conceptual Framework

Based on this framework, the following hypotheses are proposed:

H1: Chatbot usage has a positive and significant effect on customer satisfaction.
H2: Customer satisfaction has a positive and significant effect on customer loyalty.
H3: Chatbot usage has a positive and significant direct effect on customer loyalty.
H4: Chatbot usage has a positive and significant indirect effect on customer loyalty through customer satisfaction.

**Methods**

This study employed a quantitative approach to investigate the effect of chatbot usage on customer loyalty through customer satisfaction in the context of Shopee users at STIE Amkop Makassar. The quantitative method, rooted in positivist philosophy, utilizes numerical data and statistical analysis to test predetermined hypotheses (Sugiyono, 2012). Data were collected using structured questionnaires to obtain measurable responses from participants.

The research was conducted at Sekolah Tinggi Ilmu Ekonomi (STIE) Amkop Makassar, located at Jl. Meranti No.1, Pandang, Kec. Panakukang, Kota Makassar, Indonesia. Data collection was carried out directly at the research site over a period of approximately one month, from May to June 2025.

The population of this study consisted of Shopee users affiliated with STIE Amkop Makassar who had engaged in transactions on the platform. Since the exact number of these users was unknown, the sample was estimated using an appropriate method to ensure representativeness. The sampling technique employed was non-probability sampling with the accidental (convenience) sampling method, allowing respondents who were willing and available to participate during data collection (Sugiyono, 2012). The final sample consisted of 101 respondents.

The primary data collection instrument was a structured questionnaire, developed to measure the main research variables using a 5-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5). The questionnaire was tested for both validity and reliability to ensure that the items accurately and consistently measured the intended constructs.

Data were collected through field observations and the administration of questionnaires. Non-participant observation was conducted to understand user behavior related to AI chatbot usage on the Shopee platform. The questionnaires were distributed to respondents to collect quantitative data regarding their perceptions and experiences with Shopee's chatbot.

Data were analyzed using SPSS version 26. The analysis included validity and reliability testing, descriptive statistics, and hypothesis testing through path analysis to examine both direct and indirect relationships among variables.

a. **Validity and Reliability Testing**
Validity was assessed using Pearson's correlation between item scores and total variable scores. Items were considered valid if the Corrected Item-Total Correlation exceeded the critical value at a 0.05 significance level. Reliability was measured using Cronbach's Alpha, with values above 0.60 indicating acceptable internal consistency.

b. **Path Analysis**
Path analysis was used to test the direct and indirect relationships between the independent variable (chatbot usage), the mediating variable (customer satisfaction), and the dependent variable (customer loyalty).

c. **Hypothesis Testing**
Hypotheses were tested using partial t-tests to assess the individual effects of independent variables. A significance level of 0.05 was adopted, with p-values less than 0.05 indicating statistically significant effects. The Sobel test was applied to assess the mediating effect of customer satisfaction on the relationship between chatbot usage and customer loyalty (Ghozali, 2011).

## Result and Discussion
### Result
This study involved 101 respondents who were Shopee users from STIE Amkop Makassar. The demographic analysis revealed that the largest proportion of respondents were aged between 21 and 24 years (69.3%), while those aged 18 to 20 years accounted for 19.8%, and respondents aged 25 to 28 years constituted 10.9%. In terms of gender, females dominated with 54.5%, whereas males made up 45.5%. Regarding the educational background, most respondents were high school graduates (80.2%), with the remainder holding diploma (2.0%) and undergraduate (17.8%) qualifications. Nearly all respondents (93.1%) identified as students, while a small proportion worked as employees (5.9%) or reported other occupations (1.0%).

