Archives of Business Research – Vol. 12, No. 1
Publication Date: January 25, 2024
DOI:10.14738/abr.121.16362.
Quang, H. T. (2024). Determinants of Customers' Continuance Intention to Use Chatbots in e-Commerce. Archives of Business Research, 12(1). 78-92.

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Determinants of Customers' Continuance Intention to Use Chatbots in e-Commerce

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ABSTRACT

Artificial intelligence (AI) has revolutionized the e-commerce experience and opened up new ways for businesses to communicate with customers through chatbots. This study aims to investigate how factors of chatbots influence continuance intention in e-commerce. A quantitative approach was adopted to explore the impact of interactivity, compatibility, information quality, service quality on perceived usefulness, perceived enjoyment of chatbots. It also aims to explore the determinants of continuance intention in chatbot use. Empirical data is collected from 476 participants through an online survey using Google Form and analyzed using regression analysis by IBM SPSS software. The results of the study shows that compatibility, information quality, service quality positively affect perceived usefulness and perceived enjoyment of chatbot. Perceived usefulness and perceived enjoyment are found to have significant influence on continuance intention. The study contributes to the literature of consumer behavior regarding technology adoption. It also contributes to the refinement of the TAM and presents practical insights to managers, chatbot designers, and customer service units in improving chatbots and enhancing continuance intention.

Keywords: Chatbot, Continuance Intention, Perceived Usefulness, Perceived Enjoyment.

INTRODUCTION

AI chatbots are experiencing rapid growth in their application within the e-commerce industry [1], [2]. Modern AI-powered chatbots surpass their predecessors in terms of sophistication, capability, and effectiveness. Unlike earlier versions that merely provided basic responses, these chatbots enhance the interaction between humans and technology [3]. From 2018 to 2027, the chatbot market revenue worldwide is estimated to grow from $40.9 million to $454.8 million in U.S. dollars, over 10 times bigger than the start. In the e-retailing service industry, chatbots frequently provide a search or decision support role, offering quick, innovative, interactive, and engaging customer care interactions. A chatbot can be communicated with verbally or through text. They facilitate the development of important client connections and reduce consumers' ambiguity and distress, facilitating a more efficient utilization of time and a more comprehesnsive understanding of products or services [4]. Although prior studies have aimed to look into the use and importance of chatbots in service interactions [5], [6], a few studies look at what factors help chatbots interact with customers more effectively and efficiently [7]. The limited research on chatbots have predominantly been from a business management perspective, overlooking key factors in chatbot value from the standpoint of the customer [8]. From the standpoint of the supply side, integrating artificial intelligence (AI) in

e-commerce can provide significant benefits to organizations and platforms. However, a significant obstacle to the adoption of chatbots is the challenge of accurately comprehending client perceptions from the demand side [9]. Therefore, it is reasonable to say there is a call for a greater insight of consumers' attitudes and behavior towards chatbots in the context of online shopping, taking into account the impact of the chatbots' unique characteristics. This study presents a conceptual model that investigates the determinants of perceived usefulness, perceived enjoyment of chatbot and continuance intention. The findings enhance the current understanding in the realm of e-commerce research on chatbot adoption for online consumer behavior intention. This research focuses on determining the factors influencing perceived usefulness and enjoyment of chatbots, as well as investigating the determinants of customer continuance intention in chatbot use.

This study is based on the Technology Acceptance Model (TAM), a commonly utilized theoretical framework in the field of information systems research to understand users' acceptance of technology. The TAM [10], is a modified version of the Theory of Reasoned Action (TRA) that emphasizes two main concepts: perceived utility and perceived ease of use. Perceived usefulness pertains to users' subjective evaluations of how much a technology will improve their performance and productivity, whereas perceived ease of use pertains to users' subjective evaluations of how user-friendly a technology is. The TAM has been applied in various contexts to understand users' adoption and usage behavior of different technologies, such as e-commerce, mobile applications, and social media. It has been utilized for the purpose of forecasting and explain users' attitudes and conduct towards technology adoption and usage, as well as to identify factors that influence users' perceptions of usefulness and ease of use. Venkatesh and Bala developed an addition version of TAM in which perceived usefulness and perceived enjoyment is acknowledged as a key factor in end-user adoption. This study is grounded in the TAM and its addition version by Venkatesh and Bala [10].

