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FACTORS AFFECTING CUSTOMER TRUST IN CHATBOT USAGE: EVIDENCE FROM INDONESIA

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ABSTRACT

Introduction/Main Objectives: Customer trust is critical in ensuring the successful implementation of chatbots. Building trust is essential to ensure that users feel confident in using chatbot across various contexts, including customer service. **Background Problems**: Despite its importance, there is limited understanding of how specific chatbot features influence customer trust, especially within the Indonesian context. **Novelty**: Drawing principally on the Technology Acceptance Model (TAM), this empirical study develops and tests a model that incorporates anthropomorphism, the attribution of human-like qualities, to provide a more comprehensive explanation of customer trust. **Research Methods**: This study utilizes quantitative analysis of data gathered from 368 customers to examine the relationships between perceived usefulness, ease of use, anthropomorphism, and trust. A structured survey was administered, and statistical techniques were employed to validate the proposed model and determine the significance of each factor. **Finding/Results**: The analysis reveals that perceived usefulness, ease of use, and anthropomorphism are all significant predictors of trust in chatbots. Among these, ease of use emerges as the most influential factor, emphasizing its pivotal role in fostering trust. **Conclusion**: This study provides practical guidance for managers and developers aiming to design trust-enhancing chatbots. Key strategies include integrating human-like features, focusing on usability, and highlighting the practical benefits offered by chatbots. These approaches can improve customer engagement, enhance interaction quality, and support the succesful implementation of chatbot technologies in Indonesia.

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INTRODUCTION

Over the past few years, chatbots have become one of the most popular business tools. Chatbots are software systems that mimic human to human conversation using natural language processing (Wirtz et al., 2018). They are now ubiquitous and can be used for various purposes, from customer service to personal assistance. From a business point of view, using chatbots offers opportunities not only for efficiency but also as a novel way of meeting customer needs and encouraging more interaction between customers and businesses (Chung et al., 2020). At the same time, customers tend to receive prompt service and it is the easiest way to connect or communicate their needs to businesses (Amalia & Suprayogi, 2019). Consequently, more than 50% of businesses worldwide either currently use or plan to use chatbots in the future (MihirContractor, 2021).

In Indonesia, chatbots are increasingly recognized and deployed by well-known companies, including Telkomsel with its chatbot Veronica and Bank Syariah Indonesia with its chatbot Aisyah. According to katadata.co.id (2022), the popularity of chatbots increased by 170% in early 2022. This surge has driven many companies in Indonesia to create their own chatbots, which have successfully improved the customer experience. Despite their current limited capabilities, chatbots are appealing for customer service plans due to their24/7 availability and ability to handle common queries. However, to effectively integrate chatbots into businesses, gaining users' trust (or customers, in this context) is necessary. Customer trust is critical to the success of any technology-based service (Sarkar, Chauhan, & Khare, 2020).

Ba and Pavlou (2002)define "trust" as the subjective belief that a technology will fulfill a specific task according to user expectations in an uncertain environment. As customers and businesses are separated when transacting through chatbots, trust is required to reduce the uncertainty or risks (e.g., social, technical) associated with the service experience. Trust is highly relevant in a chatbot setting due to its human-like characteristics and social interaction capabilities. Thus, customer trust is crucial for successful interaction and chatbot development. However, our understanding of customer trust in chatbots, particularly in Indonesia, is limited. Existing chatbot research is typically found in information technology or computer science fields. While evaluation and insight from the customer's perspective are essential for the success of chatbot applications, little is known about the factors that influence customer trust in chatbots.

Prevalent theories such as the technology acceptance model (TAM) by Davis (1989) have effectively explained customer acceptance of technology. The model highlights the pivotal roles of perceived usefulness and ease of use in driving technology adoption across different contexts. However, in the context of advanced technologies like chatbots, there is a need to explore how the model can be enhanced to better understand the unique factors -beyond the classic TAM construct-that may influence customer adoption. For example, the conversational and human-like interaction styles of chatbots may play crucial roles in shaping customers' perceptions and acceptance (Korzynski et al., 2023).

Against this background, the current study investigates how businesses create customer trust in chatbots. Specifically, we aim to answer the following research questions: *What are the key factors that influence customer trust in chatbots?; How do specific chatbot features impact customer trust?;* and *What role do businesses play in fostering trust in their chatbot*

technologies? In this sense, this study seeks to provide insights into the human-chatbot relationship from the customer's perspective. In doing so, this study enhances the current body of literature by providing an initial model to explain customer trust in chatbots in Indonesia.