Table 1
Table 1. Respondent Demographics

| Characteristic | Category | Percentage (%) |
|---|---|---|
| Age | 18–20 years | 19.8 |
| | 21–24 years | 69.3 |
| | 25–28 years | 10.9 |
| Gender | Male | 45.5 |
| | Female | 54.5 |
| Education | High School | 80.2 |
| | Diploma | 2 |
| | Bachelor's degree | 17.8 |
| Occupation | Student | 93.1 |
| | Employee | 5.9 |
| | Others | 1 |

In terms of the main research variables, the descriptive statistical analysis indicated that the mean score for chatbot usage was 24.50 (SD = 4.68), suggesting that most respondents strongly agreed with the statements on the responsiveness, availability, and clarity of Shopee's chatbot service. The median and mode for chatbot usage were both 26, showing a skew towards higher satisfaction with the technology. For customer loyalty, the mean score reached 25.09 (SD = 4.37), with a median and mode of 26. These findings reflect a high degree of loyalty, as indicated by frequent repurchase, retention, and the willingness to recommend Shopee to others. Customer satisfaction showed a mean score of 24.60 (SD = 4.86), with both the median and mode at 26, reflecting a generally positive assessment, though with a spread indicating some respondents experienced lower satisfaction. This distribution is important for understanding how different customer experiences contribute to satisfaction.

Table 2
Table 2. Descriptive Statistics of Research Variables

| Variable | Mean | Median | Mode | Std. Dev. | Min | Max |
|---|---|---|---|---|---|---|
| Chatbot Usage (X) | 24.5 | 26 | 26 | 4.68 | 7 | 30 |
| Customer Loyalty (Y) | 25.09 | 26 | 26 | 4.37 | 7 | 30 |
| Customer Satisfaction (Z) | 24.6 | 26 | 26 | 4.86 | 6 | 30 |

The validity and reliability analysis confirmed that all research instruments were suitable for data collection. All items passed the validity test, with corrected item-total correlations greater than 0.30, and all variables demonstrated high internal consistency, as indicated by Cronbach's Alpha values above 0.90.

Path analysis was used to evaluate both the direct and indirect effects among the three key variables. The first regression tested the effect of chatbot usage on customer satisfaction. The standardized coefficient was 0.725, with a significance value of 0.000, which demonstrates that chatbot usage has a strong positive influence on customer satisfaction. This supports previous findings by Aprilia Putri et al. (2023) and Soetiyono et al. (2024), who highlighted that chatbots improve satisfaction by providing fast and clear responses to customer needs. Customers who perceive chatbot services as responsive, available at all times, and able to deliver clear answers are more likely to report higher satisfaction with Shopee.

The second regression included both chatbot usage and customer satisfaction as predictors of customer loyalty. The analysis revealed that the standardized coefficient for chatbot usage on loyalty was 0.415 ($p = 0.000$), and for customer satisfaction on loyalty was 0.531 ($p = 0.000$). This indicates that while chatbot usage itself directly increases loyalty, customer satisfaction plays an even more dominant role as a predictor. Customers who are satisfied with their experience, especially the quality of the chatbot service, demonstrate greater loyalty through repeated purchases and frequent recommendations to others.

Table 3: Path Analysis and Regression Results

| Relationship | Standardized Coefficient (Beta) | t-value | p-value |
|---|---|---|---|
| Chatbot Usage → Customer Satisfaction | 0.725 | 10.482 | 0 |
| Chatbot Usage → Customer Loyalty | 0.415 | 5.96 | 0 |
| Customer Satisfaction → Customer Loyalty | 0.531 | 7.624 | 0 |

The Sobel test was used to determine the significance of the mediation effect of customer satisfaction in the relationship between chatbot usage and customer loyalty. The Z-value obtained from the Sobel test was 6.13, far exceeding the critical value of 1.96, indicating that the mediation effect is statistically significant. This finding supports the hypothesis that customer satisfaction acts as a mediator and strengthens the indirect effect of chatbot usage on loyalty.

The results of this study align with and reinforce previous literature. For instance, Ramadhani et al. (2024) and Alghaniy (2024) also found that the implementation of AI-based chatbots in e-commerce has a direct and indirect impact on customer satisfaction and loyalty. Similarly, research by Rashinta Adelia Khairyanti et al. (2024) highlights the critical role of perceived service quality in shaping both satisfaction and loyalty. This research extends those findings by focusing on an academic setting and by empirically confirming that the mediation effect of satisfaction is strong among student users.

