

The Effect of Chatbot Services on Online Shop Customer Satisfaction

Cecep M Kappi^{1*}, Lina Marlina²

^{1,2}Triguna Tasikmlaya Polytechnic, Indonesia

¹cepkapi@poltektriguna.co.id, ²marlinatsm@poltektriguna.ac.id



***Corresponding Author**

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ABSTRACT

The increasing trend of e-commerce users has not been matched by customer satisfaction in the shopping process. Indonesia has the highest level of dissatisfaction compared to other ASEAN countries. Although chatbot technology has been used as an aid to optimize services, dissatisfaction still occurs with regard to agility, service assurance, reliability, scalability and security. The purpose of this study is to determine chatbot services in providing customer satisfaction. The research approach uses quantitative with explanatory survey method. The research population is online shop users using random sampling, 175 respondents were collected. Assisted by PLS SEM analysis tool. The results show that chatbot social orientation services contribute to online shop customer satisfaction. Likewise, chatbot personification makes a positive contribution to online shop customer satisfaction.

INTRODUCTION

Customer satisfaction is not just about keeping customers happy, but also about building a strong and sustainable business (Ansary et al., 2023). Businesses that focus on customer satisfaction tend to be more successful in the long run, and this is why customer satisfaction is so important in business (Magotra et al., 2018). Customer satisfaction in the digital era has some unique characteristics and is influenced by technological developments and digital trends. Digitalization allows companies to get closer to customers and provide a better experience. Companies must invest in technology to ensure that companies can maximize the potential of digitalization in increasing customer satisfaction (Adam et al., 2021).

Convenience is one of the characteristics that reflect changes in customer behavior in the era of globalization (Magotra et al., 2018). One of the most striking aspects is the rise of e-commerce visitors and users in the online marketplace. This has spurred the development of online marketplaces and forced companies to continue to innovate in an effort to meet increasingly high customer expectations. The development trend of e-commerce users in 2017-2023 continues to increase, with an average increase of 15% per year (rumahmedia, 2022). Then 2024 it is predicted that there will be at least a 5% increase of 189.6 million people. This development is inseparable from consumer dissatisfaction with the digital experience. The following presents dissatisfaction by country in ASEAN.



Figure 1. Customer dissatisfaction by country Source: (Arbianto, 2020)

The graph above shows e-commerce consumer dissatisfaction by country in ASEAN. Indonesia has the highest dissatisfaction compared to other countries. Thailand has the lowest dissatisfied consumers at only 30%. In Indonesia, about half of consumers 45 percent expressed dissatisfaction with the digital commerce experience (Arbianto, 2020). Shipping costs, trustworthiness of reviews, and product price are three concerns of consumers.

Customer dissatisfaction in marketplaces is an important issue that needs to be considered by e-commerce companies. Although marketplaces provide easy shopping and a large selection of products. There are several issues that



can cause customer dissatisfaction to occur. To overcome customer dissatisfaction, e-commerce companies should focus on good customer service, and maintain transparency in communication. The company should understand customer complaints and take concrete steps to fix the problem and build a good reputation in the marketplace.

Companies use technology to increase customer satisfaction (Rashid et al., 2023) but the reality remains that dissatisfaction arises. For example, dissatisfaction arises if the service is not responsive enough, the technology is difficult to use, the transaction process is complicated, or the waiting time is long. All these aspects of complaints can have a negative impact on overall customer satisfaction, can lead customers to look for alternatives or even express dissatisfaction to the company (Filip, 2013). Therefore, it is important to understand and address these dissatisfaction issues in order to increase customer satisfaction and maintain a loyal customer base (Agarwal & Dhingra, 2023).

The era of globalization has brought major changes in the way businesses operate (Varriale et al., 2023), especially in the e-commerce or marketplace sector. One of the key challenges in maintaining customer satisfaction is handling customer complaints quickly and effectively. This is where artificial intelligence (AI) technology, specifically chatbots, play an important role in business. A chatbot is a computer program designed to interact with humans through chat or text messages (Wang et al., 2023). Chatbots are used to automate responses to customer queries and complaints (Balderas et al., 2023). One of the main benefits of chatbots is the ability to provide non-stop service. This is especially important in an era of globalization where customers can access marketplaces at any time, without being bound by time zones or holidays. When customers visit the platform. In marketplaces, customers often have questions, need guidance, or want to get information about products. Chatbots are here to provide instant responses, provide information, and assist users in navigating the platform.

