An examination on the factors that influence the intention to use chatbots in Malaysia

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ABSTRACT

The purpose of this study is to investigate the factors that motivate people in Malaysia to interact with chatbots in their everyday lives. Because of this, the primary objective of this study was to determine the relationships between four different independent variables. These variables were perceived ease of use, perceived usefulness, social influence, and security concerns. The objectives of this research project have been accomplished through the collection of primary data using a survey developed in Google Forms and a Likert scale with five points. The general population of Malaysia served as the source for the samples taken. A total of 284 samples were collected through the use of a method called convenience sampling. Customers based in Malaysia who are already making use of chatbots make up the population of interest in this study. In order to verify the validity of the hypothesis, additional analysis of the data was carried out using the software programme Smart-PLS 4. The Unified Theory of Acceptance and Use of Technology, also known as UTAUT, was used as the basis for the modelling of the research effort that was conducted for this investigation. This study acknowledged that there were some limitations and offered several suggestions for how future research and business owners, particularly those engaged in e-commerce, can improve their competitive advantage. Those who participate in online business were singled out for special consideration.

Contribution/Originality: Chatbots are a fast-growing technology. Despite their growing popularity, there are few studies on Chabot intention, especially in Malaysia. This study examines Chabot adoption factors in Malaysia, providing valuable market insights.

1. INTRODUCTION

"Chatbot" combines "chat" and "robot" (Hwang & Kim, 2021). AI Chatbots mimic human interactions using natural language processing (Cowie, Nadarzynski, Miles, & Ridge, 2019). Chatbots may enable self-service, reduce service costs, and automate customer service (Bjørkli, Følstad, & Nordheim, 2018). The COVID-19 pandemic has changed how people work and interact, highlighting the need for online businesses to use Chatbots. Thus, using a Chatbot for customer service has grown in popularity, benefiting businesses and consumers by providing fast turnaround with lower business spending and responding faster to consumers, improving the consumer experience (Chiu, Nguyen, & Le, 2021). Chatbot interactions begin with greeting the consumer, introducing the bot's

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capabilities, providing options for common queries, creating interactional dialogues, responding to consumer inquiries, and helping resolve consumer issues (Selamat & Windasari, 2021).

Chatbots improve customer service by reducing the number of human chat agents or increasing their ability to handle various requests (Mou & Xu, 2017). However, it lacks flexibility compared to other e-commerce products, which may affect its use (Kasilingam, 2020). Despite businesses' widespread adoption of Chatbots, consumer acceptance and intent to use them remain low (Johnson, Tran, & Pallant, 2021). Google, Facebook, and Microsoft are enthusiastic about Chatbots, but critics say customer adoption is lower than expected (Simonite, 2017).

Online shopping aggravates customers. Customer service response time, late delivery, inability to track items, and incomplete website information after purchase are complaints. Consumers complained most about refund and return policies, which are tedious and time-consuming and mostly request previously provided information. Unsatisfied customers often switch online stores. Business owners often lack experienced customer service workers, so customer service is a resource-intensive industry. All of these would affect sales and, indirectly, consumer retention.

Customer service is the fastest-growing industry, growing 31.6% annually from 2019 to 2026. Due to this barrier, businesses must invest more in technology to survive and grow. Chatbots now interact with and support customers, replacing human agents in sales and support. Chatbots can provide faster responses, reduce consumer reluctance to ask basic questions, and build social and emotional bonds with customers, according to a previous study.

Human-computer interaction research shows that engaging experiences are more important than static information transmission, such as a list of frequently asked questions (FAQs), so businesses are trying to use Chatbots for basic communication tasks. Chatbots can also exchange text, images, and videos through hosting platforms and messaging apps like Facebook Messenger to improve customer service by providing immersive experiences with instant-automated, customized content. Thus, Chatbots can benefit consumers and business owners if they are easy to use. A secure and valuable platform that lets consumers retrieve information and get a quick response also increases their intention to adopt the technology. Thus, identifying physical and psychological factors that affect consumer satisfaction when using such technology is crucial. Thus, this study investigates Chatbot adoption intentions.

The main research objective of this study is to examine the factors effecting Malaysian consumers' intentions towards the use of Chatbot, and thus the research objective for this study is to examine the effects of perceived ease of use, perceived usefulness, social influence, and security concerns on Malaysian consumers' intentions towards Chatbot.