In the following sections, we review the existing research on chatbots, exploring the TAM model and relevant theories on customer-chatbot interactions pertinent to the study. Next, we outline the research methods used, followed by the analysis and presentation of results and discussion. Finally, the paper concludes with a discussion and suggestions for further research.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

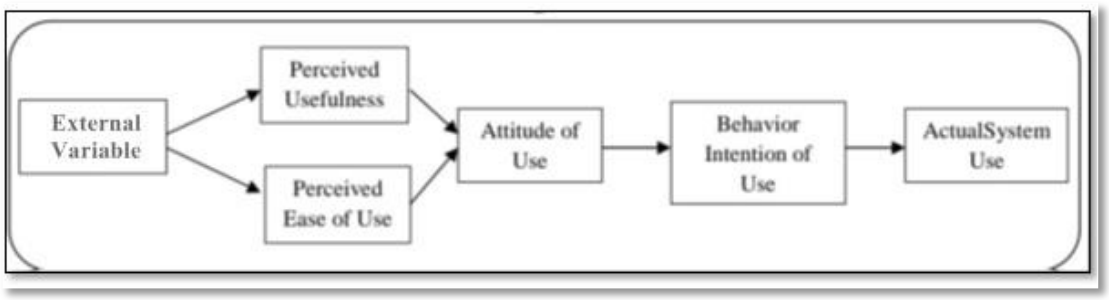
Technology Acceptance Model

In order to achieve the purpose of this research, we focus on the technology acceptance model (TAM) (Davis, 1989) as our theoretical framework. TAM is a well-known model for understanding and predicting users' (customers, in this context) responses to (a particular) technology. Due to the model's robustness, researchers have extensively studied and applied TAM across various fields, including health, marketing, and education (George & Kumar, 2013). Given its widespread usage and substantial influence on our understanding of customers' behavior toward technology, this study utilizes TAM to gain insights into customers' perspectives within the chatbot domain.

TAM consists of two elements: perceived usefulness and perceived ease of use. These are correlated in determining user responses toward technology. According to Davis (1989), perceived usefulness refers to "the degree to which a person believes that using a particular system would enhance his or her job performance." Meanwhile, perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort." In the context of chatbot usage, perceived usefulness reflects the extent to which customers think that using a chatbot is useful and effective. Similarly, perceived ease of use refers to the extent to which customers find using a chatbot to be convenient and undemanding in terms of effort.

Previous research in the online context has demonstrated that perceived usefulness and perceived ease of use are linked to several positive outcomes, including purchase intention, the decision to adopt new technology, trust, and intention to engage in online transactions (Lim, Osman, & Halim, 2014; Soares, Camacho, & Elmashhara, 2022). Previous studies also emphasize the importance of the key constructs in TAM –namely perceived usefulness and perceived ease of use–in influencing customer trust in a technological setting (Larasetiati & Ali, 2019; Mou & Cohen, 2014).

Figure1. Technology Acceptance Model



Customer Trust in Chatbots

Trust plays an essential part in any customer interaction, representing the confidence customers have in a service or product to consistently meet their expectations (Li, Teng, & Chen, 2020). In the online setting, prior research has focused mainly on assessing trust in e-commerce and m-commerce (e.g., Al-Adwan et al., 2020). However, while trust is the key to the successful application of technology in services, investigating trust in the area of technology with artificial intelligence (AI) such as chatbots, remains limited (van Pinxteren et al., 2019). Thus, the current literature posits that there is a need to understand the determinants of trust in this technology (Amelia, Mathies, & Patterson, 2022; Wirtz et al., 2018).

In the context of chatbots, trust is built through positive interactions, which depend on the chatbots' features or performances (Ye, You, & Du, 2023). Trust refers to a customer's belief that the chatbot will perform its intended functions reliably and effectively, based on his or her perception of the chatbot's competence, reliability, and benevolence (Lappeman et al., 2023; van Pinxteren et al., 2019). Hence, a chatbot should be able to provide consistent performance, to handle different types of queries, and provide accurate and relevant responses to customers.