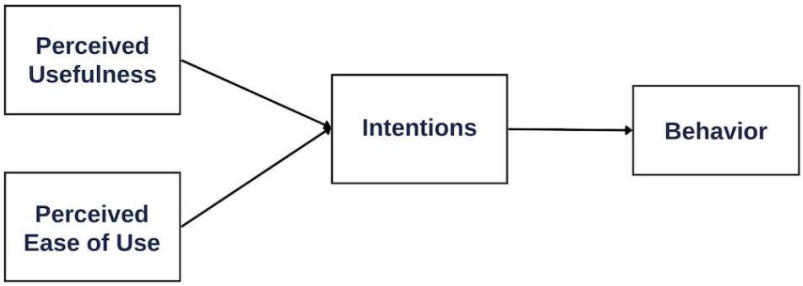


Figure 1: TAM model (David, 1989)

The research adopts the definition of e-commerce from Asokan (1998) [11], which conceptualized e-commerce as the process of engaging in business transactions, including buying and selling, using a network, usually the internet. In the past decade, e-commerce has developed and transformed in many aspects due to the advancement of technology. Smart technologies and fast communication have significantly enhanced the product and the industry itself considerably [12]. As the competitive in the commerce industry keeps getting fiercer, several organizations are implementing forms of artificial intelligence as a mean of differentiation. Global technological trends and expansion have influenced e-consumers purchasing behaviors and intentions, encouraging more changes in the way customer engage

URL: http://doi.org/10.14738/abr.121.16362

in the shopping process. Therefore, although there has been ample research on different aspects of the e-commerce industry, it continues to be a topic worthy of attention from scholars. A chatbot is defined as computer software that imitates human interaction by utilizing natural language capabilities. With the aid of chatbots, human-computer interaction is performed and has a greater impact now than it did a decade ago on practically every aspect of daily life. Early chatbots supported users in browsing a corporate website or making purchases in an efficient manner [13]. One noteworthy and well-known example of a virtual assistant is Anna, who served as an online representative for IKEA on their website. Anna interacted with visitors, answering their questions about IKEA products and services through an avatar and chat module [13]. Using a chatbot to communicate with customers is a business strategy that may be included among the most current advancements in artificial intelligence technology [14]. In the context of e-commerce, chatbots have offered various distinctive commercial advantages. First, the chatbots can understand clients' requirements and implement automated customer service to efficiently address their needs [15]. Moreover, the AI-powered chatbot can consistently engage with clients in a pleasant manner as it is not susceptible to negative emotions or work-related exhaustion, unlike a human [16]. Furthermore, chatbots have the capability to effectively handle numerous consumer discussions simultaneously, hence enhancing the efficiency of customer care. Chatbots are acknowledged for their ability to enhance engagement due to their communicative, data-driven, and predictive nature. The sense of receiving service at the proper time were found to be increased by chatbots, which were proven to be able to improve the online customer experience [17].

Interactivity has emerged as an important element in an online service system [18]. Fan and others believe that it is a key driver for turning the physical shopping experience into a digital one [19]. As society has transitioned to an "always-on" culture where individuals may engage in online activities at anytime and anywhere, the idea of "interactivity" has been gaining prominence [20]. This study adopts the definition of Fiore and others, which refers to interactivity as the capacity of customers to alter the structure and content of the mediated environment simultaneously [21]. It is suggested that a chatbot that provides high level of interactivity will contribute to a better user experience, which is an indicator of repurchase intention [22]. By incorporating interactive elements such as personalized responses, dynamic visuals, and engaging conversation flows, the chatbot creates a sense of entertainment and satisfaction for the users, making them perceive interactivity as pleasant and useful, and want to engage in the shopping process next time.

Compatibility is referred to as the degree to which the technology aligns with the user's prior knowledge and requirements while maintaining consistency with established principles [23]. A study by Mostafa and others found compatibility to be a predictor of customers' initial trust with chatbot, which can lead to usage intention [24]. A compatible chatbot understands and addresses the users' queries, provides relevant information, and offers appropriate solutions. This alignment enhances the users' perception of the chatbot's usefulness, as it effectively meets their needs and helps them achieve their desired outcomes. A chatbot that is compatible with the users' communication style, language, and preferences can make it feels natural and easy for users to interact with, leading to a more enjoyable and satisfying experience. The chatbot's ability to understand users' inputs accurately and provide relevant responses contributes to their sense of enjoyment during the conversation.

Setia and others defines information quality as the precise and accurate nature of information generated by a technology, taking into account factors such as its format, completeness, and currency [25]. If the data given out by chatbot is irrelevant, too complicated, not up-to-date, or incorrect, users will lose trust and find another way to obtain information, which can result in a negative attitude towards the brand. Accurate, timely, relevant information supplied by chatbot can satisfy customers, making them view the shopping experience as more useful and enjoyable.