Research on chatbots has been conducted by (Eun et al., 2023) found the influence of anthropomorphic conversation style and time orientation on chatbot effectiveness. In addition, social presence mediates the influence of anthropomorphic design on user compliance (Adam et al., 2021). Greater anthropomorphism was seen in chatbots with human names and informal language styles. Emotional connections are stronger towards the company through human chatbots (Araujo, 2018). Dialogue between people is more diverse and lengthy. More messages are used in conversations between humans and chatbots (Hill et al., 2015). The influence of communication style has an effect on trust and intention to visit a website (Keeling et al., 2010). Communication embodiment positively affects social presence, perceived enjoyment, and intention to use agent recommendations (Qiu & Benbasat, 2014). Chatbots with higher conversational skills are more humanized and more engaging. Conversational skills require conversational variety as well as skillful responses (Schuetzler et al., 2020).

Customer satisfaction empirically found the application of the Bayesian meta-frontier method with consistent and efficient meta-technology, providing detailed information about business models, products, and services to improve efficiency and customer satisfaction (Rashid et al., 2023). Likewise, the marketing mix in the supply chain (Tiganis et al., 2023). Customer satisfaction can integrate sustainable supply chain management, technology orientation, organizational culture, and delivery product quality based on natural resources and value perception theory (Ansary et al., 2023). Convenience, reliability, ease of use, fulfillment, and security/privacy influence customer satisfaction (Getachew et al., 2023). Optimizing a company's digital brand name by considering customer behavior data and web analytics (Sakas et al., 2023).

Based on the explanation above about the many complaints of satisfaction provided by marketplace services. Formulated a research problem to analyze how chatbots affect customer satisfaction. This research aims to determine customer satisfaction from the services provided by the chatbot. This is important to evaluate and continuously improve the quality of services provided to realize a stable company. Many previous studies have revealed customer satisfaction from human services. While the current research evaluates customer satisfaction from robot services and at the same time becomes a differentiator from previous research.

LITERATURE REVIEW

Customer Satisfaction

The Value-Percept Disparity theory introduced by Westbrook and Reilly in 1983 presents the concept of customer satisfaction as an emotional state. Customer satisfaction is interpreted as a subjective judgment formed as a result of the cognitive process following the purchase of a product or service (Brown et al., 2016). Customer satisfaction develops after the purchase, use, and exploitation stages of the product or service. Factors such as customers' subjective views, evaluations, and responses expressed by customers play a role in shaping the level of satisfaction (Darko & Liang, 2022). The determinants of customer satisfaction include various theories. Most compare the actual attributes of the product or service with consumer expectations. In addition, perceived value comes from individual attitudes, past experiences, or recommendations from others. Customer satisfaction occurs when product or service performance exceeds expectations. Customer satisfaction in the context of restaurant services is the result of a post-consumption judgment involving the dining experience (Pizam & Ellis, 2016). It involves a feeling of pleasure or disappointment, which is the result of a cognitive appraisal of the experience, an emotional response, and an overall evaluation of the



benefits received compared to the costs incurred. Customer satisfaction is strongly influenced by various factors, including individual characteristics, attitudes, expectations, moods, current needs, health conditions, and other factors. This suggests that different customers may achieve different levels of satisfaction despite receiving the same service (Agarwal & Dhingra, 2023).

When talking about customer satisfaction in the context of cloud services, factors such as agility, service assurance, reliability, scalability, security, service responsiveness, and usability all have a significant influence. Therefore, in this study, we chose to use agility, service assurance, reliability, and scalability as key indicators of customer satisfaction, as these factors all relate to the use of the same digitization technology, namely cloud services (Agarwal & Dhingra, 2023).