2. LITERATURE REVIEW

2.1. Underlying Theory

According to Venkatesh, Morris, Davis, and Davis (2003), over the years, many additions and competing models have led to the Unified Theory of Acceptance and Use of Technology (UTAUT) model, which tried to combine the various theories and research on how people accept and use information technology. This model was the result of these efforts. There are four indications of the users' behaviour and intentions that can be found at UTAUT. These indicators include performance expectations, effort expectancy, social influence, and enabling factors (Lai, 2017). According to the UTAUT model, a user's intention to use technology is influenced by how well they believe a piece of technology will operate, how difficult they believe it will be to use, how influential they believe others will be, and how simple the technology is to use. Kuberkar and Singhal (2020) conducted a study in which they discovered that the intention to use Chatbots is impacted by factors such as performance expectancy, effort expectancy, social influence, and trust. According to Kasilingam (2020), the findings of his research on perceived utility, perceived ease of use, perceived enjoyment, price consciousness, perceived risk related security

issues, and personal innovativeness had a substantial influence on people's views towards the usage of Chatbots. The model outperformed the eight models upon which it was built, and it was able to account for seventy percent of the variation in customer usage intention (Venkatesh et al., 2003).

2.2. Perceived Ease of Use

According to Davis (1989), perceived ease of use describes the degree to which a person feels a certain system is simple to operate. The term "perceived ease of use" refers to the point at which a person feels that utilizing technology does not require any effort on their part, both mentally and physically (Ghazali, Mutum, Chong, & Nguyen, 2018). In light of the complexity of the process at hand, the work done here symbolizes the learning process around the system or application of technical innovation (Alam et al., 2022). As a direct consequence of this, the complexity involved in implementing it will be a significant barrier to consumers' desire to make use of emerging technologies (Cheong & Mohammed-Baksh, 2019). In addition, a number of previous studies indicate that the perceived simplicity of use has a considerable effect on the acceptability and adoption of information technology among users.

If a piece of technology is straightforward to understand and use, there is a greater chance that consumers will adopt it Kasilingam (2020). When individuals are able to effortlessly accept and adapt to new technologies, both their opinion of them and their desire to use them increase (Purnomo, Tahar, Riyadh, & Sofyani, 2020). Consumers' future desire to embrace Chatbots can be anticipated, in part, by the perceived ease of use of these tools (Jattamart & Kwangsawad, 2022). Chen, Vicki Widarso, and Sutrisno (2020) added reported enjoyment as a predictor of perceived ease of use. This suggests that if users like interacting with Chatbots, they are more likely to feel that they are easier to use, which in turn influences their desire to use the Chatbot. Regrettably, some service providers may become overly focused on reducing client complaints and fail to create a great user experience. In this scenario, service providers must also examine how perceived ease of use may lessen technological anxiety in their customers (Gbongli, Xu, & Amedjonekou, 2019).

2.3. Perceived Useful

The assumption that consumers can improve their performance by utilizing technology is what we mean when we talk about perceived usefulness (Jaganathan, Perumal, & Qing, 2022). The economic benefit that customers receive from adopting innovative technologies will improve the likelihood that those customers will embrace such technologies (Kazancoglu & Yarimoglu, 2017). The basic principle of the Technology Acceptance Model argues that individuals are more likely to adopt new technology if they feel that it will assist them in achieving a positive end. This theory suggests that perceived usefulness is derived from the Technology Acceptance Model (Ghazali et al., 2018).

The perceived utility and helpfulness of Chatbot conversations was a significant factor that affected users' experiences with Chatbots (Brandtzaeg, Skjuve, Følstad, & Fostervold, 2021; Zarouali, Van den Broeck, Walrave, & Poels, 2018). Users' intentions to make use of a technology are likely to increase in proportion to the perceived utility of that technology (Alam et al., 2022). To put it another way, it is the extent to which a person believes that adopting technology will increase the efficacy of the task they are working on. As a direct result of this, the more useful a technology is, the more consumers will be motivated to use it (Purnomo et al., 2020). Because perceived usefulness is such an important aspect in determining use intentions, it is necessary to have a solid understanding of the components that make up this construct and how the effects of those components change over time as users become more familiar with the product in question. The perceived utility of a technology or innovation has been proven in a number of studies to have a direct bearing on whether or not a person intends to employ that technology or invention (Dobrinić, Gregurec, & Dobrinić, 2021).

2.4. Social Influence

In the field of information technology, the term "social influence" refers to the way in which other people understand an individual's expectations and perspectives towards the use of technology, such as the social norms that specify what kinds of behaviours are considered suitable (Limna, Sitthipon, Siripipatthanakul, Phayaphrom, & Siripipattanakul, 2022). In addition, the term "social influence" refers to the extent to which other people, such as members of a person's family, circle of friends, or other reference groups, have an impact on the surrounding social environment (Alalwan, Dwivedi, & Rana, 2017). The perspective of individual expectations and beliefs in regards to the utilization of information technology, such as the person's norms around behaviour that are used to judge the acceptability of the behaviour, is what is referred to as social influence (Limna et al., 2022). To put it another way, the individuals who are in close proximity to the customers have an impact on the likelihood that the consumers will utilize a Chabot.