This study refers to service quality as an attitude that reflects a long-term cumulative assessment of a service, as observed by Cronin and Taylor (1992) [26]. Chatbot, with its unique service method, computing capability, large data storage, and learning power, is considered to be inferior to human customer service in terms of recommendation, self-learning, respond speed and emotional intelligence [27]. At the same time, some characteristics of chatbot are still behind human service, such as the ability to create deep social bonds with customers, or to solve difficult problems. These differences call for further studies in service quality of chatbots in e-commerce. As chatbots is widely implemented nowadays by retailers, customers are likely to have their first service encounter in a business's website with a chatbot. Therefore, the service quality of chatbot has the potential to influence customer's overall shopping experience. Davis et al. (1989) referred to perceived usefulness as the extent to an individual's belief in the effectiveness of a specific approach to enhance their job performance [28]. The concept was popularized by the technology acceptance model (TAM), which takes into account perceived usefulness and perceived ease of use to determine a person's attitudes toward the implementation of a technology [28]. However, when comparing the impact of perceived usefulness and perceived ease of use in pre-acceptance and post-acceptance stage of a technology, studies have reported that, while usefulness maintain its influence on both stages of technology use, ease of use showed an inconsistent effect on attitude which subsequently seems to diminish and lose significance in the post-acceptance stage [28], [29]. Because of this finding, the expectation-confirmation mode (ECM) by Bhattacherjee's (2001) that serves as an addition to the TAM proposed that customers' satisfaction and continuance intention is mainly based on perceived usefulness, meaning the the degree to which a user believes that utilizing a novel technology, such as employing chatbots - is beneficial for supporting his or her activities and aids in efficiently doing some particular tasks [30]. In line with the expectation-confirmation mode, this study adopts perceived usefulness as a primary base of continuance intention. If a user asks a query about insurance policy and receives a response that answers their problem, they will be delighted with the chatbot's performance. In contrast, if a user doesn't get help from the chatbot, they can think that the interaction was worth less than it cost. The user will stop using it as a result of becoming unsatisfied, and this may affect the intention to continue the service.

Another crucial factor that determines fundamental significance to technology adoption behavior is perceived enjoyment [31]. In an addition version of TAM by Venkatesh and Bala (2008), perceived enjoyment is acknowledged as a key factor in end-user adoption, which they also refered to as an intrinsic motivation [10]. Studies has shown perceived enjoyment to be the primary driver for purchase intention and intent to continue use [32]. Users every now and then can utilize technologies for pleasure and fun instead of merely performance enhancement, and it has been documented in the literature that users who do perceive intrinsic enjoyment

URL: http://doi.org/10.14738/abr.121.16362

and find a technology entertaining throughout their use might positively affect both user satisfaction and continuance intention [33]. Therefore, it is assumed that when customers have a fun and enjoyable experience, they feel happier and are more inclined to sustain the service in the future.

Jahanmir (2020) refered to continuance intention as the users' long-lasting intent to regularly use a technology [34]. It would be ineffective and unprofitable if a technology is not sustained by users who anticipate benefits from continuing to use it. Numerous information system and digital technology environments, including mobile apps, mobile branded apps, online banking, Massive open online courses (MOOCs), virtual worlds, wearable technology such as smartwatches, and social recommender systems, and mobile government, etc, have been taken under research for continuation intention [35]. In line with the existing literature, this study decided to adopt continuance intention of chatbot as the dependent variable.

From the review of existing literature, the study proposes a conceptual framework to assess the hypotheses of the study:

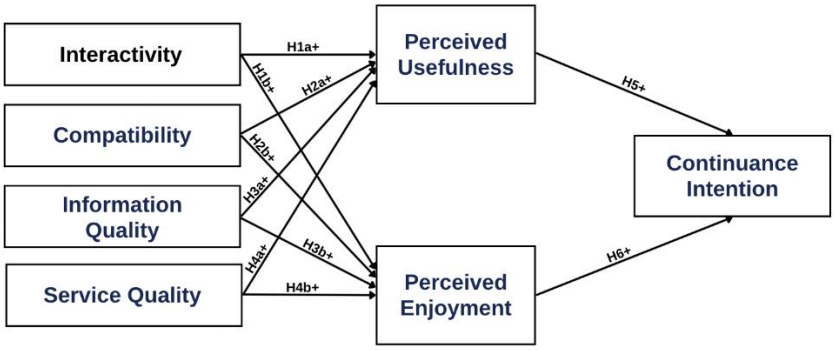


Figure 2: Conceptual framework

METHOD

The study uses non-probability sampling with convenience and snowball approach. This will help the researcher to reach more potential survey participant in a shorter amount of time, reducing the cost of research. In order to generalize from a sample and prevent sampling mistakes or biases, the sample should be adjusted with an appropriate size [36]. According to Tinsley [37], the sample size can range from 5 to 10 times the number of questions. Since there are 32 items in total across all constructs in this study, the following minimum sample size is suggested: 32*5=160. Therefore, the study seeks to collect empirical data from a sample of at least 160 respondents.

Using Google Form, a questionnaire is created to collect data from the study sample. A pilot test is conducted and used to adjust the final design. At the beginning of the Google Form, there will be a brief explanation of chatbots with examples attached. A filtering question is included in the

survey to inquire about respondents' experience with chatbots. Those who do not have prior experience with chatbots are not considered as participants for the research.

The scale for measuring interactivity is from Hari et al. (2022), which includes 4 items [38]. To measure compatibility, a scale consisting of 3 items is adopted. To measure information quality, a scale consisting of 7 items is adopted from Ashfaq et al. (2020). The scale to measure service quality is from Ashfaq et al. (2020). To measure perceived usefulness, the research adopts a scale from Ashfaq et al. (2020), which includes 4 items. The scale for perceived enjoyment includes 5 items from Ashfaq et al. (2020) [39]. The scale for continuance intention is adopted from Bhattacherjee (2001), consisting of 3 items [30].