Chatbot

One of the key aspects of chatbot design is the application of anthropomorphic design elements. Two significant aspects of anthropomorphic chatbot design are personification (referring to human-like appearance) and social orientation in communication style (describing more responsive and comprehensive communication) (Janson, 2023). Chatbots operate as text-based dialog systems without physical and face-to-face interaction, facing challenges in creating the perception of effective social presence. Social presence can be strengthened through socially-oriented communication strategies, defined as attempts to incorporate elements of informal dialog involving social interaction such as greetings, light conversation, emotional support, and positive expressions, to achieve socioemotional goals (Chattaraman et al., 2012).

A stronger level of perceived social presence has a positive impact on chatbot user satisfaction. By creating a more holistic perception of customer service interactions through the level of perceived social presence, customers can experience a more satisfying experience (Fabio et al., 2023). The positive effects of social presence were found to be more dominant than the negative effects (Huang & Dootson, 2022). In addition, promoting social presence has a positive effect on satisfaction, as seen in the context of online learning environments, computer conferencing, and online customer service (Verhagen et al., 2014). Therefore, our first hypothesis is as follows:

H1: The social presence of a chatbot affects customer satisfaction.

Personification refers to attributes that make a chatbot appear more human, such as the use of names or a more humanized physical appearance (Verhagen et al., 2014). This aims to increase the perception of social presence in the interaction with the chatbot. The reasoning behind this is that individuals tend to attribute personality to the chatbot, even when the information available is very limited (Kim & Sundar, 2012). Providing additional information, such as a name or picture, assists users in forming a better judgment of their conversation partner and, if necessary, establishing a closer relationship (Kim & Sundar, 2012). For example, when the chatbot's name is displayed during a conversation (Balderas et al., 2023), users perceive the conversation partner as more human, thus improving well-being (Paluch & Wirtz, 2020) and helping to overcome the impression of less personal communication from the chatbot (Kim & Sundar, 2012). Findings from (Araujo, 2018) suggest that an emotional bond is formed between customers and companies when interacting with a chatbot that has a human name. Facial appearance, which specifically reflects human identity, has been designed with human-like elements (Sproull et al., 1996).

Research by (Koda, 2014) investigated individuals' responses to diverse facial displays of software agents and found that agents with faces were perceived as more sympathetic and pleasant than those without faces. Therefore, this element of pleasantness may also contribute positively to the level of satisfaction in interactions with chatbots (Fabio et al., 2023). Satisfaction with a chatbot is defined as the attitude of customers and users towards the service interaction experience experienced (Hobert & Law, 2023). Interacting with a software agent represented by an anthropomorphic face in a similar way as when interacting with a real person. (Barik et al., 2023) found evidence indicating greater levels of disclosure with chatbots that have been personified, therefore, a second hypothesis can be formulated.

H2: Chatbot personification affects customer satisfaction.

METHOD

The research approach uses quantitative methods, with explanatory survey methods. The population determined is marketplace users who receive services from chatbots on the grounds that consumers can feel positive or negative experiences after being served by chatbots. This study uses a questionnaire data collection tool with a Likert scale of 7. The questionnaire was distributed online using google form to marketplace customers. The sample used random sampling and managed to collect 175 respondents. This sample determination is sufficient to be processed using PLS SEM. This is based on the provisions that (Hair Jr et al., 2023) regarding the determination of the minimum sample, the following is presented in the table below.



Table 1. Minimum sample sizes

Pmin	Significance Level		
	1%	5%	10%
0.05-0.1	1004	619	451
0.11-0.2	251	155	113
0.21-0.3	112	69	51
0.31-0.4	63	39	29
0.41-0.5	41	39	19

Source: (Hair Jr et al., 2023)

The table above shows that the sample collected is in accordance with the provisions for processing using PLS SEM.

RESULT

Demographic profile of respondents

Respondent characteristics/demographic profiles for this study, there are three characteristics set gender, education and age. The characteristics of the respondents obtained can be seen from the following summary table.

