RMTB

The Relationship between Security and Online Shopping Intention

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Abstract: Online shopping has become an integral part of our daily lives as it is more convenient and easier to be done anywhere and anytime. Security is one of the major concerns that widely discussed in past studies in relation to online shopping activities. Though there are huge studies looked into security aspect of online shopping, there is still lack of studies look into context of Malaysia and focused on online shopping adoption among gen Z only. Thus, this study aims to identify the level of security towards intention of adoption among gen Z, the level of intention towards online shopping among gen Z and the relationship between security and intention of online shopping adoption among gen Z. Technology Acceptance Model (TAM) is adopted as theoretical foundation in this research. This study has collected data from 100 respondents among UTHM students. The sample was collected based on quantitative research method where self-administrated questionnaire and online survey has been applied. The data were analyzed using Statistical Package for Social Science (SPSS) software to get the demographic information, variables and the relationship between security dimensions and intention of adoption. From the analysis, it showed that the level of availability dimension toward intention of adoption among generation Z is in high range level. In term of relationship, availability dimension has a positive significant relationship towards intention of online shopping adoption with correlation coefficient of 0.476.

Keywords: Intention, Adoption, Security, TAM, Gen Z

1. Introduction

Internet has played a significant role in our daily life as it connected people globally and enables people to communicate and exchange messages online (Patel & Patel, 2016; Farah *et al.*, 2018). There are several digital technologies that have emerged as a result of internet evolution such as Facebook, Instagram, Twitter and Youtube (Sari, 2017). The existence of all these technologies has spread the usage into several areas including business, education, communication, entertainment and shopping

purpose (Yilmaz & Orhan, 2010). As technology becoming more advance, people are more preferred to stay at home and buy groceries or other basic needs through online shopping (Agyapong, 2017).

Online shopping has become an integral part of our daily lives as it more convenient and easier to be done anywhere and anytime. (Ahmad, 2018). It provides many benefits such as competitive pricing, customized services and greater to access information (Tarhini *et al.*, 2018). Though many benefits have been discussed in relation to online shopping, there are few concerns that have been discussed by past studies (Masoud, 2013). Issues such as security, trust and privacy are among popular topic that will influence customers' online shopping decision (Teing, 2014). This happen as customers' personal information may be misused when they do online shopping such as customer private data and transaction security (Katawetawaraks & Wang, 2011). There are three dimension of information security which are confidentiality, integrity and availability (Neama *et al.*, 2016).

1.1 Research Background

Internet has made consumers able to get products or services through online with just a few clicks (Siali *et al.*, 2017). This is convenient to consumers because they do not have to queue up long whenever want to buy product or get services (Agyapong, 2017). According to Justin (2019), there are more than 79 percent of smartphone users have made online purchase by using their smartphone in the last six months in Malaysia. From this number, more than half of them have confessed that they are doing online shopping at least once a month (Justin, 2019). In online shopping, security plays an important role as it influence the consumer decision to purchase online (Masoud, 2013). However, in a web-based environment, customer personal information such as names, address and credit card numbers are disclosed by the data owner and used by the online seller in order to fulfill the transaction (Rasool *et al.*, 2017). There are several security dimensions has been discussed in past studies (Ahmad, 2018). For example, a study by Norjihan and Zailani (2009) has discussed confidentiality, integrity and availability as the main dimension for security (Neama *et al.*, 2016). In other study by Keoh *et al.* (2014) has found data confidentiality, services availability, anti-malware, information integrity and privacy protection as the dimension of security.

1.2 Problem Statements

Online shopping is a process where consumers go through to purchase the products or service over the internet (Monnsuwe *et al.*, 2004; Mohd *et al.*, 2008). According to scholars, the primary reasons for consumers to do online shopping including information quality (Moshrefjavadi, 2012), security of the online transaction (Patel & Patel, 2016), customer service quality (Teing, 2014), and few more that are related. Security of the online transactions continues to dominate the discussions as consumers are really concerns about disclosing their private and financial information (Bansal *et al.*, 2016). Although most of shopping site provide the personal information privacy, they still could not guarantee that the personal data of their consumers will fully be secured and protected (Ahmad, 2018). Moshrefjavadi (2012) explored the variances of the perceived risk online shopping. Another study by Teing (2014) discussed that lack of trust, and privacy and security concerns often lead to lost sales. There are several studies have discussed privacy and security related to online shopping, but very lack of study that looking into the context of Malaysia and the online shopping environment in Malaysia. Moreover, most of the studies have concentrated on consumers from all stage of age while very little research has focused on online shopping adoption among gen Z only. Thus, this study will explore the effect of security towards online shopping among gen Z in the context of Malaysia.