To increase awareness of the technology and the desire to utilize it, discover something intriguing or unique. You might even share the values of other consumers by doing so. Customers can obtain helpful information about an organization's Chatbot services, learn something new or fascinating, and potentially share the values of other customers by learning from them.

Chatbot (Cheng, Jiang, Yang, & Gao, 2022) consumers who are satisfied with the services provided by Chatbots are more likely to engage in reciprocal behaviours such as knowledge sharing, communication, trading, and the acquisition of online information, according to Carlson, Rahman, Taylor, and Voola (2019). This conclusion was reached after the researchers evaluated the benefits associated with these behaviours. Businesses will be able to better serve their customers' technological needs if they first have an understanding of the ways in which society shapes consumers' views of the technologies they use.

2.5. Security Concerns

When developing any type of technology, privacy and security are two of the most important factors to take into account. However, it is concerning to note that security comes with its own set of threats and vulnerabilities, which can be considered a concern for businesses because their computer systems can be broken into. Data is and will continue to be a highly sought-after commodity, and in this particular situation, with the higher footprint of digitization and digitalization created from human activities, data that describes an individual is straightforward to acquire, prompting worries about the misuse of its information (Dobrinić et al., 2021). In spite of the fact that they may appear to be unique, Chatbots are constructed using already existing technology, and just like any other technology, they have certain constraints.

Consumers' concerns about the stability and security of the technology influenced their intentions and the prevalence of Chabot usage, according to research by Rese, Ganster, and Baier (2020) on the adoption and use of "Emma" Chabot in Germany's online fashion retail industry. The research was conducted in Germany. According to Pillai and Sivathanu (2020), it has been shown that Chatbots have disadvantages, such as slow response times and a lack of security concerns regarding confidential data, which affect the intention to use the Chatbot. These disadvantages have an effect on the intention to use the Chatbot. Consumers' worries about invasions of their privacy and security are among the key variables that influence their decision to use Chatbots. Consumers are more likely to accept new technology if they trust it and find it straightforward to operate. However, consumers are subject to more significant security concerns as a result of product or service advisory activities that require gathering personal data via Chatbot (Ischen, Araujo, Voorveld, Van Noort, & Smit, 2020). As a result, consumers are opting for human conversations rather than intentionally using Chatbots, which has led to a decrease in the use of Chatbots (Pillai & Sivathanu, 2020).

2.6. Gaps in the Literature

Several academics attempt to predict what individuals will do by asking them questions about how simple they believe something will be to use, how beneficial they believe it will be, how much social pressure they believe it will have, and how anxious they are about it. On the other hand, the integration of technology into customer assistance and the fulfilment of post-sale demand is anticipated to have a sizeable influence on consumer intentions. There hasn't been much research done on how Chatbots may help customers, especially online shoppers. Studies on e-commerce Chatbots in Malaysia are quite uncommon. Researchers Kasilingam (2020), Pillai and Sivathanu (2020), and Rese et al. (2020) investigate the elements that influence Chatbot acceptability and usage. They are all in agreement that Chatbot adoption may be boosted by its perceived utility as well as its simplicity of usage. So, future studies need to determine the characteristics involved in customer service Chatbots. To our knowledge, only (Brandtzaeg et al., 2021) theoretically content-analyzed the descriptive Chatbot usage intents of respondents. In spite of this research, further work is required to better understand and encourage the use of Chatbots. This study aims to fill in some of the gaps in previous studies.
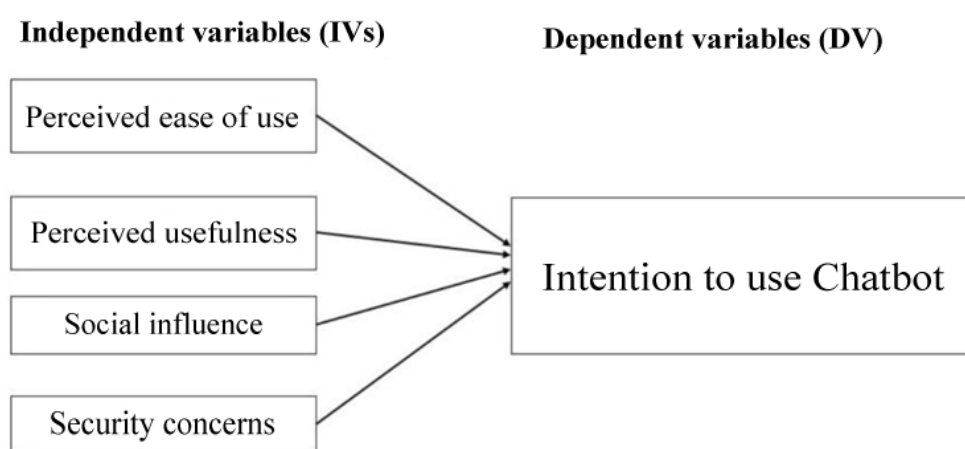

Figure 1. Theoretical framework.