Impact of Perceived Usefulness on Customer Trust

Previous research has shown that perceived usefulness directly impacts customer trust in technology (Alboqami, 2023; Han et al., 2015).When customers perceive that a (specific) technology adds value, they are more likely to trust it. A study by Wilson, Keni, and Tan (2021) finds that perceived usefulness is positively associated with customer trust. Furthermore, they identify perceived usefulness and perceived ease of use as the key predictors of customer trust. From the customers' point of view, a chatbot is useful if it is efficient and provides quick responses. Hence, when it fulfills customers' expectations about being provided with accurate information promptly, it reinforces their belief in its usefulness. In similar way, customers' trust tends to increase when they perceive that the chatbot can save their time and effort (Zhang et al., 2023). Based on these explanations, we would like to posit the first hypothesis (H1) as follows:

H1: Perceived usefulness is positively associated with customers' trust in chatbots

Impact of Perceived Ease of Use on Customer Trust

Previous research by Wilson (2019) demonstrates that perceived ease of use positively affects customer trust in technology. Similarly, several researchers, including Mostafa and Kasamani (2022), Rese, Ganster, and Baier (2020), and Ashfaq et al. (2020), have also identified a positive impact of perceived ease of use on customer trust in the context of chatbots. Additionally, studies by Selamat and Windasari (2021) and Lei, Shen, and Ye (2021)find that perceived ease of use positively influences trust in using chatbots.

As with the relationship between perceived usefulness and trust, customers' perceptions of how easy to use and learn a system (or technology) significantly influence their trust in it. Generally, customers expect new technologies to be easier and simpler to use (Amelia et al., 2024). However, as noted by Venkatesh, Thong, and Xu (2012), if the technologies are complicated and time-consuming to learn, they will gradually erode customers' belief and trust in their benefits. Research found that the loss of customer trust has a negative impact on the technology (Schmidt, Biessmann, & Teubner,

2020). Accordingly, the second hypothesis is posited as follows:

H2: Perceived ease of use is positively associated with customers' trust in chatbots.

Integrating Anthropomorphism into the Technology Acceptance Model

As previously discussed, TAM posits that customers' responses toward technology rely on its cognitive evaluation (perceived usefulness and perceived ease of use), which is considered suitable for technology in the AI context. However, due to the rapid advancement of technology, some researchers have argued that TAM might not completely capture the complexities of a technology's features beyond its functionality. The technology's ability to socially interact with customers makes the evaluation more complex. Thus, it has been suggested that new models are created or that TAM incorporates additional factors to elucidate better customers' interaction with technology (Amelia et al., 2022; Wirtz et al., 2018). The current study integrates anthropomorphism into the model, which pertains to the tendency to attribute human-like characteristics to non-human entities (Epley et al., 2008).This perspective aligns with previous research, such as Heerink et al. (2010), who extend TAM by incorporating several socio-emotional and relational variables when investigating customers' responses in the context of social robots.

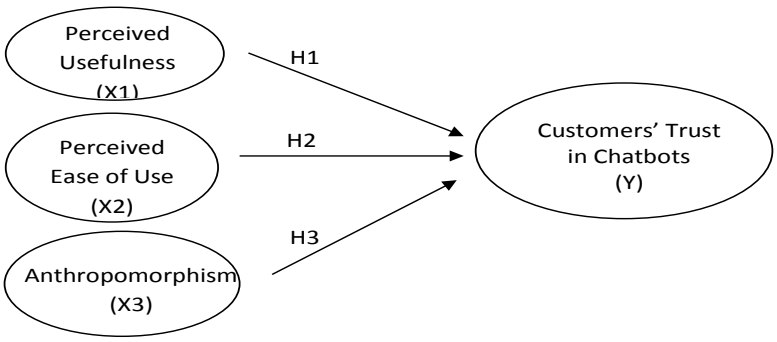
Previous research has shown that anthropomorphism impacts customers' positive outcomes, such as trust, enjoyment, and intention to use (van Pinxteren et al., 2019). Additionally, anthropomorphism is crucial in shaping customers' trust in chatbot interactions (Cheng et al., 2022). When chatbots display human-like emotional responses, customers are more likely to feel understood and valued. This emotional connection cultivates a sense of companionship and support, which are essential elements for building trust (Gefen, Karahanna, & Straub, 2003; Hancock et al., 2011).

Therefore, in line with prior research, this study considers anthropomorphism as a factor influencing customers' trust in chatbots. By attributing human-like characteristics to chatbots, customers can perceive them as trustworthy and relatable, potentially enhancing their interactions with chatbots.

H3: Anthropomorphism is positively associated with customer trust in chatbots

Figure 2 depicts the conceptual model of this study, illustrating the hypothesized relationships between the key constructs being investigated. The model builds on the key determinants of the established TAM, incorporating anthropomorphism and its potential impact on customer trust in the context of chatbots. This model sets the stage for subsequent empirical testing and validation of the proposed hypotheses.

