

CHATBOT INTERACTIONS AND CUSTOMER LOYALTY: ANALYZING THE ROLE OF PERSONALIZATION AND RESPONSIVENESS

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ABSTRACT

This study aims to analyze the role of chatbots in enhancing customer loyalty by assessing how aspects such as personalization and responsiveness affect customer experience. The study sampled 250 respondents who use customer service in e-commerce companies in the city of Surakarta. The research employed multiple linear regression techniques. The results indicate that personalization and responsiveness in chatbot interactions are factors that play a positive and significant role in increasing customer loyalty. Quick and accurate chatbot interactions that align with customer needs can provide assurance and reduce uncertainty and customer frustration. This study is limited to examining the aspects of personalization and responsiveness in chatbot interactions concerning customer loyalty, and the scope of the research is restricted to customers in the city of Surakarta. Future research opportunities could explore other aspects beyond personalization and responsiveness and expand the research scope beyond just Surakarta.

KEYWORDS

Chatbot, Customer Loyalty, Personalization, and Responsiveness



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INTRODUCTION

The development of digital technology has brought significant changes in various aspects of life, including the business world. Rapid digital transformation enables businesses to enhance operational efficiency, expand market reach, and provide better customer experiences. According to research by Brynjolfsson, E., & McAfee, (2014), the adoption of digital technology has become one of the key factors driving innovation and economic growth in the modern era. Furthermore, a report by McKinsey, (2020) reveals that companies that successfully adopt digital technology effectively can improve their performance and competitiveness in the global market.

Digital technology in business is transforming various sectors by enhancing interaction, optimizing processes, and driving innovation. In marketing, digital technology such as chatbots facilitates human-machine interaction, enabling brands to engage more effectively with consumers who increasingly seek meaningful connections in the digital ecosystem (Kaczorowska-Spychalska, 2019). In the fashion industry, the adoption of virtual 3D technology is revolutionizing supply chains and business models,

promoting sustainability and cultural transformation through innovative design processes (Noris, 2021). Additionally, digitalization is associated with increased green innovation in companies, driven by technologies such as big data and cloud computing, which enhance resource allocation and corporate social responsibility efforts (Gao, Li, Meng, Shi, & Zhu, 2023); (Liu, Ding, & Wang, 2022); (Liu et al., 2022). However, the successful implementation of these technologies requires fostering employee trust in management, as trust is crucial for collaboration in digital transitions (Lau & Höyng, 2023). Overall, digital technology is reshaping the business landscape, presenting opportunities and challenges that require strategic management and cultural adaptation.

In the context of modern business, chatbots have become one of the essential technological tools. A chatbot is a computer program designed to simulate conversation with human users, typically through text or voice. The presence of chatbots in business activities not only helps in providing quick and efficient customer service but also has the ability to handle various administrative tasks automatically, such as booking, information processing, and providing technical support (Van Doorn, J., Lemon, K. N., Mittal, V., Nass, S., Pick, D., Pirner, P., & Verhoef, 2017). A study by Adam, M., Wessel, M., Benlian, A., & Hess, (2020) shows that the use of chatbots can reduce operational costs and enhance customer service efficiency.

Technology in business can be leveraged to create and enhance customer loyalty. Loyalty, as one of the key elements for long-term business success, impacts profitability, and the use of technology like chatbots can play a crucial role in building and maintaining customer loyalty. Therefore, an effective digital marketing strategy in the B2B context can significantly increase customer loyalty through touchpoints and adapting to digital trends (Bakhtieva, 2017). Research by Gnewuch, U., Morana, S., & Maedche, (2017) indicates that responsive and personalized chatbots can improve customer satisfaction and loyalty. Furthermore, a study by Xu, X., Liu, W., Gursoy, D., & Park, (2019) demonstrates that chatbots capable of providing positive interaction experiences can increase customers' intention to return to the service and recommend it to others.

Marketing practices that leverage technology have been proven to positively impact brand loyalty when consumers are engaged and informed, highlighting the importance of aligning marketing strategies with consumer values (Mancuso, Natalicchio, Panniello, & Roma, 2021). In the context of unmanned services, perceived brand experience and product quality are found to be crucial in fostering loyalty, indicating that businesses should focus on delivering high-quality experiences to retain customers (Bae & Jeon, 2022). Additionally, the analysis of loyalty card data reveals trends in consumer purchasing behavior, demonstrating that loyalty programs can effectively track and influence customer preferences over time (Rippé, Smith, & Gala, 2023). Collectively, these findings underscore that fostering customer loyalty requires a multifaceted approach, integrating digital engagement, sustainability, quality experiences, and data-driven insights.

