

INCOMAR 2023
The 9th International Conference on Marketing and Retailing**DETERMINANTS OF USER SATISFACTION ON E-COMMERCE
CHATBOT: A STUDY ON GEN-Y**

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Abstract

The rapid development of internet has altered the way firms and customers conduct business and purchase goods and services. With the help of internet, everyone can sell and purchase goods and services from all over the world without restrictions such as time, language, and location. The e-commerce sector in Malaysia is also having a noteworthy sign of growth due to the development of internet. As the e-commerce sector is developing, the usage of chatbot to serve customers is also increasing as it can help to provide a superior online shopping experience to the customers. This study is focusing on Generation Y as they are the largest group of e-commerce users in Malaysia. The objective of this study is to investigate the determinants of user satisfaction of using e-commerce chatbot among millennials (Gen Y) in Malaysia. The independent variables of this study are derived from both Technology Acceptance Model (TAM) and Information System Success Model (ISSM). The independent variables of this study include system quality, information quality, service quality, perceived ease of use, and perceived usefulness, while the dependent variable is user satisfaction of using e-commerce chatbot. There are 150 sets of questionnaire were being distributed to those who are categorized under Generation Y and the results were analyzed using SPSS software. The research outcomes showed that system quality, information quality, and service quality have significant relationship with user satisfaction, while perceived ease of use and perceived usefulness were proven to have no significant relationship with user satisfaction.

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Keywords: Chatbot, E-commerce, generation Y, millennials, user satisfaction

1. Introduction

In this era of globalization, technology plays an important role in connecting people from all around the world. According to Youmatter (2020), the World Health Organization (WHO) defined globalization as “the increment of interconnectivity and interdependence of peoples and countries”. The advancement of technology has driven the rapid growth of the e-commerce sector in many countries. Evans (2021) stated that those companies who have failed to invest in new technologies and adopt to digital-based mindset are proven to have more disadvantages comparing to their peers. Therefore, it is suggested that businesses shall be more technology-savvy in order to be able to have more competitive advantages in this era of technology advancement. Due to the rapid growth of the e-commerce sector, many companies have started to utilize chatbot in their customer service in order to provide a superior experience to their customers. A chatbot, or also known as chat robot, is usually used by companies to respond to frequently-asked-questions (FAQ) by the customers. However, the rapid growth of technology has enabled an artificial intelligent (AI) chatbot to mimic the actions of a human when answering to the questions of the customers rather than just answering to the pre-programmed questions (Maruti Techlab, 2021). The ability of the e-commerce chatbot to provide instant and reliable service to the customers has enabled the customers to have higher satisfaction level which eventually lead to the increment of customer spend by 20% to 40% (Maruti Techlab, 2021). In addition, Sunarjo (2020) stated that an e-commerce chatbot has no restrictions especially in answering a large amount of inquiries at the same time, which is very important in minimizing the distractions of the customers which might affect the final purchasing decisions. Hence, we can see that the adoption of chatbot is very useful for the e-commerce sector as it can help to enhance the customer service and boost the online sales as well.

In Malaysia, the usage of chatbot in the e-commerce sector is clearly visible nowadays. According to Tang (2020), the five top e-commerce sites in Malaysia as of August 2020 are Amazon, AliExpress, Taobao, Shopee, and Lazada. Tang (2020) also stated that these five top e-commerce sites have their own chatbot to serve their customers. On the other hand, according to a report that is released by the Malaysian Communications and Multimedia Commission (MCMC) in year 2019, it is stated that the largest group of the e-commerce users are those who are within the age group of 20 to 34 years old, which accounted for 56.5% of the total e-commerce users. From this point, we can see that the largest group of the e-commerce users in Malaysia are those who are from Generation Y, which are those who are born between 1981 to 1996 (Wolfe, 2020). Hence, majority of the e-commerce users in Malaysia are those who are within the age of 25 to 40 years old in year 2021. Therefore, we can conclude that they have the experience of using the e-commerce chatbot as the top five e-commerce sites in Malaysia have their own chatbot system.