DATA ANALYSIS

Empirical data was collected from 545 respondents. Out of this sample, there are 476 respondents that have experienced chatbot and 69 respondents were not included in the data analysis process because they have never used chatbot. The data reveals that the largest percentage of respondents identified as male (68.5%), followed by female respondents (29%), and those who chose not to disclose their gender (1.5%). Geographically, the majority of the participants (95%) were from Asia. In terms of age, the data indicates that the majority of respondents (75.4%) fell into the 18-25 age group, while 15.1% were below 18, 5.9% were between 36-45, 1.7% were between 26-35, 1.3% were 56 and above, and 0.6% were between 46-55. Regarding educational attainment, 44.1% of participants indicated possessing a bachelor's degree, whilst 41.6% possessed a high school diploma or its equivalent. Concerning marital status, the vast majority of respondents (89.1%) said that they were unmarried.

Cronbach's alpha theoretically varies between 0 and 1, with a higher number indicating a greater level of internal consistency among the survey questions [40]. A Cronbach's alpha value of 0.90 or above is deemed exceptional, 0.80 or higher is regarded good, 0.70 or higher is seen acceptable, 0.60 or higher is up to debate, 0.50 or more is below standard, and 0.50 or lower is deemed undesirable [41].

Table 1: Reliability level of the variables

Construct	Cronbach's Alpha	N of items	Interpretation
Interactivity	.944	4	Reliable
Compatibility	.930	3	Reliable
Information Quality	.964	7	Reliable
Service Quality	.958	6	Reliable
Perceived Usefulness	.945	4	Reliable
Perceived Enjoyment	.949	5	Reliable
Continuance Intention	.912	3	Reliable

The reliability test findings, as shown in Table 1, demonstrate that all the variables and constructs utilized in the study possess Cronbach's alpha values above 0.90. These findings indicate that the questionnaire utilized in the study exhibits a high level of reliability and demonstrates exceptional internal consistency.

URL: http://doi.org/10.14738/abr.121.16362

In addition to assessing the internal consistency of the survey instrument, this study employs Pearson's correlation coefficients to assess the questionnaire's validity. Specifically, the significance value (Sig.) is examined to determine the validity of each question or item on the survey. A Sig. value less than 0.05 indicates that the question or item is valid, whereas a Sig. value greater than 0.05 suggests that the question or item is invalid and should be eliminated or deleted from the questionnaire [42]. The outcomes show that all the significant values of the survey questions are 0.000, which is less than the accepted threshold of 0.05. By using both reliability and validity measures, this study ensures that the survey instrument is a robust and accurate tool for gathering data.

The multiple linear regression analysis will be used to evaluate the impact of the four Chatbot characteristics (interactivity, compatibility, information quality, and service quality) as independent variables and perceived usefulness as the dependent variable.

Table 2.1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.882[a]	.779	.777	.55162
a. Predictors: (Constant), SQ, INT, COM, IQ				

The coefficient of determination (R2) is reported to be .779, indicating that the model accounts for 77.9% of the variability observed in the dependent variable.

Table 2.2: ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	504.433	4	126.108	414.445	.000[a]
	Residual	143.317	471	.304		
	Total	647.749	475			
a. Predictors: (Constant), SQ, INT, COM, IQ						
b. Dependent Variable: PU						

The ANOVA table indicates that the regression model has a statistically significant influence on the explanation of perceived usefulness. The presence of a statistically significant F-value of 414.445 at a p-value (Sig.) of 0.000, which is lower than the predefined alpha threshold of 0.05, demonstrates this.

Table 2.3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.297	.083		3.562	.000
	INT	.076	.040	.081	1.892	.059
	COM	.101	.046	.106	2.209	.028
	IQ	.229	.057	.225	4.009	.000
	SQ	.516	.048	.515	10.662	.000
a. Dependent Variable: PU						

The results of the multiple linear regression analysis indicate that the coefficient for interactivity (ß = 0.076, p-value = .059) is not significant. Therefore, hypothesis H1a is not supported. On the other hand, the coefficients for compatibility (ß = 0.101, p-value = .028), information quality (ß = 0.229, p-value =.000), and service quality (ß = 0.516, p-value = .000) are significant, implying that they have a positive influence on perceived usefulness. This supports Hypotheses H2a, H3a, and H4a. The table clearly demonstrates that service quality has a more significant influence on perceived usefulness (ß = 0.515) compared to information quality (ß = 0.225) and compatibility (ß = 0.106).

Table 3.1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.809[a]	.654	.651	.7094996
a. Predictors: (Constant), SQ, INT, COM, IQ				

The coefficient of determination (R2) is reported as .654, signifying that the model explains 65.4% of the variability seen in the dependent variable.