In utilizing technology, theories such as the Technology Acceptance Model (TAM) and Service Quality (SERVQUAL) are often applied. The TAM model, developed by Davis, (1989), explains that two factors influence users to accept and use new technology. The TAM model posits that the two main factors influencing technology acceptance are perceived usefulness (PU), which relates to the extent to which an individual believes that using a particular technology will enhance their performance, and perceived ease of use (PEOU), which pertains to the extent to which an individual believes that using a particular technology will be free of effort (easy). In the context of chatbot utilization within this model, personalization can enhance perceived usefulness because chatbots that provide answers tailored to individual user needs can be more

helpful and relevant, while responsiveness can enhance perceived ease of use because chatbots that quickly and accurately respond to user inquiries make interactions more efficient and satisfying. As for the SERVQUAL model, developed by (Parasuraman, A., Zeithaml, V. A., & Berry, 1988), it identifies five key dimensions that influence perceptions of service quality: tangibles, responsiveness, reliability, assurance, and empathy. The assessment of the responsiveness aspect is a key dimension that includes the speed and accuracy of answering user inquiries. A responsive chatbot can enhance user satisfaction and strengthen customer loyalty. The personalization aspect is viewed as part of the empathy dimension, where a chatbot that can provide responses tailored to individual needs and preferences demonstrates better care and understanding of the user.

In recent years, research on chatbots and customer loyalty has grown rapidly. A recent study by Chattaraman, V., Kwon, W. S., & Gilbert, (2019) highlights the importance of personalization in chatbot interactions to enhance customer loyalty. This study found that appropriate personalization in chatbot interactions can improve customer experience and strengthen emotional bonds with the brand. Additionally, research by (Diederich, S., Brendel, A. B., & Kolbe, 2020) emphasizes that chatbot responsiveness, which includes the speed and relevance of responses, plays a crucial role in shaping customers' perceptions of service quality. Furthermore, a study by Luo, X., Tong, S., Fang, Z., & Qu, (2019) shows that the integration of artificial intelligence in chatbots not only improves service efficiency but also adds value through more human-like and relevant interactions.

This study aims to analyze the role of chatbots in enhancing customer loyalty by assessing how aspects such as personalization and responsiveness affect customer experience. By understanding the relationship between chatbot interactions and customer loyalty, this research is expected to provide useful insights for businesses in developing more effective marketing and service strategies. More specifically, this study will explore how the speed, accuracy, relevance, and personalization of chatbot responses can influence customers' perceptions and loyalty toward the brand.

RESEARCH METHOD

This study is a quantitative research with a survey approach that analyzes the relationship between chatbot personalization and responsiveness on customer loyalty. By using this survey approach, it allows for the collection of data from a large and diverse sample, thereby yielding findings that are generalizable (Creswell, 2014). The subjects of this study are customers who have interacted with chatbots in customer service at e-commerce companies in the city of Surakarta. E-commerce companies were chosen due to the high level of customer interaction with chatbots in purchasing, delivery, and after-sales services. E-commerce is a sector that intensively uses chatbot technology to improve service efficiency and customer satisfaction (Rzepka, C., Berger, B., & Hess, 2020). The sampling technique used is purposive sampling, with a total sample size of 250 respondents. The data collection technique in this study used a questionnaire that measures chatbot personalization, chatbot responsiveness, and customer loyalty using a Likert scale. The data analysis techniques used in this study include descriptive analysis, validity and reliability tests, and multiple regression analysis (Hayes, 2018).

RESULT AND DISCUSSION

1. Respondent Characteristics

a. Respondent Characteristics by Gender

The characteristics of respondents by gender in this study are shown in Table 1.

Table 1. Respondent Characteristics by Gender

No.	Gender	Frequency	Percentage
1	Male	142	56.80%
2	Female	108	43.20%
Total		250	100%

Source: Processed Primary Data, August 2024.

The majority of respondents in this study are male, with 142 respondents or 56.8% of the total respondents, while the remaining 108 respondents or 43.2% are female.

b. Respondent Characteristics by Age

The characteristics of respondents by age in this study are shown in Table 2.