Figure 2. Conceptual Model



METHOD

Data Collection

This study employed a quantitative method to assess the influence or relationship between two or more variables (Sugiyono, 2022). Given the aim of this study, the multiple regression analysis was chosen because of its ability to predict and explain the relationship between the chatbot's characteristics: perceived usefulness, perceived ease of use, anthropomorphism, and customer trust in chatbots. Participants in this study were customers who had used interacted with (i.e. used) chatbots and were recruited via the Indonesian-based platform, Jakpat. We used two screening questions to establish whether the respondents had interacted with chatbots to ensure their eligibility. The sample size was selected based on the recommendation of Hair et al. (2014), who suggested that a minimum of 200 participants is generally required to achieve reliable and valid results in survey research.

Questionnaire Development

The development of the questionnaire involved several stages. Initially, we adopted scale items from prior research and adapted them as necessary to fit the research context (Chen, Le, & Florence, 2021; Han, 2021; van Pinxteren et al., 2019). The questionnaire consists of three parts: a screening question, a main questionnaire, and demographic (e.g., gender, age). All the items in the main questionnaire were measured using a five-point Likert scale, ranging from "1" meaning "strongly disagree" to "5" meaning "strongly agree." Next, to ensure conceptual equivalence, we used a parallel or double-translation method since all items were originally in English (Douglas & Craig, 2007). Two independent translators translated the questionnaire into Indonesian, compared their translations, and resolved any differences. Subsequently, two other independent translators, who were not familiar with the original version, translated the finalized questions back into English. We then reviewed the back-translated version for consistency. Lastly, the researchers pre-tested the Indonesian questionnaire with a convenience sample to ensure conceptual equivalence, making minor adjustments to the wording as necessary. The pre-test responses were not included in the final analysis.

Data Analysis

The multiple regression analysis in SPSS 28 was used to analyze the data. The statistical analysis included an assessment of the common method bias, the reliability and validity of each construct's measurement scale, the classical assumption test of multiple regression linear analysis, and testing the hypothesized relationships between variables. The multiple regression analysis has been suggested as a suitable and reliable technique for examining the relationship between each independent and dependent variable (Nunkoo & Ramkissoon, 2012).

ANALYSIS AND RESULTS

Profile of the Participants

Of the 374 participants who volunteered, the authors removed six for reasons such as failing to check questions. As a result, 368 participants were included in the analysis, comprising 55.43% females (204) and 44.57% males (164). Given the recommendation of Hair et al. (2014) to have at least 200 participants in survey studies, the sample size of 368 participants obtained for the current study is suitable to ensure the reliability, validity, and generalizebility of our findings.

Over half of the participants (63.86%) were between the ages of 18 and 29;27.99% were between 30 and 44; and 8.15% were aged

between 45 and 59. This study collected responses from chatbot users spread across 26 provinces in Indonesia. The five provinces with the most participants were West Java, DKI Jakarta, DI Yogyakarta, Central Java, and East Java. Geographically, the largerst group of respondents came from West Java (25.23%, 93), followed by other provinces, as shown in Table 1.

Table 1. The number of participants from each province

Province	Frequency	Percentage
West Java	93	25.27%
DKI Jakarta	62	16.85%
DI Yogyakarta	41	11.14%
Central Java	40	10.87%
East Java	36	9.78%

As for the demographic question, this study also found that the most significant number of participants (52.45%, 193 participants) had used chatbot services less than a month previously. The second most significant number, 113 participants (30.71%), reported having used a chatbot between one and three months previously. The remaining, 62 participants (16.85%) had used a chatbot over three months ago. Additionally, most respondents (65.76%, 242) were most interested in using chatbot services to obtain further information about products or services. Another 108 participants (29.35%) used chatbots to communicate their problems or complaints. Then, the rest, amounting to 18 participants (4.89%), used chatbots for other reasons, such as their curiosity or familiarity with chatbots.

The survey also uncovered information on the type of chatbot service provider company that customers frequently use. A significant percentage of respondents (41.03%, 151) use chatbots from the telecommunication sector, with the company Telkomsel being the most often used chatbot provider name. Furthermore, banking is an industry that offers chatbot services, which 17.66% (65) of participants frequently utilize. Bank Central Asia (BCA) is an example of a company from the banking industry that the participants often use. Following that, 14.40% (53) of participants frequently access chatbot services from the entertainment industry, and 14.13% of participants (52) use chatbot services from other sectors, such as insurance and the e-commerce marketplace. Finally, 12.77% (47) of the participants use chatbot services from the fashion industry. Based on these findings, chatbots have been deployed as service channels for various companies in Indonesia.