The conceptual framework for this research is shown in Figure 1. The grounding theory for this investigation was the Unified Theory of Acceptance and Use of Technology (UTAUT), which is also shown in this figure. The following hypotheses were developed as a result of the research that was carried out on the independent variables, namely perceived ease of use, perceived usefulness, social influence, and security concerns, as well as the research that was carried out on the dependent variable, intention to use. Due to the gaps that were discovered, it was determined that the findings are inconclusive and that additional research is required, particularly in the field of Chatbots, which is relatively new to the market, particularly in Malaysia.

2.7. Hypothesis

H_1: *Perceived ease of use has a positive and significant effect on Malaysian consumers' intention to use Chatbots.*

H_2: *Perceived usefulness has a Positive and significant effect on Malaysian consumers' intention to use Chatbots.*

H_3: *Social influence has a Positive and significant effect on Malaysian consumers' intention to use Chatbots.*

H_4: *Security concerns have a Positive and significant effect on Malaysian consumers' intentions to use Chatbots.*

3. METHODOLOGY

This research is a quantitative and descriptive study that uses a Chatbot to investigate customer intention in Malaysia. The purpose of this research is to evaluate whether or not the perceived ease of use, perceived utility, perceived social impact, and perceived security concerns are connected with the variable that is being studied. According to Saunders, Lewis, and Thornhill (2020), a cross-sectional study will be utilized to gather data from the

online questionnaire, which will only be given once. The data collected from this questionnaire will be used to inform future research. As a result, it may be classified as single-cross-sectional research. The information was gathered through the use of online survey questions that were made available to Malaysian respondents using Google Forms.

This research focuses on the general population of Malaysia, which now numbers 32.6 million people. According to Bougie and Sekaran's (2019) definition of the sample, it is a collection of people who share characteristics with the study. The analysis of samples necessitates the use of a sampling method that is appropriate for large target populations. According to the chart that Krejcie and Morgan (1970) created, the appropriate sample size for this investigation is 384. Though there was not enough time to finish the research, a total of 284 samples were successfully gathered via convenience sampling. These samples were then analyzed through the use of Smart-PLS 4.0.7.8 for both descriptive and predictive purposes.

4. RESEARCH FINDINGS

A total of 284 samples were collected using an online survey, of which 153 female respondents made up 54% and 131 men made up the remaining 46%. Respondents from four age groups were surveyed. 61% of respondents are aged 31-40, followed by the 41-50 age group (22%), and the 21-30 age group (11%). Finally, 17 samples from 51-year-olds had the lowest percentage of 6%. The majority of respondents (50%, or 141) earned more than Ringgit Malaysia (RM) 10,000.00 per month, followed by 30%, or 85, from RM 5001 to RM 10,000.00. 47 respondents reported monthly earnings between RM 3,001.00 and RM 5,000.00. Finally, 11 people make up the group with the lowest percentage of respondents (4%) with a monthly income under RM3, 000.00. The education level in this study has been divided into four levels: SPM (Sijil Pelajaran Malaysia), Diploma, Undergraduate, and Postgraduate. The highest number is 56% at undergraduate level. The rest of respondents oobtained postgraduate degree (24%), diploma (18%) and SPM (2%).

Shopee chatbot users contributed to the highest response rate at 42%, followed by Lazada at 37%, and Grab Chatbot users at 9%. Others include Taobao, Air Asia, and government services, with 5 respondents representing about 2%. 172 respondents (61%) use Chatbots for immediate responses.

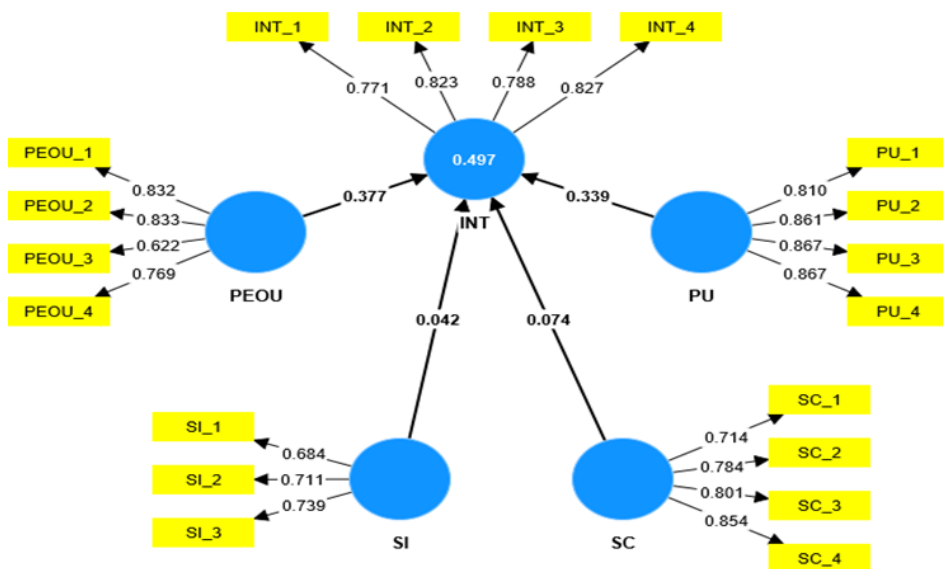The data were then cleaned for measurement model testing.