2. Problem Statement

There is increasing number of people in engaging with e-commerce nowadays. Therefore, factors that will affect user satisfaction of using e-commerce chatbot should be identified to solve customers' doubts and problems when they are using e-commerce system. So, the research is aimed to examine the factors that influence the user satisfaction of using e-commerce chatbot among Generation Y in Malaysia.

3. Research Questions

Based on the problem statement that is shown in the previous section, a few research questions have been formulated to answer the concern and issue. The research questions are:

- i. Does system quality influence the user satisfaction of using e-commerce Chatbots?
- ii. Does information quality influence the user satisfaction of using e-commerce Chatbots?
- iii. Does service quality influence the user satisfaction of using e-commerce Chatbots?
- iv. Does perceived ease of use influence the user satisfaction of using e-commerce Chatbots?
- v. Does perceived usefulness influence the user satisfaction of using e-commerce Chatbots?

4. Purpose of the Study

The reason for this research to be carried out is to investigate the satisfaction level of majority of the users of the e-commerce chatbot in Malaysia, where most of them are from Generation Y. This is very important as there is a lack of study regarding the e-commerce chatbot in Malaysia although its adoption rate is high. The factors that affect the satisfaction level towards the e-commerce chatbot shall be identified so that it can provide more information for the businesses to modify and improve their chatbot so that they are able to enhance their customer service. The factors or independent variables identified in this research are derived and adapted from two well-established technology models, which are Information System Success Model (ISSM) and Technology Acceptance Model (TAM). There are many researches done on each of these two models, but none of them actually combine these two technology-related models to test on user satisfaction. Therefore, by merging these two models, this research aims to offer fresh perspectives by investigating the relationship between the variables with user satisfaction of using e-commerce chatbot. In addition, location factor is also another aspect that contributes to the reason of carrying out this research as similar research has been carried out in Italy. Therefore, this study is aimed to fill up the research gaps as well as providing more information regarding the e-commerce chatbot in Malaysia. In summary, the fundamental goal of this study is to investigate the determinants of user satisfaction of the e-commerce chatbot among Generation Y in Malaysia.

5. Research Methods

Research framework plays an important role in ensuring that there is a clear guidance for the whole research study. The research framework of this research is consisted of five independent variables and one dependent variable. There are three independent variables are adopted from the Information System Success Model (ISSM) while the other two independent variables are adopted from the Technology Acceptance Model (TAM). The three independent variables that are adopted from the Information System Success Model are “system quality”, “information quality”, and “service quality”; while the two independent variables that are adopted from the Technology Acceptance Model are “perceived ease of use” and “perceived usefulness”. On the other hand, the dependent variable of this

research is user satisfaction which focuses on the area of e-commerce chatbot. Figure 1 shows the development of research framework of this study.