Common Method Bias

In line with the recommendations of Podsakoff et al. (2003), the current study implemented both procedural and statistical controls in the survey design to minimize the risk of common method bias (CMB). For procedural controls, we randomized the order of items, ensured respondents' anonymity, and informed the respondents that there were no right or wrong answers. These steps were taken to reduce participants' apprehension about the survey (Podsakoff et al., 2003).

Additionally, for statistical controls, we conducted Harman's single factor test by loading all items from all constructs into an un-rotated factor analysis (Harman, 1976; Podsakoff & Organ, 1986). The test revealed that the first factor accounted for less than 50% of the variance (specifically, 30.69% of the explained variance), indicating that the common method bias was not a concern in this study.

Validity and Reliability Test

Following the CMB test, validity and reliability tests were carried out on the questionnaire. The

first step was the validity test, which is a test of the data's validity level, i.e., the extent to which the question items can measure what should be measured. The validity test results show that all the question items were declared valid, as their Pearson correlation coefficient was less than 0.05. Table 2 shows the validity test results.

A reliability test was also performed to confirm the data's reliability level, such as accuracy and precision. A Cronbach-Alpha value greater than 0.6 indicates reliability. Table 3 displays the results of the reliability test in this study. Based on these results, all items in the questionnaire, or variables in this research, are reliable and appropriate to use.

Table 2. Results of Validity Test

Item	Pearson Correlation Score
Perceived Usefulness (X1):	
X11	0.915**
X12	0.914**
X13	0.886**
Perceived Ease of Use (X2):	
X21	0.861**
X22	0.886**
X23	0.867**
Anthropomorphism (X3):	
X31	0.847**
X32	0.870**
X33	0.817**
Customers' Trust in Chatbots (Y):	
Y11	0.869**
Y12	0.866**
Y13	0.885**

** *Correlation is significant at the 0,01 level (2-tailed)*

Table 3. Results of Reliability Test

Variable	Number of Item(s)	Cronbach's Alpha
Perceived Usefulness (X_1)	3	0.889
Perceived Ease of Use (X_2)	3	0.841
Anthropomorphism (X_3)	3	0.799
Customers' Trust in Chatbots (Y)	3	0.844

Classical Assumption Test

Three requirements testing in the classic assumption test, namely normality, heteros-cedasticity, and multicollinearity, were conducted before the multiple regression analysis. First, the normality test in multiple linear regression was utilized to assess whether the residuals were normally distributed. A good normality test is indicated by data or plot points being closely aligned with the diagonal line, with no data or points deviating from the overall distribution. In this study, the results show (Figure 3) that all data or points were spread in the diagonal line, suggesting that the data were normally distributed.

Second, a multicollinearity test was conducted to determine whether there is a correlation among the independent variables in the regression model. When independent variables are linearly related, it becomes difficult to distinguish the individual effects of each variable on the dependent variable. The results of the multicollinearity test are presented in Table 4.