Figure 2. Measurement model.

Figure 2 shows the measurement model of the research. The information obtained can then be tested for reliability and validity, as per below.

Table 1. Construct reliability and validity.

	Cronbach's alpha	(rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
INT	0.816	0.818	0.879	0.644
PEOU	0.765	0.788	0.851	0.591
PU	0.873	0.874	0.913	0.725
SC	0.804	0.866	0.869	0.624
SI	0.547	0.530	0.755	0.506

Note: INT=Intention, PEOU=Perceived ease of use, PU=Perceived usefulness, SC=Security concern, SI=Safety issue

Table 1 measures the Cronbach's Alpha and Composite Reliability measure reliability. This study needs Cronbach's Alpha (CA) to assess the sample group's internal conformity and trustworthiness. Setiawan and Setyawati (2020) recommend x> 0.7 for Cronbach's Alpha. According to Hair, Hult, Ringle, and Sarstedt (2022), 0.60–0.70 is still acceptable. Table 1 shows that PU has the highest CA score of 0.873. Perceived usefulness is the most reliable of the five variables. The lowest SI score is 0.547, which is unacceptable. INT, PEOU, and PU are acceptable and good variables. Due to a low question count, SI is poor.

Composite reliability is highest at PU, 0.913. The Composite Reliability Criteria require a value above 0.9. PU is reliable among variables. INT, SC, and PEOU values are 0.879, 0.869, 0.851, and 0.755, which is acceptable for this study because they fall between 0.7 and 0.9. Finally, all variables in this study met the AVE's convergent validity criterion above 0.5. Thus, all AVE results for these five variables are assumed to have sufficient convergent validity in this sample group. AVE's maximum result for customers' Chatbot use is 0.725.

Based on these findings, the heterotrait-monotrait ratio (HTMT) test assessed model fit. The usual HTMT value is less than 0.85. Several studies have shown that the model is well-fit if the HTMT values are less than 0.85 or 0.9. In conclusion, the discriminant validity is inadequate if the value is larger than 0.85, while the HTMT value is acceptable if it is less than 0.90. Table 2 shows that all notions have discriminant validity since the PEOU, SC, and SI HTMT values are less than 0.85. Discriminant validity is not present across all constructs since the PU value is 0.919. So, it comprises a PEOU-PU construct item from the respondent's viewpoint.

Table 2. Hypothesis testing summary.

Hypothesis	Coefficients	P-Value	Supported
H1: Perceived ease of use has a positive and significant effect on Malaysian consumers' intention to use Chatbots.	0.377	0.000	Yes
H2: Perceived usefulness has a positive and significant effect on Malaysian consumers' intention to use Chatbots.	0.339	0.000	Yes
H3: Social influence has a positive and significant effect on Malaysian consumers' intention to use Chatbots	0.042	0.254	No
H4: Security concerns have a positive and significant effect on Malaysian consumers' intentions to use Chatbots	0.074	0.174	No

The purpose of this research is to investigate whether or not there is a correlation between the desire to use Chatbots and factors such as perceived ease of use, perceived utility, social influence, and security concerns. According to the findings shown in Table 2, the only factors that have a statistically significant influence (P 0.05) on the intentions of customers in Malaysia to use Chatbots are perceived ease of use and perceived usefulness.

5. CONCLUSION AND IMPLICATIONS

According to the study, PEOU positively and significantly impacts Malaysian consumers' Chatbot use intentions. Thus, the questionnaire respondent considers PEOU essential to their Chatbot intention. PEOU's path coefficient is 0.377, above 0.1. Thus, the results are trustworthy because they agree with Limna et al. (2022) and

Kasilingam (2020). According to Davis (1989), PEOU is a key component of Technology Acceptance Model (TAM), indicating that people believe they will use technology if it is easy.

Easy-to-use technology like a Chatbot can reduce technical ambiguity (Kasilingam, 2020). The system's ease of use makes it easy to estimate its success, which implies that if the technology requires little effort, it will be adopted successfully (Limna et al., 2022). Process complexity reflects systemic or technological innovation. Cheong and Mohammed-Baksh (2019) say it will hinder technology adoption despite its many benefits.