Table 3.2: ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	448.995	4	112.249	222.986	.000[a]
	Residual	237.097	471	.503		
	Total	686.091	475			
a. Predictors: (Constant), SQ, INT, COM, IQ						
b. Dependent Variable: PE						

The ANOVA table indicates that the regression model has a statistically significant influence on the explanation of reported satisfaction. The presence of a statistically significant F-value of 222.986 at a p-value (Sig.) of 0.000, which is lower than the predefined alpha threshold of 0.05, confirms this.

Table 3.3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.310	.107		2.887	.004
	INT	.040	.052	.041	.775	.439
	COM	.211	.059	.214	3.571	.000
	IQ	.210	.073	.201	2.859	.004
	SQ	.409	.062	.396	6.564	.000
a. Dependent Variable: PE						

The findings of the multiple linear regression analysis show that the coefficient for interactivity (ß = 0.040, p-value = .439) is not statistically significant. Thus, hypothesis H1b is not substantiated. On the other hand, the coefficients for compatibility (ß = 0.211, p-value = .000), information quality (ß = 0.210, p-value =.004), and service quality (ß = 0.409, p-value = .000) are significant, implying that they have a positive influence on perceived enjoyment. This

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supports Hypotheses H2b, H3b, and H4b. Based on the table, it can be seen that service quality has a greater impact on perceived enjoyment (ß = 0.396) than information quality (ß = 0.201) and compatibility (ß = 0.214).

Table 4.1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.875[a]	.766	.765	.5679863
a. Predictors: (Constant), PE, PU				

The coefficient of determination (R2) is reported as .766, signifying that the model explains 76.6% of the variability seen in the dependent variable.

Table 4.2: ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	500.294	2	250.147	775.389	.000[a]
	Residual	152.594	473	.323		
	Total	652.888	475			
a. Predictors: (Constant), PE, PU						
b. Dependent Variable: CI						

The ANOVA table indicates that the regression model has a statistically significant influence on the explanation of continuance intention. The statistical analysis reveals a very significant F-value of 775.389 at a p-value (Sig.) of 0.000, which is lower than the preset alpha level of 0.05.

Table 4.3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.373	.083		4.487	.000
	PU	.402	.042	.401	9.607	.000
	PE	.497	.041	.510	12.212	.000
a. Dependent Variable: CI						

The results of the multiple linear regression analysis indicate that the coefficient for perceived usefulness (ß = 0.402, p-value = .000) is significant. Therefore, hypothesis H5 is supported. Besides, the coefficients for perceived enjoyment (ß = 0.497, p-value = .000) is also significant, implying that they have a positive influence on continuance intention. Therefore, hypothesis H6 is also supported. Based on the table, it can be seen that perceived enjoyment has a greater impact on continuance intention (ß = 0.510) than perceived usefulness (ß = 0.401).

RESULTS AND DISCUSSION

The finding indicates that interactivity has an insignificant effect on perceived usefulness and perceived enjoyment of chatbot users. This contradicts previous studies on customer perception in social media platform for shopping [43] and online booking intention [44]. It is also inconsistent with some studies of interactivity on perceived enjoyment [45]. However, this can be explained by the fact that the main demographic of the study comes from a young

generation who grew up with technology. They are more accustomed to using technology. As a result, this population may not necessarily value interactivity as highly as older users, as they can view it as a standard feature of technology rather than a unique selling point that enhance their experience. This observation is corroborated by a study undertaken by Kim et al. (2021) that examined the virtual reality (VR) shopping experience among college students in the southeastern United States [46]. The study results unveiled that interactivity exhibited an insignificant impact on both perceived usefulness and perceived enjoyment.

Compatibility exerts a positive, significant effect on both perceived usefulness and perceived enjoyment. When a chatbot is compatible with a user's needs and preferences, they are more likely to perceive it as useful. In addition, compatibility can also enhance the user's perceived enjoyment of the interaction. This is consistent with a study on the determinants of mobile banking use in Turkey by Altin et al. (2018) which found compatibility to be an important predictor of perceived usefulness, and other several existing literatures [47], [48]. In a study on the technology acceptance behavior of Romanian teachers [49], it is also concluded that compatibility serves as a predictor of perceived enjoyment, and ultimately influence intention to adopt the technology.

The findings indicate that the quality of information has a favorable and noteworthy impact on the perceived usefulness of individuals utilizing chatbots. The study conducted by Lin (2007) utilizes the Technology Acceptance Model (TAM) to examine the sustainability of virtual communities [50]. The findings indicate that information quality is a significant predictor of perceived usefulness. These findings align with the research conducted by Chen and Tsai (2019) on the behavioral intention to use personalized location-based mobile applications [51]. Their study also found that information quality positively influences perceived usefulness. Elevated information quality positively correlates with perceived enjoyment among chatbot users. Peterkin (2022) has provided evidence that the perceived enjoyment of employees towards computer-based training is positively influenced by information quality [52].