Table 2. Respondent Characteristics by Age

No.	Age (years)	Frequency	Percentage
1	< 20	54	21.60%
2	21 - 30	99	39.60%
3	31 - 40	76	30.40%
4	41 - 50	15	6.00%
5	> 50	2	0.80%
Total		250	100%

Source: Processed Primary Data, August 2024.

The majority of respondents in this study are aged 21-30 years, totaling 99 respondents or 39.60% of the total respondents. There are 54 respondents aged under 20 years, or 21.60%; 76 respondents aged 31-40 years, or 30.40%; 15 respondents aged 41-50 years, or 6% of the total respondents; and 2 respondents aged over 50 years, or 0.80% of the total respondents.

c. Respondent Characteristics by Education

The characteristics of respondents by education in this study are shown in Table 3.

Table 3. Respondent Characteristics by Education

No.	Education	Frequency	Percentage
1	Junior High School	13	5.20%
2	High School	54	21.60%
3	Diploma	60	24.00%
4	Bachelor's Degree	95	38.00%
5	Master's Degree	28	11.20%
Total		250	100%

Source: Processed Primary Data, August 2024.

The majority of respondents in this study have a Bachelor's degree, with 95 respondents or 38% of the total respondents. There are 13 respondents or 5.20% of the total respondents with a Junior High School education, 54

- respondents or 21.60% with a High School education, 60 respondents or 24% with a Diploma, and 28 respondents or 11.20% with a Master's degree.
- d. Respondent Characteristics by Occupation
The characteristics of respondents by occupation in this study are shown in Table 4.

Table 4. Respondent Characteristics by Occupation

No.	Occupation	Frequency	Percentage
1	Private Employee	109	43.60%
2	Civil Servant (PNS)	58	23.20%
3	Military/Police (TNI/Polri)	16	6.40%
4	Entrepreneur	63	25.20%
5	Others	4	1.60%
Total		250	100%

Source: Processed Primary Data, August 2024.

The majority of respondents in this study are private employees, totaling 109 respondents or 43.60% of the total respondents. There are 58 respondents or 23.20% who are Civil Servants (PNS), 16 respondents or 6.40% who are in the Military/Police (TNI/Polri), 63 respondents or 25.20% who are entrepreneurs, and the remaining 4 respondents or 1.60% of the total respondents are employed in other occupations.

2. Descriptive Statistics Results

The results of the evaluation of chatbot personalization, chatbot responsiveness, and customer loyalty in this study can be seen in Tables 5-7 below.

Table 5. Description of Chatbot Personalization

No.	Interval	Frequency	Percentage	Category
1	22 - 25	51	20.40%	Good
2	18 - 21	145	58.00%	Fairly Good
3	14 - 17	54	21.60%	Less Good
Total		250	100%	

Source: Processed Primary Data, August 2024.

The evaluation of personalization in chatbot usage shows that the majority of respondents, 145 respondents or 58%, have a fairly good evaluation. There are 51 respondents, or 20.4%, who have a good evaluation, and the remaining 54 respondents, or 21.6%, have a less good evaluation. The fairly good evaluation of personalization in chatbot usage is supported by the aspect of Contextual Response Adaptation, which received the highest scores. The chatbot is able to provide relevant product or service recommendations based on the user's interaction history, preferences, or previous purchases. The lowest evaluation in chatbot personalization is in the aspect of Personalized User Experience, where the study indicates that chatbots often present an experience that is less relevant to the specific needs of certain users, such as theme, layout, or features that are not well-suited for particular users.

Table 6. Description of Chatbot Responsiveness

No.	Interval	Frequency	Percentage	Category
1	22 - 25	91	36.40%	Good
2	18 - 21	90	36.00%	Fairly Good
3	15 - 17	69	27.60%	Less Good
Total		250	100%	

Source: Processed Primary Data, August 2024.

The evaluation of responsiveness in chatbot usage shows that the majority of respondents, 91 respondents or 36.4%, have a good evaluation. There are 90 respondents, or 36%, who have a fairly good evaluation, and the remaining 69 respondents, or 27.6%, have a less good evaluation. The good evaluation of responsiveness in chatbot usage is supported by the response time aspect, which received the highest scores. In business activities, chatbots have been providing quick responses to customers, leading to higher customer satisfaction as they feel they receive quick responses. The lowest evaluation in chatbot responsiveness is in the aspect of handling complex requests, where respondents often feel that the chatbot's answers are not in line with customer queries as the complexity of the questions increases.