Figure 3. Result of Normality Test

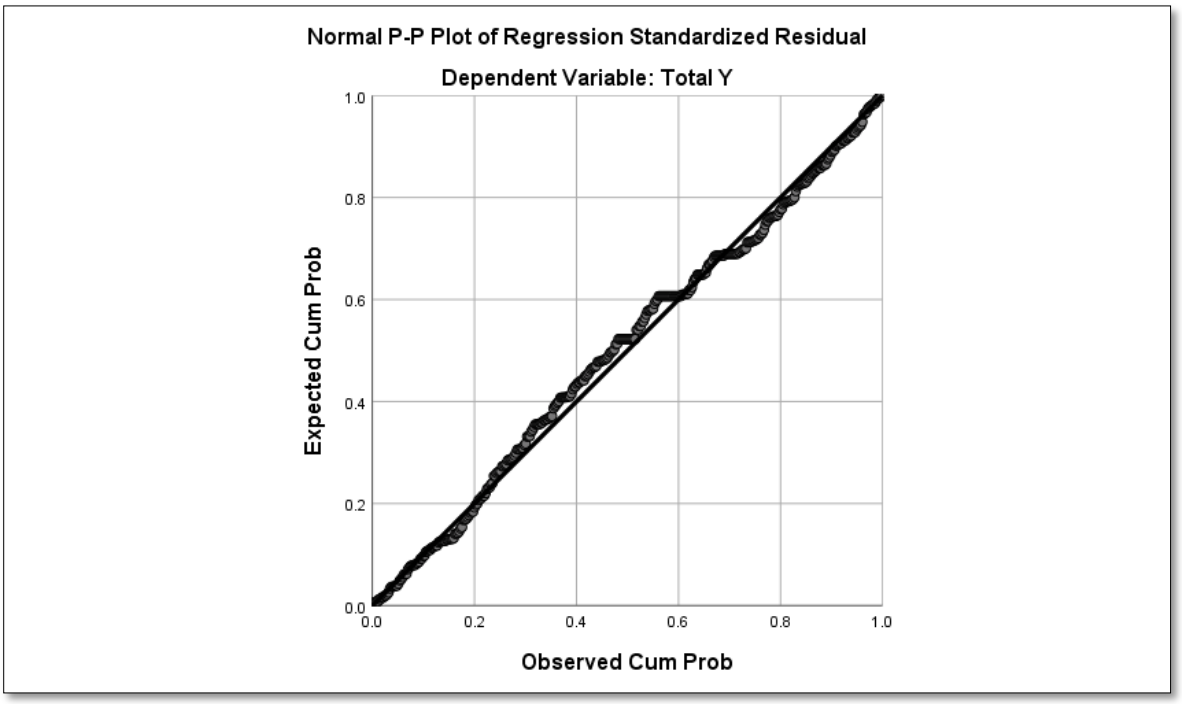


Table 4. Results of Auto Correlation Test

Coefficients(a)

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Perceived Usefulness (X_1)	0.432	2.314
	Perceived Ease of Use (X_2)	0.477	2.097
	Anthropomorphism (X_3)	0.747	1.338

a Dependent Variable: Customers' Trust in Chatbots

According to the multicollinearity test results, the VIF value was less than 10 and the tolerance was greater than 0.1, suggesting that there is no multicollinearity among the independent variables.

The third test in the classic assumption test is the heteroscedasticity test which aims to determine if the absolute residuals are consistent across all observations. If the assumption of no heteroscedasticity is violated, the estimator becomes ineffective and makes the accuracy of the coefficient estimation compromised. Hence, a good regression model should exhibit homoscedasticity.

The current study conducted the heteroscedasticity test by observing the graph plot of the predictive value of independent variables (ZPRED) with the residual (SRESID) (Sugiyono, 2022). A variable is free from heteroscedasticity if there is no pattern in the plot, and the points are evenly dispersed above and below zero on the Y-axis.

The results of the heteroscedasticity test (Figure 4) show there is no clear pattern in the scatterplot graph. The points are spread above and below zero on the Y-axis, indicating that heteroscedasticity does not occur in the data in this study.

Overall, the results of the classical assumption tests were met. Hence, the regression analysis could be performed (Hair et al., 2014).

F-statistic test

Table 5 shows the results of the F test.

Figure 4. Result of Hetereoscedasticity Test

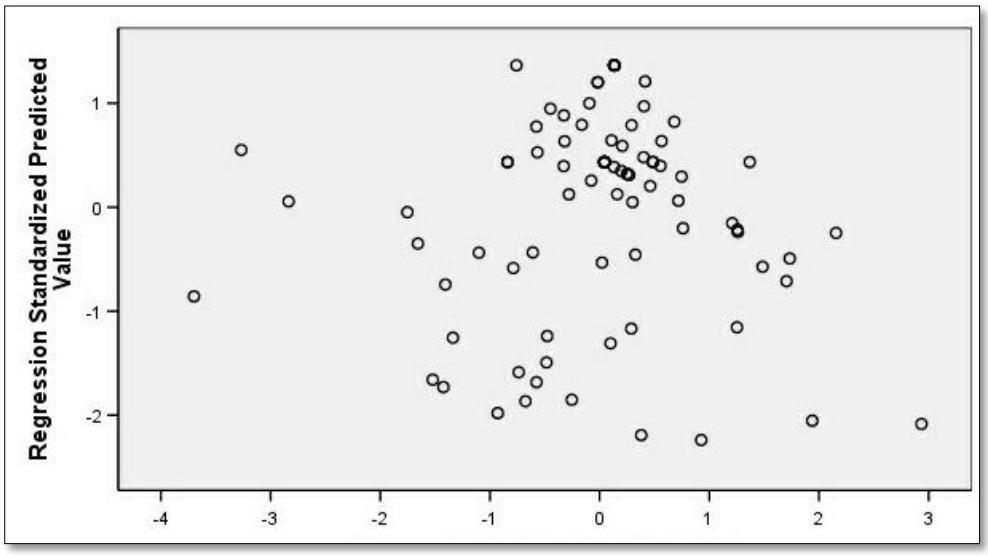


Table 5. F test Results

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1180.402	3	393.467	223.231	.000[b]
	Residual	641.587	364	1.763		
	Total	1821.989	367			

a. Dependent Variable: Customers' Trust in Chatbots
b. Predictors: (Constant), Anthropomorphism, Perceived Ease of Use, Perceived Usefulness