The study reveals that service quality has a favorable and substantial impact on the perceived usefulness and perceived enjoyment of chatbot users. This is consistent with many existing research on the impact of service quality of technology on the customer experience [39], [53]. By providing high-quality service, chatbot can contribute to a more positive emotional experience and a greater sense of enjoyment. This is supported by Shahid et al. (2018), which discovered a positive correlation between the quality of service provided by self-service technology and customer satisfaction [54]. A study conducted by Ashfaq et al. (2020) in the United States also validates the favorable impact of service quality on customer impression and experience.

Perceived usefulness is found to have a positive, significant effect on continuance intention of chatbot users, as hypothesized. If users believe that a chatbot is helpful in achieving their goals or solving their problems, they are more likely to continue using it. These finding gains support from the TAM [31] and is in line with Lee & Kwon (2011) in the context of web-based services [55]. In addition, perceived enjoyment also displays a positive effect on continuance intention of chatbot users. If users perceive a chatbot to be enjoyable to interact with, they are more likely to continue using it. This is consistent with a study on blog user behavior, which found that

URL: http://doi.org/10.14738/abr.121.16362

perceived enjoyment, along with satisfaction and involvement, collectively influence continuance intention of users [56]; research on the use of GPS navigation app, which discovered the positive effect of perceived enjoyment and perceived cost on purchasing intention.

CONCLUSION

The present research contributes to the understanding of chatbot usage by identifying the determinants of perceived usefulness and perceived enjoyment, as well as investigating their influence on customers' continuance intention. The findings offer vital insights into the determinants that influence users' perceptions of chatbot usefulness and enjoyment, as well as them intends to continue the use of chatbot services. The study's findings enhance the existing research by emphasizing the importance of compatibility, information quality, and service quality in influencing both perceived usefulness and perceived enjoyment. This study expands upon the Technology Acceptance Model (TAM) by recognizing compatibility, information quality, and service quality as essential factors that influence both the perception of usefulness and the perception of enjoyment.

The present research offers valuable practical contributions to the e-commerce industry and business managers by providing insights into the determinants of perceived usefulness, perceived enjoyment, and continuance intention in chatbot usage. Business managers can focus on ensuring that their chatbot systems are compatible with users' needs and preferences, provide high-quality information, and deliver satisfactory service experiences. By prioritizing these factors, organizations can increase users' perceived usefulness and enjoyment, thereby improving user continuance intention and the overall effectiveness of chatbot interactions. Business managers can leverage the insights from this study to inform decision-making processes related to chatbot implementation and resource allocation.

The study was conducted within a concise time frame, possibly restricting the applicability of the findings. Subsequent investigations could employ a long-term methodology to capture the ever-changing nature of users' perceptions and behaviors with regards to chatbots. In addition, the participant sample in this study predominantly consisted of young individuals from Asia. While this allowed for insights into the perceptions of a specific demographic group, it may have limited generalizability to populations with varying age groups or cultural backgrounds. Subsequent research endeavors should utilize more varied and inclusive samples to guarantee wider relevance. Lastly, while the factors in the study were found to have significant effects, other characteristics of chatbots could also play important roles in shaping user perceptions and experiences. Further studies could investigate supplementary variables, such as trust, personalization, and privacy, in order to gain a more comprehensive understanding of the components that influence user intention in utilizing chatbots.

References

[1] K. Sidaoui, M. Jaakkola, and J. Burton, “AI feel you: customer experience assessment via chatbot interviews,” Journal of Service Management, vol. 31, no. 4, pp. 745–766, 2020.

[2] J. Wirtz et al., “Brave new world: service robots in the frontline,” Journal of Service Management, vol. 29, no. 5, pp. 907–931, 2018.

[3] K. Rajan and A. Saffiotti, "Towards a science of integrated AI and Robotics," Artificial Intelligence, vol. 247. Elsevier, pp. 1–9, 2017.

[4] Quintino and Ana Rita Parcelas, "The impact of chatbot technology attributes on customer experience: an example in telecom," 2019.

[5] M. Chung, E. Ko, H. Joung, and S. J. Kim, "Chatbot e-service and customer satisfaction regarding luxury brands," J Bus Res, vol. 117, pp. 587–595, 2020.

[6] S. Youn and S. V. Jin, "In AI we trust?" The effects of parasocial interaction and technopian versus luddite ideological views on chatbot-based customer relationship management in the emerging "feeling economy," Comput Human Behav, vol. 119, p. 106721, 2021.

[7] E. Stoeckli, C. Dremel, F. Uebernickel, and W. Brenner, "How affordances of chatbots cross the chasm between social and traditional enterprise systems," Electronic Markets, vol. 30, pp. 369–403, 2020.

[8] T. Hu et al., "Touch your heart: A tone-aware chatbot for customer care on social media," in Proceedings of the 2018 CHI conference on human factors in computing systems, 2018, pp. 1–12.

[9] A. Froehlich, "Pros and cons of chatbots in the IT helpdesk," Informationweek. com. Accessed October, vol. 18, p. 2018, 2018.