Table 7. Description of Customer Loyalty

No.	Interval	Frequency	Percentage	Category
1	21 - 25	68	27.20%	High
2	16 - 20	126	50.40%	Moderate
3	10 - 15	56	22.40%	Low
Total		250	100%	

Source: Processed Primary Data, August 2024.

The majority of customer loyalty evaluations indicate a moderate level of loyalty, as evidenced by 126 respondents, or 50.4%, having a moderate loyalty evaluation. There are 68 respondents, or 27.20%, who have a high loyalty evaluation, and 56 respondents, or 22.4%, who have a low loyalty evaluation. The customer loyalty evaluation is supported by the chatbot's ability to meet customer expectations regarding their interaction with the chatbot, including ease of use, relevance provided, and effectiveness in resolving issues. The lower customer loyalty is attributed to the perception that chatbot interactions have not yet managed to create an overall positive brand impression, as interactions with chatbots have not significantly contributed to positive experiences that could enhance brand image and, in turn, increase customer loyalty to the company.

3. Research Hypothesis Test Results

Table 8. Research Statistical Test Results

No. Item	r _{test}	Sig	Ket.	No. Item	r _{test}	Sig	Ket.
Chatbot Personalization (X₁)				Customer Loyalty (Y)			
1.	0.705	0.000	Valid	1.	0.771	0.000	Valid
2.	0.801	0.000	Valid	2.	0.891	0.000	Valid
3.	0.591	0.000	Valid	3.	0.853	0.000	Valid
4.	0.797	0.000	Valid	4.	0.766	0.000	Valid
5.	0.834	0.000	Valid	5.	0.761	0.000	Valid
Chatbot Responsiveness (X₂)				Reliability Test			
1.	0.649	0.000	Valid	Var	Cronbach's Alpha		Ket
2.	0.542	0.000	Valid	X ₁	0.797		Reliable
3.	0.678	0.000	Valid	X ₂	0.655		Reliable

4.	0.782	0.000	Valid	Y	0.869	Reliable
5.	0.573	0.000	Valid			

Source: Primary Data Processed, August 2024.

The instruments used in the research, as presented in Table 8, have proven to be valid and reliable.

The role of chatbot interaction, observed from the aspects of personalization and responsiveness towards customer loyalty in this study, can be seen in Table 9.

Table 9. Model Accuracy Test Results and Simultaneous Role

R²	Ftest	Sig.
0.654	233.067	0.000

Source: Primary Data Processed, August 2024.

The role of chatbot interaction, observed from the aspects of personalization and responsiveness in this model, has a contribution of 65.4%, with the remaining 34.6% influenced by other variables outside the model in this study. The model in this research is accurate, indicating that chatbot interactions, seen from personalization and responsiveness aspects, can predict customer loyalty. The interaction of chatbots, observed from personalization and responsiveness aspects, significantly affects customer loyalty simultaneously. This study finds that personalization and responsiveness mutually reinforce their impact on customer loyalty.

When chatbots provide quick and accurate personalized services, customers not only feel that their needs are met, but also that they are treated uniquely and specially. This enhances satisfaction and strengthens the emotional bond between customers and the company, which is the foundation of long-term loyalty. This research aligns with the findings of Ghosh, T., & Sarkar, (2020), who argue that the combination of personalized service and high responsiveness creates a superior user experience, which ultimately increases customer loyalty. In an increasingly competitive business world, a company's ability to leverage personalized and responsive chatbots can be a significant competitive advantage in building and maintaining a loyal customer base.

Table 10. Partial Role Test Results

Model	Coefficient Regression	t_{test}	Sig.
(Constant)	-4.053	-3.812	0.000
Chatbot Personalization	0.575	6.337	0.000
Chatbot Responsiveness	0.583	5.979	0.000

Dependent Variable: Customer Loyalty

Source: Primary Data Processed, August 2024.

Chatbot personalization plays a role in positively influencing customer loyalty, as shown by the regression coefficient value of 0.575 for the impact of chatbot personalization on customer loyalty. This study shows that the better the personalization in chatbots, the more significant the impact on increasing customer loyalty. Chatbot responsiveness also plays a role in positively influencing customer loyalty, as evidenced by the regression coefficient value for the effect of chatbot

responsiveness on customer loyalty, which is 0.583. The better the responsiveness of a chatbot, the more it will positively impact increasing customer loyalty.