Based on the table of respondent characteristics, it is known that online customers are more dominated by women, it is possible that women prefer to shop than men. Respondents' education is more high school graduates, and the average age of employees is in the gen Z category which is very familiar with technology. This data shows that young respondents are more likely to shop and surf in the marketplace.

Statistical analysis using PLS

This research applies Partial Least Squares (PLS) Analysis. PLS is a method commonly used to analyze cause-and-effect relationships based on variation and applies an estimation approach based on principal components, as described by (Hair et al., 2017). There are various reasons that support the use of PLS in this study, but one of the strongest reasons is because PLS-SEM is a very effective multivariate approach to analyzing data. (Sarstedt et al., 2019) explained that PLS-SEM has the ability to simultaneously estimate multiple associations, focusing on the overall picture of the entire model as well as its level of explanation. Although Structural Equation Modeling (SEM) has been used in various contexts, PLS-SEM has become a very popular and widely adopted technique.

The PLS model evaluation procedure consists of two main steps. The first step involves applying measurement model analysis to verify and assess the reliability of each individual item. The second step involves validating the structural model using data to test the consistency of the causal relationships described in the model. Below, the results of the model outputs generated through the use of the PLS approach are presented.

Measurement model analysis

Evaluation of the measurement model begins by first looking at the outer loading which is determined by the criteria above > 0.70 (Hair Jr et al., 2023) or above > 0.60 (Chin, 1998). The results of the measurement model analysis in this study resulted in outer loading above > 0.70 after removing X1.8, Y1.7, Y1.8, and Y1.10. Second, analyze composite reliability with criteria above > 0.70 . Third, determine convergent validity by analyzing Cronbach's alpha above > 0.70 . Fourth, analyze the AVE root above > 0.50 and fifth, discriminant validity by analyzing (cross loading, Fornell Lacker and HTMT).

Reporting validity and reliability

Tabel 2. Reporting Validity and Reliability

Var	Indicator	Size	Loading Factor	Alfa Conbrach's	Composit e Reability	AVE	
Chatbot	Personification	1. Chatbots have a human-like appearance or representation in interactions	0,853	0,896	0,923	0,707	
		2. Human-like chatbot makes it convenient to interact with it	0,849				
		3. Human-like chatbot influences perception of the quality of service provided	0,845				
		4. Trust in the chatbot for information provided with human-like appearance	0,860				
		5. Human-like chatbot improves overall experience	0,796				
	Social Orientation				0,881	0,918	0,737
		6. Chatbot communicates in a friendly and warm manner	0,876				
		7. The chatbot asks additional questions or says hello during the conversation	0,831				
		8. The communication style of the chatbot affects the feeling of being treated during conversation	0,842				
		9. Social orientation of chatbot makes more satisfied with the interaction experience	0,884				
			0,953				0,959
Customer Satisfaction	Agility	1. Easy to use chatbot	0,870				
		2. Chatbot responds quickly and correctly	0,850				
		3. Chatbot helps complete tasks smoothly	0,843				
	Service Guarantee	4. Chatbot provides secure and reliable services	0,831				
		5. Information shared with the chatbot is kept confidential	0,852				
		6. Trust in chatbots in provide accurate and relevant answers	0,858				
	Reliability	7. The chatbot is wrong or fails to provide the correct answer	0,718				
	Scalability	8. Chatbot manages high workloads without degradation in service quality	0,792				
		9. The chatbot's ability to evolve to meet user needs	0,736				
	Security	10. Protection of personal data when interacting with a chatbot	0,783				
		11. Convenience of sharing personal information with a chatbot	0,798				
		12. Security concerns when using chatbot services	0,824				

As a result of this study, Cronbach's alpha values ranged from 0.918-0.959, composite reliability values ranged from 0.918-0.959, while AVE values ranged from 0.707-0.763. Thus, all these values confirm the reliability of the measurements. In addition, the factor loading values were higher than 0.70, ranging from 0.718-0.884, which confirmed the reliability of the indicators. Thus, all the validity and reliability values reported confirm the reliability of the measurement. Table 4.2 illustrates that the research constructs passed the convergent validity test.