Ghazali et al. (2018) agree that a simple, easy-to-use system that improves behaviour makes customers happier. Thus, completing simple Chatbot tasks makes consumers happier and more likely to use Chatbots. PU boosts Malaysian Chatbot use and rejects the PU null hypothesis because the p-value (0.000) is below significance. Jaganathan et al. (2022); Kuberkar and Singhal (2020); and Selamat and Windasari (2021) concur. PU's path coefficient (0.0339) to Malaysian Chatbot intentions is also greater than 0.1.

Perceived usefulness (PU) is how much a person thinks a technology will improve task performance or daily life. Ghazali et al. (2018) found that PU is derived from TAM, suggesting that people will adopt new technology if it helps them. Kuberkar and Singhal (2020) predict that Chabot adoption will increase when it meets user needs, positively influencing consumer intentions. Chandra and Sugumar (2021) found that perceived usefulness affects consumer technology adoption. According to Chiu et al. (2021), consumers will value Chatbots more and be happier with them if they meet their expectations. This may lead to future use. Thus, Chatbots must offer useful, effective, and efficient benefits that are not time- or location-bound to attract consumers.

Chatbot usage intentions were unaffected by social influence. Bulchand-Gidumal, Gutiérrez-Taño, and Melián-González (2019) observed no social influence on chatbot use intentions. Like their chatbot. Chandra and Sugumar (2021) found no societal impact on Chatbot intent.

The findings contradict each other (Almalki, 2021; Han, 2021; Kidd & Terblanche, 2022). Researchers showed that social impact substantially influences chatbot users' goals. Most high-respondent surveys demonstrate that consumers embrace or reject technology depending on the influence of someone who knows someone who uses it, according to Almalki (2021). Limna et al. (2022) found that social impact strongly influences chatbot use intentions. The chatbot may affect relatives and friends. These studies were for foreign consumers, so some results may not apply to Malaysia. Customers will change. The study showed no social influence on chatbot use.

Malaysians used Chatbots without security worries. The poll found no security issues with Chatbot use, which is unlikely to alter intent. The path coefficient and p-value surpass 0.1 and 0.05, respectively. Gatzioufa and Saprikis (2022) concluded that security concerns do not limit Chatbot use. The inquiry was designed for Generation Z's Chabot-savvy digital natives. Foreign consumer studies may not be applicable to Malaysia. Researchers believe security concerns encourage Chatbot use. Bjørkli et al. (2018) respondents said Chatbot security was required for purchases and FAQs. Chatbot users needed safety. Otherwise, they'll avoid Chatbots. Due to data misuse, Cheng et al. (2022) found consumers puzzled about Chatbot services.

This study examined closely the perceived PEOU, PU, SI, and SC influences on Malaysian Chabot use intentions. Only Ease of use and usefulness were found to have positively and significantly affected Malaysian Chatbot use. The outcomes of this study have important implications for scholars in the future. The findings may be used by subsequent researchers to improve the quality of their work or the reports they provide. The findings of this study generate knowledge and insights that may be used by future researchers to assist in the development of an investigation into further information on the elements impacting the intention of Chatbots among customers in Malaysia.

Businesses of all sizes are racing to offer the greatest online consumer experience, including customized recommendation systems, seamless online experiences, and virtual assistants, as consumers shop online. Machine learning helps Chatbots find patterns and repeatable solutions. As consumers spend more time online, Chatbots are crucial to customer service. Companies must understand consumer expectations to maintain usage. E-commerce

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and software technology companies that want to improve customer service may profit from this research. This study reinforced the need for ease of use and the benefits of using Chabot for consumers. The tendency of words to spread positively among social presences directly affects the use of Chabots. Understanding consumer expectations towards using Chatbots would directly impact businesses, as consumers would have a higher intention towards using Chabot if there was positive social influence.

The research had limitations, specifically that a bigger sample size would produce more significant results, an accurate treatment impact estimate, and the ability to access sample representatives and appropriately generalize the conclusion. Also, in this study, only PEOU, PU, SI, and SC affected Chatbots use. This study did not analyze additional Chatbots adoption variables in Malaysia. In the future, focus groups and interviews may help researchers comprehend Chabot with more insight.

REFERENCES

Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management, 37*(3), 99-110. https://doi.org/10.1016/j.ijinfomgt.2017.01.002

Alam, S. A., Salameh, A., Chan, X., Mamun, A., Rahman, M., & Wan Hussain, W. (2022). Predicting the intention and adoption of mobile shopping during the COVID-19 lockdown in Malaysia. *SAGE Open, 12*(2), 1-17.