[10] V. Venkatesh and H. Bala, "Technology acceptance model 3 and a research agenda on interventions," Decision sciences, vol. 39, no. 2, pp. 273–315, 2008.

[11] N. Asokan, "Fairness in electronic commerce," 1998.

[12] G. Kumar et al., "Decentralized accessibility of e-commerce products through blockchain technology," Sustain Cities Soc, vol. 62, p. 102361, 2020.

[13] M. Lind and N. Salomonson, "The role of virtual servants in e-interaction," in Pragmatic web–Proceedings of the first international conference on the pragmatic web, 2006, Gesellschaft für Informatik eV, 2006.

[14] K. Letheren and C. Glavas, "Embracing the bots: How direct to consumer advertising is about to change forever," The conversation, 2017.

[15] P. R. Daugherty, H. J. Wilson, and P. Michelman, "Revisiting the jobs artificial intelligence will create," MIT Sloan Manag Rev, vol. 60, no. 4, pp. 0_1-0_8, 2019.

[16] X. Luo, S. Tong, Z. Fang, and Z. Qu, "Frontiers: Machines vs. humans: The impact of artificial intelligence chatbot disclosure on customer purchases," Marketing Science, vol. 38, no. 6, pp. 937–947, 2019.

[17] L. C. Wang, J. Baker, J. A. Wagner, and K. Wakefield, "Can a retail web site be social?," J Mark, vol. 71, no. 3, pp. 143–157, 2007.

[18] M. Scardamalia and C. Bereiter, "Smart technology for self-organizing processes," Smart Learning Environments, vol. 1, pp. 1–13, 2014.

[19] X. Fan, N. Ning, and N. Deng, "The impact of the quality of intelligent experience on smart retail engagement," Marketing Intelligence & Planning, vol. 38, no. 7, pp. 877–891, 2020.

[20] T. Lee, "The impact of perceptions of interactivity on customer trust and transaction intentions in mobile commerce," Journal of Electronic Commerce Research, vol. 6, no. 3, p. 165, 2005.

URL: http://doi.org/10.14738/abr.121.16362

[21] A. M. Fiore, J. Kim, and H.-H. Lee, "Effect of image interactivity technology on consumer responses toward the online retailer," Journal of interactive marketing, vol. 19, no. 3, pp. 38–53, 2005.

[22] H. Baek, S. Kim, and S. Lee, "Effects of interactivity and usage mode on user experience in chatbot interface," Journal of the HCI Society of Korea, vol. 14, no. 1, pp. 35–43, 2019.

[23] Everett M. Rogers, Diffusion of Innovations, 5th ed. 2003.

[24] R. B. Mostafa and T. Kasamani, "Antecedents and consequences of chatbot initial trust," Eur J Mark, vol. 56, no. 6, pp. 1748–1771, 2022.

[25] P. Setia, P. Setia, V. Venkatesh, and S. Joglekar, "Leveraging digital technologies: How information quality leads to localized capabilities and customer service performance," MIS quarterly, pp. 565–590, 2013.

[26] J. J. Cronin Jr and S. A. Taylor, "Measuring service quality: a reexamination and extension," J Mark, vol. 56, no. 3, pp. 55–68, 1992.

[27] H. M. Gray, K. Gray, and D. M. Wegner, "Dimensions of mind perception," Science (1979), vol. 315, no. 5812, p. 619, 2007.

[28] F. D. Davis, R. P. Bagozzi, and P. R. Warshaw, "User acceptance of computer technology: A comparison of two theoretical models," Manage Sci, vol. 35, no. 8, pp. 982–1003, 1989.

[29] E. Karahanna, D. W. Straub, and N. L. Chervany, "Information technology adoption across time: A cross-sectional comparison of pre-adoption and post-adoption beliefs," MIS quarterly, pp. 183–213, 1999.

[30] A. Bhattacherjee, "An empirical analysis of the antecedents of electronic commerce service continuance," Decis Support Syst, vol. 32, no. 2, pp. 201–214, 2001.

[31] F. D. Davis, R. P. Bagozzi, and P. R. Warshaw, "Extrinsic and intrinsic motivation to use computers in the workplace 1," J Appl Soc Psychol, vol. 22, no. 14, pp. 1111–1132, 1992.

[32] J. Hamari, "Why do people buy virtual goods? Attitude toward virtual good purchases versus game enjoyment," Int J Inf Manage, vol. 35, no. 3, pp. 299–308, 2015.

[33] G. McLean, K. Osei-Frimpong, K. Al-Nabhani, and H. Marriott, "Examining consumer attitudes towards retailers'm-commerce mobile applications–An initial adoption vs. continuous use perspective," J Bus Res, vol. 106, pp. 139–157, 2020.

[34] S. F. Jahanmir, G. M. Silva, P. J. Gomes, and H. M. Gonçalves, "Determinants of users' continuance intention toward digital innovations: are late adopters different?," J Bus Res, vol. 115, pp. 225–233, 2020.