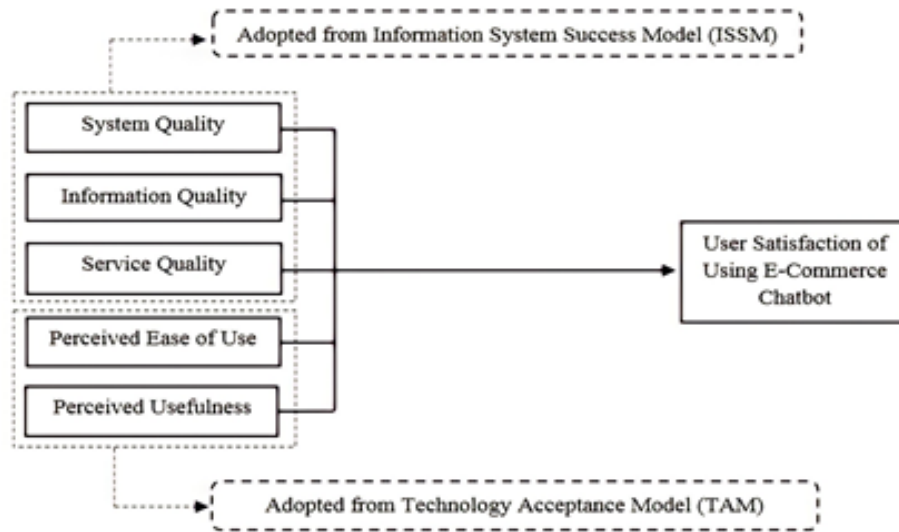


Figure 1. Research framework

The selected data collection method for this study is through online questionnaire. The questionnaires are distributed and sent to the respondents via Google Form method. In order to fulfill the research objectives of this study, 150 respondents from Generation Y are chosen based on the recommendation by G-Power software, where they are aged between 25 to 40 years old. The questionnaire is consisted of four sections, which are demographic information, user satisfaction of using e-commerce chatbot, determinants of user satisfaction of using e-commerce chatbot, and five general questions. In order to meet the research aims, the data acquired from the completed questionnaire were being analyzed using the SPSS software.

6. Findings

6.1. Demographic Profile of Respondents

Table 1. Respondent Characteristics

	Demographics	Frequency	Percentage (%)
Gender	Male	59	39.3
	Female	91	60.7
Race	Malay	23	15.3
	Chinese	101	67.3
	Indian	26	17.3
	Others	0	0.0
Age	25 to 29 years old	78	52.0
	30 to 34 years old	43	28.7
	35 to 40 years old	29	19.3

Education Level	No formal education	0	0.0
	Primary school (UPSR)	0	0.0
	Secondary school (PMR/SPM/STPM)	8	5.3
	Diploma	19	12.7
	Degree	85	56.7
	Master/PhD	38	25.3
Employment Status	Employed full time	105	70.0
	Employed part time	16	10.7
	Unemployed	29	19.3

Based on Table 1, 59 respondents (39.3%) are male and the remaining 91 respondents (60.7%) are female. Majority of the respondents are Chinese, which occupy 67.3% (101 respondents) of the total respondents. More than half of the respondents (52%) reportedly came from the age group of 25 to 29 years old. For education level, most of the respondents are in degree level, where it takes up 56.7% (85 respondents) of the total respondents. Finally, majority of the respondents are employed full time, 105 respondents (70%).

6.2. Reliability Analysis

Table 2 exhibits the Cronbach's Alpha value of all the variables. Based on the table, all of the variables are considered as reliable as their Cronbach's Alpha value is greater than 0.7 (Sekaran, 2003). Perceived Ease of Use and Perceived Usefulness has the highest Cronbach's Alpha value, which is 0.915, while Service Quality has the lowest Cronbach's Alpha value, which is 0.834.

Table 2. Reliability of the Constructs

Constructs	Cronbach's Alpha	Number of Items
Independent Variables		
System Quality	0.864	4
Information Quality	0.896	4
Service Quality	0.834	4
Perceived Ease of Use	0.915	4
Perceived Usefulness	0.915	4
Dependent Variable		
User Satisfaction	0.903	6

6.3. General Questions

Table 3. Analysis of General Questions

General Questions	Frequency	Percentage (%)
My first impression on e-commerce chatbot is positive.		
Yes	147	98.0
No	3	2.0

I feel more comfortable interacting with e-commerce chatbot rather than real human agent.		
Yes	61	40.7
No	89	59.3
E-commerce chatbot is a useful tool in enhancing the communication process between the business entities and customers.		
Yes	138	92.0
No	12	8.0
I like the sense of talking to someone when I use the e-commerce chatbot.		
Yes	110	73.3
No	40	26.7
I am willing to explore more about this technology of chatbot in the future.		
Yes	143	95.3
No	7	4.7

Based on Table 3, out of 150 respondents, there are 147 respondents (98%) agree that their first impression on e-commerce chatbot is positive. Next, there are 89 respondents (59.3%) disagree that they are more comfortable interacting with the e-commerce chatbot. In contrast, they feel more comfortable communicating with the real human agent of the customer service. Furthermore, majority of the respondents, which are 138 respondents (92%) out of 150 respondents agree that the e-commerce chatbot is a useful tool in enhancing the communication process between the business entities and customers. Moreover, out of 150 respondents, most of the respondents (73.3%) agree that they like the sense of talking to someone when they use the e-commerce chatbot. Lastly, majority of the respondents, which are 143 respondents (95.3%) agree that they are willing to explore more about the technology of chatbot in the future.