Almalki, M. (2021). Exploring the influential factors of consumers' willingness toward using COVID-19 related chatbots: An empirical study. *Medical Archives, 75*(1), 1-6. https://doi.org/10.5455/medarh.2021.75.50-55

Bjørkli, C. A., Følstad, A., & Nordheim, C. B. (2018). *What makes users trust a chatbot for customer service? An exploratory interview study.* Paper presented at the In Internet Science: 5th International Conference, INSCI 2018, St. Petersburg, Russia, October 24–26, 2018, Proceedings 5 (pp. 194-208). Springer International Publishing.

Bougie, R., & Sekaran, U. (2019). *Research methods for business: A skill building approach* (8th ed.). Hichester: John Wiley and Son Ltd.

Brandtzaeg, P. B., Skjuve, M., Følstad, A., & Fostervold, K. I. (2021). My chatbot companion-a study of human-chatbot relationships. *International Journal of Human-Computer Studies, 149*, 102601.

Bulchand-Gidumal, J., Gutiérrez-Taño, D., & Melián-González, S. (2019). Predicting the intentions to use chatbots for travel and tourism. *Current Issues in Tourism, 24*(2), 192- 210.

Carlson, J., Rahman, M. M., Taylor, A., & Voola, R. (2019). Feel the VIBE: Examining value-in-the-brand-page-experience and its impact on satisfaction and customer engagement behaviours in mobile social media. *Journal of Retailing and Consumer Services, 46*, 149-162. https://doi.org/10.1016/j.jretconser.2017.10.002

Chandra, S., & Sugumar, M. (2021). Do I desire chatbots to be like humans? Exploring factors for adoption of chatbots for financial services. *Journal of International Technology and Information Management, 30*(3), 38-77. https://doi.org/10.58729/1941-6679.1501

Chen, H.-L., Vicki Widarso, G., & Sutrisno, H. (2020). A chatbot for learning Chinese: Learning achievement and technology acceptance. *Journal of Educational Computing Research, 58*(6), 1161-1189. https://doi.org/10.1177/0735633120929622

Cheng, Y., Jiang, H., Yang, J., & Gao, S. (2022). AI-powered chatbot communication with customers: Dialogic interactions, satisfaction, engagement, and customer behavior. *Computers in Human Behavior, 134*, 107329. https://doi.org/10.1016/j.chb.2022.107329

Cheong, H. J., & Mohammed-Baksh, S. (2019). US consumer m-commerce involvement: Using in-depth interviews to propose an acceptance model of shopping apps-based m-commerce. *Cogent Business & Management, 6*(1), 1674077. https://doi.org/10.1080/23311975.2019.1674077

Chiu, Y.-T. H., Nguyen, D. M., & Le, H. D. (2021). Determinants of continuance intention towards banks' chatbot services in Vietnam: A necessity for sustainable development. *Sustainability, 13*(14), 7625. https://doi.org/10.3390/su13147625

Cowie, A., Nadarzynski, T., Miles, O., & Ridge, D. (2019). Acceptability of artificial intelligence (AI)-led chatbot services in healthcare: A mixed-methods study. *Digital Health, 5*, 2055207619871808. https://doi.org/10.1177/2055207619871808

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340. https://doi.org/10.2307/249008

Dobrinić, D., Gregurec, I., & Dobrinić, D. (2021). Attitudes of croatian consumers about mobile messenger chatbots. *Journal of Information and Organizational Sciences, 45*(2), 579-599. https://doi.org/10.31341/jios.45.2.13

Gatzioufa, P., & Saprikis, V. (2022). A literature review on users' behavioral intention toward chatbots' adoption. *Applied Computing and Informatics*, 1-14. https://doi.org/10.1108/aci-01-2022-0021

Gbongli, K., Xu, Y., & Amedjonekou, K. M. (2019). Extended technology acceptance model to predict mobile-based money acceptance and sustainability: A multi-analytical structural equation modeling and neural network approach. *Sustainability, 11*(13), 3639. https://doi.org/10.3390/su11133639

Ghazali, E. M., Mutum, D. S., Chong, J. H., & Nguyen, B. (2018). Do consumers want mobile commerce? A closer look at M-shopping and technology adoption in Malaysia. *Asia Pacific Journal of Marketing and Logistics, 30*(4), 1064-1086. https://doi.org/10.1108/apjml-05-2017-0093

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM) (3e)*. Thousand Oaks, CA: Sage.

Han, M. C. (2021). The impact of anthropomorphism on consumers' purchase decision in chatbot commerce. *Journal of Internet Commerce, 20*(1), 46-65. https://doi.org/10.1080/15332861.2020.1863022

Hwang, S., & Kim, J. (2021). Toward a chatbot for financial sustainability. *Sustainability, 13*(6), 2-18.