Taken together, these findings demonstrate that the integration of chatbot technology within Shopee's platform is effective in enhancing both satisfaction and loyalty among its users. The responsiveness, 24/7 availability, and clarity of chatbot responses not only make the customer experience more efficient and enjoyable but also contribute to the development of long-term relationships between the platform and its users. From a managerial perspective, these results underline the importance of continuous

investment in AI-based customer service tools, ensuring that they remain accessible, responsive, and clear to foster satisfaction and encourage loyalty in an increasingly competitive e-commerce landscape.

**Discussion**

The findings of this study provide clear empirical evidence that the adoption of chatbots in the Shopee e-commerce platform significantly enhances both customer satisfaction and loyalty among users at STIE Amkop Makassar. The analysis demonstrates that chatbot usage contributes positively to customer satisfaction, which is reflected in high respondent agreement regarding the responsiveness, availability, and clarity of the chatbot service. These findings are consistent with previous research (Alghaniy, 2024), which emphasizes that the implementation of AI-based chatbots has a direct impact on strengthening the relationship between companies and consumers. In this study, respondents who interacted with Shopee's chatbot reported that they found answers to their questions quickly, the chatbot was available whenever needed, and responses were both clear and easy to understand. This level of service makes transactions smoother and helps users solve their issues more efficiently, ultimately leading to greater overall satisfaction.

Furthermore, the results confirm that customer satisfaction significantly influences customer loyalty. Satisfied customers are more likely to engage in repeat purchases, recommend the platform to others, and remain loyal in the long term. These findings support the theoretical framework suggesting that high satisfaction is the foundation of long-term customer relationships in digital platforms. This is in line with the arguments by Damanik et al. (2024) and Zaenudin Rivai & Aidil Fadli (2022), which highlight that customer satisfaction plays a vital role in customer retention and loyalty. The research underscores that the more positive the customer experience—especially in terms of ease of use, reliability, and speed of service—the stronger the tendency for customers to develop loyalty toward Shopee.

Notably, the study also finds that chatbot usage directly influences customer loyalty, independent of satisfaction. This means that customers who perceive the chatbot as helpful, responsive, and effective are more likely to develop a sense of trust and attachment to the platform, even before considering their overall satisfaction. These results echo the findings of Wulandari et al. (2023) and Hutagalung (2024), who noted that automated features such as chatbots increase user retention by providing instant and reliable assistance, which is particularly important during times of increased digital dependency.

An important contribution of this research is the confirmation of the mediating role of customer satisfaction. The mediation analysis shows that customer satisfaction significantly strengthens the link between chatbot usage and loyalty. Even though chatbot usage alone can foster loyalty, its effect is considerably amplified when it also increases satisfaction. This mechanism aligns with the findings of Yudhanto et al. (2022) and Dwie Vania Hutagalung (2024), who demonstrated that satisfaction serves as a bridge through which technology-based services translate into sustained customer loyalty.

Overall, these findings not only reinforce the growing importance of chatbots in modern digital service environments but also provide actionable insights for e-commerce platforms like Shopee. Investing in chatbot technology that prioritizes user experience, rapid and relevant responses, and accessible support will not only increase satisfaction but also foster lasting loyalty in an increasingly competitive market.

**Conclusion**

Based on the results of the study involving 101 Shopee users at STIE Amkop Makassar, several key conclusions can be drawn. First, the use of chatbots on the Shopee platform has a significant and positive impact on customer satisfaction. Chatbots that respond quickly, provide accurate answers, and use clear language contribute to a more convenient and supportive customer experience. Second, customer satisfaction itself has a significant positive effect on customer loyalty, as satisfied users are

more likely to continue using Shopee, make repeat purchases, and recommend the platform to others. Third, chatbot usage also has a direct and significant impact on customer loyalty, independent of satisfaction, as positive chatbot interactions can enhance trust and attachment to the platform. Finally, customer satisfaction serves as a significant mediating variable, amplifying the influence of chatbot usage on loyalty. The study thus highlights the importance of digital service quality—not only in technical functionality but also in enhancing the overall customer experience—to strengthen both satisfaction and loyalty in the e-commerce environment.

Based on these conclusions, it is recommended that e-commerce platforms such as Shopee continue to invest in and improve the quality of their chatbot services, particularly in understanding user queries, response speed, and problem-solving capabilities. Such continuous improvements will help sustain positive customer perceptions and support long-term customer loyalty.

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