6.4. Multiple Linear Regression Analysis

Table 4. Results of Multiple Linear Regression

Independent Variables	Dependent Variable - User Satisfaction			Hypothesis	Result
	Standardized Coefficients (beta)	<i>t</i>	Sig. (<i>p</i> <0.05)		
System Quality	0.331	4.556	0.000	<i>H1</i>	Supported
Information Quality	0.273	3.334	0.001	<i>H2</i>	Supported
Service Quality	0.198	2.353	0.020	<i>H3</i>	Supported
Perceived Ease of Use	0.109	1.455	0.148	<i>H4</i>	Not Supported
Perceived Usefulness	0.049	0.859	0.392	<i>H5</i>	Not Supported

Note: Significant at 0.05 level

Based on Table 4, System Quality, Information Quality, and Service Quality are proven to have significant impact on User Satisfaction as their p-value is lesser than 0.05, which are 0.000, 0.001, and

0.020 respectively. Conversely, Perceived Usefulness and Perceived Ease of Use have no significant impact on the user satisfaction as their p-value is greater than 0.05, which are 0.148 and 0.392 respectively. Hence, H1, H2, and H3 are supported while H4 and H5 are not supported. Next, System Quality is proven to have the strongest effect with the dependent variable as it has the highest beta value, which is 0.331, while Perceived Usefulness has the weakest effect with the dependent variable, where its beta value is the lowest, which is 0.049.

7. Conclusion

According to the research findings, majority of the respondents have positive first impression on the e-commerce chatbot. However, despite of the positive first impression, there is still a big portion of the respondents prefer real human agent instead of the e-commerce chatbot. This is because most of the respondents from Generation Y feel that they are more comfortable when interacting with the human agent when they are asking questions through the online customer service platform. However, majority of the respondents from Generation Y agree that they are willing to explore more about the technology of chatbot in the future. Hence, this finding concludes that majority of the respondents from Generation Y have positive acceptance towards the technology of chatbot. As for hypothesis testing, system quality, information quality, and service quality are proven to have significant impact on user satisfaction, while perceived ease of use and perceived usefulness are proven to have no significant impact on user satisfaction of using the e-commerce chatbot. A chatbot system which fulfills good system quality perspectives such as good user interface, high usability and reliability is able to increase the satisfaction level of the system users (Trivedi, 2019). By providing a simple and clear user interface, as well as performing its main task without having any system bug, the e-commerce chatbot can increase the satisfaction level of the system users. Next, information quality will also affect user satisfaction towards a chatbot in such a way that when the information that is provided is relevant, sufficient, useful, and accurate, it will help to increase the satisfaction level of the system users (Trivedi, 2019). Therefore, the e-commerce chatbot that is able to provide information that fulfills the few characteristics that are mentioned previously will definitely increase the satisfaction level of its users. On the other hand, Trivedi (2019) stated that a good chatbot system shall have characteristics of good service quality such as assurance, empathy, and responsiveness. The result of the hypothesis testing showed that the e-commerce chatbot can provide assured customer support, understand customers' problems, and respond to customers' messages quickly, which eventually leads to high satisfaction level towards the e-commerce chatbot.

On the other hand, perceived ease of use is proven to have no significant impact on user satisfaction of using the e-commerce chatbot. This can be explained by research did by Kim and Chang (2007), where it is stated that perceived ease of use is only able to rise the intention to use a certain system, but it does not have a direct impact that will affect the user satisfaction. Finally, perceived usefulness is also proven to have no significant relationship with user satisfaction. According to Candela (2018), the satisfaction level of consumers will increase when they perceived that a chatbot is able to increase their productivity and performance, such as allow them to get instant answers and help to save time and effort. Therefore, the research finding concludes that the e-commerce chatbot has failed to

increase the productivity of most of the respondents from Generation Y. In summary, this research is only focusing on the Generation Y from Malaysia. Future research on the topic of chatbot are strongly encouraged and the research can be done by comparing the perception of two different generations (Gen Y and Gen Z) towards the e-commerce chatbot so that there is more information to improve the chatbot system in the future.

Acknowledgments

The researchers would like to thank Multimedia University for grant code (MMUI/210042).

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