According to Table 5, the significance value for the combined effect of the three independent variables –namely Perceived Usefulness, Perceived Ease of Use, and Anthropomorphism– on the dependent variable (Customer Trust) is significant (0.000 < 0.05) with an F-value 223.23. This indicates that perceived usefulness, perceived ease of use, and anthropomorphism collectively influence the level of customer trust in chatbots.

t-statistic test

The results of the t-statistic test in Table 6 indicate several points as follows:

1. Effect of Perceived Usefulness (X_1) on Customers' Trust in Chatbots (Y):
   At a 95% significance level ($\alpha = 0.05$), the significance value of the perceived usefulness variable is 0.000, which is less than 0.05. Consequently, **hypothesis 1 (H1) is accepted**, indicating that perceived usefulness (X1) significantly impacts customers' trust in chatbots (Y).
2. Effect of Perceived Ease of Use (X_2) on Customers' Trust in Chatbots (Y):
   At a 95% significance level ($\alpha = 0.05$), the significance value of the perceived ease of use variable is 0.000, which is less than 0.05. Consequently, **hypothesis 2 (H2) is accepted**, indicating that perceived ease of use (X2) significantly impacts customers' trust in chatbots (Y).
3. Effect of Anthropomorphism (X_3) on Customers' Trust in Chatbots (Y):
   At a 95% significance level ($\alpha = 0.05$), the significance value of the anthropomorphism variable is 0.000, which is less than 0.05. Consequently, **hypothesis 3 (H3) is accepted**, indicating that anthropomorphism (X3) significantly impacts customers' trust in chatbots (Y).

Multiple Regression Analysis

The results in Table 6 also show that the multiple linear regression equation is formulated as follows:

$$Y = 0.788 + 0.373X_1 + 0.384X_2 + 0.148X_3$$

This equation indicates that, among the three independent variables studied, perceived ease of use (X_2) has the most significant influence (38.4%) on customer trust in chatbots in Indonesia. This is followed by perceived usefulness (37.3%) and anthropomorphism (14.8%).

Coefficient of Determination (R^2)

The coefficient of determination (R^2) is 0.648, indicating that 64.8% of the variation in the dependent variable –customers' trust in chatbots in Indonesia– can be explained by the three variables, namely perceived usefulness, perceived ease of use, and perceived anthropomorphism. Meanwhile, variables or other factors that are not included in the model are responsible for the remaining 0.36 (36%) of the variation. Table 7 shows the results of the model summary.

Table 6. t-Test Results

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.778	0.377		2.061	0.040
	Perceived Usefulness	0.373	0.045	0.391	8.268	0.000
	Perceived Ease of Use	0.384	0.046	0.377	8.368	0.000
	Anthropomorphism	0.148	0.033	0.163	4.527	0.000

a. Dependent Variable: Customers' Trust in Chatbots

Table 7. Results of Model Summary

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	0.805[a]	0.648	0.645	1.328

a. Predictors: (Constant), X_3, X_2, X_1
b. Dependent Variable: Y

DISCUSSION

Customer trust plays a pivotal role in the implementation of chatbots and serves as a cornerstone for their success in digital interaction. This study empirically examines how chatbot features –namely usefulness, ease of use, and anthropomorphism– affect customers' trust in chatbots. Grounded in the technology acceptance model (TAM) and the anthropomorphism theory, this study situates its analysis within the Indonesian market, enriching marketing literature and providing a novel perspective on customer behavior in this emerging economy. By presenting empirical evidence, the study advances our understanding of the determinants of customers' trust in chatbots, reinforcing and extending the existing literature in this field (Cheng et al., 2022; Mozafari, Weiger, & Hammerschmidt, 2021).