Discriminant validity was proved using Fornell and Larcker's (1981) conditions ($AVE \geq 0.5$), with the square root of the AVE exceeding the correlation between latent variables.

Table 3. Fornell-Larcker Criterion

	Chatbot Personification	Social Chatbot	Customer Satisfaction
Chatbot Personification	0,881		
Social Chatbot	0,879	0,859	
Customer Satisfaction	0,878	0,802	0,814

The results are summarized in Table 3 which indicates that all latent variables have an AVE of more than 0.50, and the square root of the AVE is greater than the correlation between latent variables, indicating that the research measurements have an adequate level of discriminant validity.

Structural model analysis

The structural model evaluation check is carried out in three stages, namely first checking for multicollinearity with the Inner VIF measure (Sarstedt et al., 2019). Second, hypothesis testing between variables by looking at the t-statistic or p-value.

Multicollinearity

Inner VIF is done to analyze the presence or absence of multicollinearity. So that the data collected is not biased.

Table 4. Inner VIF Values

	Chatbot Personification	Social Chatbot	Customer Satisfaction
Chatbot Personification			4,396
Social Chatbot			4,396
Customer Satisfaction			

The estimation results of the inner VIF value below <5 indicate that there is no multicollinearity between variables. This result implies that parameter estimation in SEM PLS is unbiased.

Hypothesis testing

This stage looks at the influence between the variables studied and can be seen from the summary table below.

Table 5. Hypothesis Results

	(O)	(M)	(STDEV)	T Statistics	P Values
Chatbot Personification → Customer Satisfaction	0,375	0,373	0,078	4,819	0,000
Social Chatbot → Customer Satisfaction	0,572	0,573	0,072	7,903	0,000

Based on the results of hypothesis testing above, it is known that.

1. The first hypothesis is accepted, namely that there is a significant influence between chatbot personification on customer satisfaction with path coefficient (0.37) and V value (0.000 <0.05).
2. The first hypothesis is accepted, namely that there is a significant influence between chatbot social orientation on

customer satisfaction with path coefficient (0.57) and V value (0.000 < 0.05). Based on verification data processing, the research results model is found as follows.

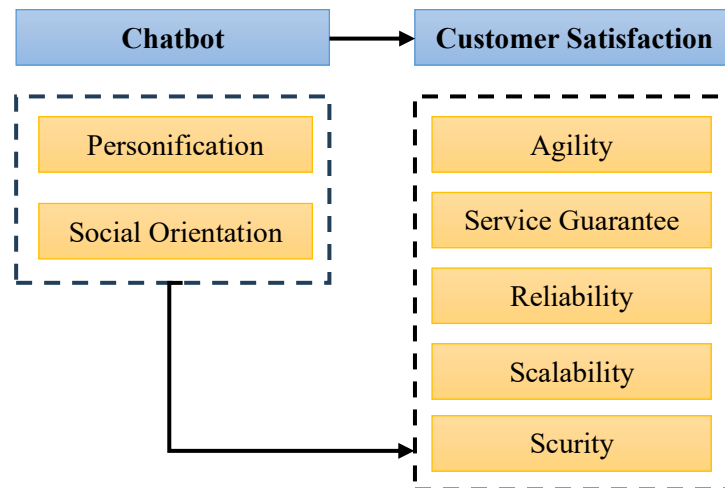


Figure 2. Research findings Source: Researcher 2023

DISCUSSION

Chatbot personification and customer satisfaction

Chatbot personification, is giving a chatbot a human-like appearance or representation. This chatbot personification has a significant impact on customer satisfaction in various aspects (Verhagen et al., 2014). It not only changes the way customers interact with the chatbot, but also affects customer perceptions of service quality and trust in the information provided. In addition, human-like chatbots can improve the overall customer experience (Janson, 2023; Kim & Sundar, 2012).