[35] C. Wang, T. S. H. Teo, and L. Liu, "Perceived value and continuance intention in mobile government service in China," Telematics and Informatics, vol. 48, p. 101348, 2020.

[36] H. Taherdoost, "Determining sample size; how to calculate survey sample size," International Journal of Economics and Management Systems, vol. 2, 2017.

[37] H. E. A. Tinsley and D. J. Tinsley, "Uses of factor analysis in counseling psychology research.," J Couns Psychol, vol. 34, no. 4, p. 414, 1987.

[38] H. Hari, R. Iyer, and B. Sampat, "Customer brand engagement through chatbots on bank websites–examining the antecedents and consequences," Int J Hum Comput Interact, vol. 38, no. 13, pp. 1212–1227, 2022.

[39] M. Ashfaq, J. Yun, S. Yu, and S. M. C. Loureiro, "I, Chatbot: Modeling the determinants of users' satisfaction and continuance intention of AI-powered service agents," Telematics and Informatics, vol. 54, p. 101473, 2020.

[40] S. S. Saidi and N. M. Siew, "Investigating the Validity and Reliability of Survey Attitude towards Statistics Instrument among Rural Secondary School Students.," Int J Educ Method, vol. 5, no. 4, pp. 651–661, 2019.

[41] D. George and P. Mallery, "Frequencies," in IBM SPSS statistics 23 step by step, Routledge, 2016, pp. 115–125.

[42] N. W. N. Setya et al., "Development of student leadership variables instruments: Validity and reliability analysis," in 1st International Conference on Information Technology and Education (ICITE 2020), Atlantis Press, 2020, pp. 541–545.

[43] C. F. Zeng and Y.-K. Seock, "Chinese consumers' perceptions toward social media platform for shopping and eWOM intention: a study of WeChat," International Journal of Fashion Design, Technology and Education, 2019.

[44] D. Abdullah et al., "Perceived website interactivity, perceived usefulness and online hotel booking intention: a structural model," Malaysian Journal of Consumer and Family Economics, vol. 21, no. 1, pp. 45–57, 2019.

[45] Y. Gu, X. Cheng, and J. Shen, "Design shopping as an experience: Exploring the effect of the live-streaming shopping characteristics on consumers' participation intention and memorable experience," Information & Management, vol. 60, no. 5, p. 103810, 2023.

[46] J.-H. Kim, M. Kim, M. Park, and J. Yoo, "How interactivity and vividness influence consumer virtual reality shopping experience: the mediating role of telepresence," Journal of Research in Interactive Marketing, vol. 15, no. 3, pp. 502–525, 2021.

[47] K. Lee and S. Kim, "Structural Relationship between Technological Characteristics, Perceived Usefulness, Trust, and Continuous Intention to Use Mobile Payment Services: Sports Consumers in MZ Generations.," Sport Mont, vol. 20, no. 1, 2022.

[48] E. T. Lwoga and N. B. Lwoga, "User acceptance of mobile payment: The effects of user-centric security, system characteristics and gender," The Electronic Journal of Information Systems in Developing Countries, vol. 81, no. 1, pp. 1–24, 2017.

[49] D. Rad et al., "On the technology acceptance behavior of Romanian preschool teachers," Behavioral Sciences, vol. 13, no. 2, p. 133, 2023.

[50] H. Lin, "The role of online and offline features in sustaining virtual communities: an empirical study," Internet Research, vol. 17, no. 2, pp. 119–138, 2007.

[51] C.-C. Chen and J.-L. Tsai, "Determinants of behavioral intention to use the Personalized Location-based Mobile Tourism Application: An empirical study by integrating TAM with ISSM," Future Generation Computer Systems, vol. 96, pp. 628–638, 2019.

[52] K. Y. Peterkin, "The impact of perceived enjoyment on employee continuance intention in computer-based training in the hotel industry," 2022.

[53] D. Pratiwi, R. Rahmiati, and A. Abror, "THE INFLUENCE OF EASE OF USE, E-SERVICE QUALITY AND PERCEIVED USEFULNESS AS AN INTERVENING VARIABLE AN INTENTION TO REUSE ZALORA ONLINE FASHION APPLICATION," Banking and Management Review, vol. 11, no. 1, pp. 1553–1568, 2022.

URL: http://doi.org/10.14738/abr.121.16362

[54] M. Shahid Iqbal, M. Ul Hassan, and U. Habibah, "Impact of self-service technology (SST) service quality on customer loyalty and behavioral intention: The mediating role of customer satisfaction," Cogent Business & Management, vol. 5, no. 1, p. 1, 2018.

[55] Y. Lee and O. Kwon, "Intimacy, familiarity and continuance intention: An extended expectation–confirmation model in web-based services," Electron Commer Res Appl, vol. 10, no. 3, pp. 342–357, 2011.

[56] W.-L. Shiau and M. M. Luo, "Continuance intention of blog users: the impact of perceived enjoyment, habit, user involvement and blogging time," Behaviour & Information Technology, vol. 32, no. 6, pp. 570–583, 2013.