The findings highlight the significance of perceived usefulness and perceived ease of use as the main antecedents of customers' trust in chatbots, confirming hypotheses 1 and 2. These findings are consistent with the TAM framework, which identifies these factors as critical in understanding user adoption of technology. Notably, ease of use emerged as the most significant predictor of trust, indicating that customers prioritize seamless and straightforward chatbot interactions. This finding is consistent with existing research, such as Gefen et al. (2003), which found the critical relationship between ease of use and trust. Moreover, the findings highlight the importance of businesses investing in user-friendly chatbot designs to strengthen customer relationships (Mostafa & Kasamani, 2022). Similarly, the study confirms the significant influence of perceived usefulness, as customers trust chatbots that deliver effective solutions and provide prompt, accurate responses. These findings validate the applicability of TAM in the context of AI-driven technologies and reinforce its relevance to customer trust research.

The study also explores the role of anthropomorphism in fostering customer trust. Consistent with hypothesis 3, the results show that anthropomorphism (human-like characteristics) in chatbots positively influences customers' perception of trust, although the effect is less pronounced compared to ease of use and usefulness. Customers tend to trust chatbots that mimic human-like responses as these interactions are perceived as being more relatable and engaging. This result aligns with research on human-robot interactions, which demonstrates the importance of anthropomorphic features in enhancing emotional connections and increasing trust (Blut et al., 2021). For instance, De Visser et al. (2016) found that anthropomorphism enhances trust resilience, while van Pinxteren et al. (2019) linked these features to higher trust levels. Although its impact is relatively smaller, anthropomorphism remains an important element in designing chatbots that are not only functional but also relatable to users.

This study makes theoretical contributions by extending TAM through the inclusion of anthropomorphism, introducing a socio-emotional element to a model traditionally focused on

cognitive evaluations. This integration expands the framework for analyzing trust dynamics in human-chatbot interactions, aligning with and extending prior studies (Cheng et al., 2022; Mozafari et al., 2021; van Pinxteren et al., 2019). By incorporating anthropomorphism, the study provides a more nuanced understanding of how emotional and relational elements influence trust in chatbots. The findings also resonate with the social-response theory, which posits that individuals apply social norms and expectations to technology when it mimics human characteristics (Nass & Moon, 2000). In this regard, the study not only corroborates existing theories but also advances them by demonstrating the specific ways in which anthropomorphism impacts trust in chatbots.

From a practical standpoint, the study offers two crucial insights for managers considering the implementation of chatbots in their companies. First, when integrating chatbots, managers and chatbot designers should prioritize the three critical features–usefulness, ease of use, and anthropomorphism– to build customers' trust. Second, the study highlights the paramount importance of perceived ease of use in determining customers' trust. Therefore, managers and designers should ensure that chatbots are user-friendly and easily accessible. This can be achieved through various means, such as displaying simple menus or instructions for chatbot use and providing a direct line to a human employee if customers encounter difficulties (Gefen et al., 2003; Mozafari et al., 2021). Furthermore, the emphasis on anthropomorphism in chatbot design suggests that equipping chatbots with human-like traits can enhance customer interaction. These attributes may include natural language processing (NLP) capabilities that facilitate smoother and more interactive conversations. By integrating human-like characteristics, companies can create a sense of familiarity and comfort, which is essential for establishing and maintaining customers' trust.

LIMITATIONS AND FUTURE RESEARCH

As with every study, the current study has its limitations, which reveal avenues for further research. First, we only examined three chatbot features, whereas other studies could benefit from exploring additional attributes of chatbots to provide a more comprehensive understanding. Second, the generalizability of our findings is limited because all participants were Indonesian customers, which may not reflect the perspectives of customers from other cultural backgrounds. Third, our research focuses solely on chatbots and does not include comparisons with other advanced technologies. With the increasing interest in integrating robotics into business operations, future research could extend the scope to other types of technology, such as service robots, to offer a broader perspective on customer-robot interactions.

CONCLUSION

This study enhances the understanding of customer trust in chatbots by examining the roles of perceived usefulness, ease of use, and anthropomorphism, with a focus on the Indonesian market. Grounded in the TAM and the anthropomorphism theory, the findings reveal that ease of use is the strongest predictor of trust, followed by usefulness, while anthropomorphism enhances interactions by making them more relatable and engaging. The integration of anthropomorphism deepens the theoretical exploration of trust in AI-driven technologies by combining cognitive and emotional perspectives. This approach provides a holistic framework for understanding human-chatbot interactions, capturing both functional and relational aspects. Practically, it emphasizes

the importance of creating chatbots that are user-friendly, efficient, and emotionally resonant to build trust and improve customer experiences.

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