Chatbot personification related to customer satisfaction from the element of agility. Chatbots that have an appearance are easier for customers to use (Schuetzler et al., 2020). With a more humanized appearance, customers feel more comfortable interacting with the chatbot. This reduces barriers to communication and increases agility, making it easier for customers to get the answers or help they need. Human-like chatbot representation can also improve service assurance. Customers feel more confident with chatbots that appear to be managed by humans, and customers feel that the service received is more reliable (Lee & Li, 2023). Human-looking chatbot personifications tend to provide more consistent and precise responses (Getachew et al., 2023). Humanized representation allows the chatbot to understand and respond better to customer queries, reducing the risk of errors or mismatches in responses. This helps improve the reliability of the service provided.

Scalability in *online* business is an important factor. Service coverage is easily increased without requiring a significant increase in human staff. This allows companies to serve a larger number of customers. When a chatbot has a human appearance, it can build customer trust in the information provided (Keeling et al., 2010). Customers tend to feel more secure and trust in chatbots that appear to be staffed by competent individuals. This is especially important in situations where sensitive information such as personal data or financial transactions are shared.

A positive and comfortable experience in interaction with a chatbot can increase overall customer satisfaction including agility, service assurance, reliability, scalability, security, and experience. This can influence customers to return to the service and recommend it to others (Sakas et al., 2023). Such factors are important in maintaining and improving customer satisfaction in a competitive *online* business environment.

Social orientation of chatbots and customer satisfaction

The social orientation of chatbots, which emphasizes friendly and warm communication, has a role in improving customer satisfaction in various aspects (Balderas et al., 2023). When a chatbot communicates in a friendly and warm manner, users tend to feel comfortable and easy to interact with. This makes the process of interacting with the chatbot smoother and more efficient. When users feel well treated and valued during the conversation, customers will be more satisfied with the experience. The interactivity of a chatbot can also help users navigate through a website or *e-commerce* application more easily. In addition, the social orientation of the chatbot can provide assurance to the customer that the customer is talking to a caring and trustworthy entity (Keeling et al., 2010). This creates trust in the services provided by the company. When the chatbot asks additional questions or says hello during the

conversation, it reflects the company's commitment to providing quality support. Thus, customers feel more confident that the company will properly address customer needs and concerns.

A communicative and responsive chatbot is likely to provide relevant answers (Lee & Li, 2023). Companies can serve a large number of customers quickly and efficiently. In other words, the social orientation of chatbots helps increase the capacity of companies to respond well to customer requests, which in turn increases customer satisfaction. The communication style of chatbots can build trust, and have a positive impact on security aspects (Agarwal & Dhingra, 2023). Customers tend to feel that personal data and financial transactions can be managed properly and safely. The social orientation of the chatbot helps to overcome any security-related discomfort or doubts. When customers feel well treated, provided with reliable service, and feel warmth in interactions with chatbots, customers are more likely to feel satisfied with the shopping experience, ultimately increasing customer loyalty and business growth.

CONCLUSION

Summary

Based on the formulation of the problem, objectives and discussion, this research can be concluded.

- 1) Chatbot personification contributes to customer satisfaction. The higher the chatbot personification, the higher the customer satisfaction.
- 2) Chatbot social orientation contributes to customer satisfaction. The higher the social orientation of the chatbot, the higher the customer satisfaction.

The results of this study provide valuable direction for marketplaces to improve customer satisfaction, develop chatbot personification technology and chatbot social orientation.

Implications

- 1) The main implication of the results of this study is the improvement of customer satisfaction made by chatbots. By strengthening chatbot technology with personification and social orientation can improve customer experience, retaining existing customers.
- 2) Further development of chatbots by improving technology that supports the optimization of anthropomorphic chatbots.
- 3) Online shop business is highly competitive customer satisfaction can be a key factor in achieving competitive advantage. marketplace that is able to provide high-quality customer satisfaction has a greater chance of success in a fiercely competitive market.

Advice

- 1) For decision makers.

Marketplace management can continue to invest in the development of anthropomorphic chatbots in improving quality.

- 2) For future researchers

The research results that show a low indicator is the capacity for self-development associated with chatbot reliability has not provided the right answer. Researchers can relate self-development to other variables in human resource theory. Developing reliability variables in customer satisfaction combined with other theories to develop a deeper understanding.

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