The role of personalization in chatbots partially significantly influences customer loyalty, as indicated by the *t*-test value of 6.337 with a significance (*p*-value) of 0.000, which is less than 0.05. This means that personalization in chatbots partially plays a role in significantly influencing customer loyalty. Effective personalization in chatbot interactions significantly contributes to increasing customer loyalty, as these interactions can provide personalized recommendations and adapt to the customer's specific needs. This research shows that the higher the level of personalization received by customers, the more likely they are to remain loyal to the brand or service. This finding aligns with the research conducted by Ashfaq, M., Yun, J., Yu, S., & Loureiro, (2020), who emphasize that effective personalization in chatbots can enhance user satisfaction and build trust in digital services. Thus, if chatbot interactions can understand and meet users' specific needs, it will result in a more meaningful interaction experience and increase the tendency of users to return to the service.

Personalized chatbot interactions can strengthen the emotional connection between customers and service providers. When customers feel that a chatbot can provide unique services that align with their preferences, it creates a strong emotional bond with the brand, which will later enhance loyalty (Luo, X., Tong, S., Fang, Z., & Qu, 2021). Moreover, personalized experiences make chatbot interactions feel more natural and relevant, maintaining customer interest. This finding aligns with the results of research conducted by Luo, X., Tong, S., Fang, Z., & Qu, (2021). This study also finds that personalized chatbot interactions can build trust because they show the company's commitment to meeting customer needs, ultimately increasing loyalty. This finding aligns with the research conducted by Rzepka, C., Berger, B., & Hess, (2020).

This study emphasizes that personalization in chatbots significantly influences customer loyalty. Effective personalization can increase user satisfaction, build trust, and strengthen the emotional bond between customers and the brand. However, the implementation of personalization must be done carefully to avoid over-personalization and ensure that customer privacy is maintained. Therefore, companies that want to increase customer loyalty through chatbot usage must focus on developing a balanced and transparent personalization strategy.

The role of responsiveness in chatbot interactions in this study has been proven to have a significant influence on customer loyalty, as evidenced by the *t*-test value of 5.979 with a significance (*p*-value) of 0.000, which is less than 0.05. This means that responsiveness in chatbot interactions significantly influences customer loyalty. This research explains that the better the responsiveness in chatbot interactions, the more it will increase customer loyalty. Chatbots that can provide quick and accurate responses can create an efficient and satisfying experience, which is an essential factor in building loyalty. Chatbots not only increase customer satisfaction but can also improve customers' perception of the company's professionalism and competence (Moon, K.-L., & Chang, 2021).

Responsive chatbot interactions can foster trust if the chatbot can respond quickly and accurately, making customers more confident that the company is reliable in various conditions. This trust not only covers the chatbot's technical capabilities but also reflects the company's commitment to providing the best service to customers. This research aligns with the findings of Luo, X., Tong, S., Fang, Z., & Qu, (2021). Responsiveness in chatbots has also been proven to create

the perception that the company values customers' time and needs to build a relationship with them. This aligns with the research conducted by Rzepka, C., Berger, B., & Hess, (2020). Responsive chatbots that provide quick responses can reduce customers' uncertainty and frustration, as responsive chatbot interactions make customers feel that their needs can be met quickly and accurately, making them more loyal to the service provided.

Responsiveness in chatbots is a key factor influencing customer loyalty. This study shows that high responsiveness, characterized by speed and accuracy in responding to customer requests, significantly increases customer satisfaction, trust, and loyalty. However, to achieve and maintain the desired level of responsiveness, companies must ensure that their chatbots are supported by adequate technology and effective operational strategies. Therefore, companies can build and strengthen customer loyalty through responsive and reliable chatbot services.

CONCLUSION

Personalization and responsiveness in chatbot interactions are factors that play a role in enhancing customer loyalty. It has been proven that personalization in chatbot interactions has a significant influence on customer loyalty; the better the personalization and responsiveness in chatbot interactions, the more it impacts the increase in customer loyalty. This study has limitations in evaluating chatbot interactions by only using the aspects of personalization and responsiveness, and the subjects in this study are limited to customers in the city of Surakarta. Future researchers could consider adding other aspects beyond personalization and responsiveness in chatbot interactions to predict customer loyalty and expand the scope of the study beyond customers in the city of Surakarta, so that the findings can be more generalizable to a broader population.

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