Ischen, C., Araujo, T., Voorveld, H., Van Noort, G., & Smit, E. (2020). *Privacy concerns in chatbot interactions.* Paper presented at the in Chatbot Research and Design: Third International Workshop, CONVERSATIONS 2019, Amsterdam, The Netherlands, November 19–20, 2019, Revised Selected Papers 3 (pp. 34-48). Springer International Publishing.

Jaganathan, M., Perumal, S., & Qing, Y. (2022). Factors influencing attitudes and intentions towards smart retail technology. *International Journal of Data and Network Science, 6*(2), 595-602. https://doi.org/10.5267/j.ijdns.2021.11.005

Jattamart, A., & Kwangsawad, A. (2022). Overcoming customer innovation resistance to the sustainable adoption of chatbot services: A community-enterprise perspective in Thailand. *Journal of Innovation & Knowledge, 7*(3), 100211. https://doi.org/10.1016/j.jik.2022.100211

Johnson, L. W., Tran, A. D., & Pallant, J. I. (2021). Exploring the impact of chatbots on consumer sentiment and expectations in retail. *Journal of Retailing and Consumer Services, 63*, 102718. https://doi.org/10.1016/j.jretconser.2021.102718

Kasilingam, D. L. (2020). Understanding the attitude and intention to use smartphone chatbots for shopping. *Technology in Society, 62*, 101280. https://doi.org/10.1016/j.techsoc.2020.101280

Kazancoglu, I., & Yarimoglu, E. K. (2017). How food retailing changed in Turkey: Spread of self-service technologies. *British Food Journal, 120*(2), 290-308.

Kidd, M., & Terblanche, N. (2022). Adoption factors and moderating effects of age and gender that influence the intention to use a non-directive reflective coaching chatbot. *SAGE Open, 12*(2), 21582440221096136. https://doi.org/10.1177/21582440221096136

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607-610. https://doi.org/10.1177/001316447003000308

Kuberkar, S., & Singhal, T. K. (2020). Factors influencing adoption intention of AI powered chatbot for public transport services within a smart city. *International Journal of Emerging Technologies in Learning, 11*(3), 948-958.

Lai, P. C. (2017). The literature review of technology adoption models and theories for the novelty technology. *JISTEM-Journal of Information Systems and Technology Management, 14*(1), 21-38. https://doi.org/10.4301/s1807-17752017000100002

Limna, P., Sitthipon, T., Siripipatthanakul, S., Phayaphrom, B., & Siripipattanakul, S. (2022). Determinants of customers' intention to use healthcare chatbots and apps in Bangkok, Thailand. *International Journal of Behavioral Analytics, 2*(2), 1-15.

Mou, Y., & Xu, K. (2017). The media inequality: Comparing the initial human-human and human-AI social interactions. *Computers in Human Behavior, 72*, 432-440. https://doi.org/10.1016/j.chb.2017.02.067

Pillai, R., & Sivathanu, B. (2020). Adoption of AI-based chatbots for hospitality and tourism. *International Journal of Contemporary Hospitality Management, 32*(10), 3199-3226. https://doi.org/10.1108/ijchm-04-2020-0259

Purnomo, W. E., Tahar, A., Riyadh, H. A., & Sofyani, H. (2020). Perceived ease of use, perceived usefulness, perceived security and intention to use e-filing: The role of technology readiness. *The Journal of Asian Finance, Economics and Business, 7*(9), 537-547. https://doi.org/10.13106/jafeb.2020.vol7.no9.537

Rese, A., Ganster, L., & Baier, D. (2020). Chatbots in retailers' customer communication: How to measure their acceptance? *Journal of Retailing and Consumer Services, 56*, 102176. https://doi.org/10.1016/j.jretconser.2020.102176

Saunders, M. K., Lewis, P., & Thornhill, A. (2020). *Research method for business students* (8th ed.). New York: Pearson Education Ltd.

Selamat, M. A., & Windasari, N. A. (2021). Chatbot for SMEs: Integrating customer and business owner perspectives. *Technology in Society, 66*, 101685. https://doi.org/10.1016/j.techsoc.2021.101685

Setiawan, M., & Setyawati, C. (2020). The influence of perceived ease of use on the intention to use mobile payment. *Journal of Accounting and Strategic Finance, 3*(1), 18-32.

Simonite, T. (2017). *Facebook's perfect, impossible chatbot. MIT Technology Review.* Retrieved from https://www.technologyreview.com/2017/04/14/152563/facebooks-perfect-impossible-chatbot/

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425-478.

Zarouali, B., Van den Broeck, E., Walrave, M., & Poels, K. (2018). Predicting consumer responses to a chatbot on Facebook. *Cyberpsychology, Behavior, and Social Networking, 21*(8), 491-497. https://doi.org/10.1089/cyber.2017.0518