1.3 Research Questions

(i) What is the level of security toward intention of adoption among gen Z?
(ii) What is the level of intention towards online shopping among gen Z?

(iii) What is the relationship between security and intention of adoption online shopping among gen Z?

1.4 Research Objectives

(i) To identify the level of security toward intention of adoption among gen Z.
(ii) To identify the level of intention towards online shopping among gen Z.
(iii) To identify the relationship between security and intention of adoption online shopping among gen Z.

1.5 Research Scope

This study was conducted in UTHM and students of UTHM have been targeted as the research respondents. This study used quantitative approach with questionnaires as the research instrument. The reason of UTHM students were selected because they are falls in gen Z category.

1.6 Significance of study

This study helps future researchers to understand the relationship between security and intention of online shopping adoption especially among generation Z. Besides, this study helps consumers to improve the awareness on security towards online shopping. Moreover, this study also helps the government to design the best strategies for online business to facilitate and provide more secure platform for online shopping.

2. Literature Review

2.1 Online Shopping

With the advancement of Internet, consumers able to get products or services through online with just a few clicks (Siali *et al.*, 2017). What need to do is just browse the page that they want to purchase (Agyapong, 2017). Online shopping is a virtual store on the web (Ghani & Sidek, 2009). According Savarimuthu and Devi (2016), website design, website security and ease of payment are among factors that influences the adoption of online shopping. Another study by Ramlan *et al.* (2011) has found perceived ease of use, perceived usefulness and enjoyment as the factors that influence online shopping adoption in Malaysia.

2.2 Security Toward Online Shopping

Security plays an importance role in online shopping and it is also influence consumers online shopping decision (Masoud, 2013). In a web-based environment, consumers have to uncover their banking details during the online transaction (Farah *et al.*, 2018). This has made consumers worried that their personal information is disclosed by the data owner and used by the online seller in order to fulfill the transaction (Rasool *et al.*, 2017). According Meskaran (2015), perceived trust, perceived security and attitude of consumers are among factors that influence the adoption of online shopping. Another research by Neama *et al.* (2016) has found privacy, security, trust and perceived risks as the factors that influence towards online shopping adoption.

2.3 Generation Z

Generation Z are young adults who were born in 1995 or later and highly educated, technologically savvy, innovative and creative (Synchrony, 2018). According to Singh & Dangmei (2016), generation Z is raised with the social web, they are digital centric, and technology are their identity. They are born and raised in the digital world and what distinguishes them from other generations is that their existence

is more connected to electronic and digital world such as mp3 players, short massage, cell phones and social media technology (Ozkan & Solmaz, 2015).

2.4 Online Shopping Adoption

Online shopping becomes a popular activity in the past few years as it can do anytime and anywhere (Ahmad, 2018). Online store are usually available in 24 hours per day (Evwiekpaefe & Chiemeke, 2017). This is convenience for those busy people who can hardly make their schedules to go for shopping at physical stores (Savarimuthu & Devi, 2016). Besides, information security factor can be exploited depends on the ability of online seller to meet customers' expectations in the virtual shopping (Miyazaki & Fernandez, 2001). Perceived risk of information security and privacy with respect to website shopping services designed as trading platform that can eliminate the middleman between the sellers and consumers and facilitate a safe and legal authentication mechanism as well as the secure transaction platform (Miyazaki & Fernandez, 2001). Lastly, the quality and variety selection of products also will influence the online shopping adoption. Consumers are able to quickly seek out deals for goods or services that provided by many different vendors through online shopping (Ahmad, 2018). They can buy better quality products with a satisfied price from a wider variety of stores by using the search engine (Zhang. 2011).

2.5 Theoretical Background

Few theories has been used to explain the adoption of online shopping such as Theory of Technology Acceptance Model (TAM) (Davis, 1989), Theory of Planned Behavior (TPB) (Ajzen, 1991), DeLone & McLean IS Success Model (Delone & Mclean, 2003) and few more. These theories have been used to understand the behavioral factors that lead to final decision which is buying through online. Thus, Technology Acceptance Model (TAM) is chosen because it is suitable for this research to examine the relationship between security and intention of adoption.

2.5.1 Theory of Technology Acceptance Model (TAM)

TAM was used to explain technology adoption behavior (Davis, 1989). Bagozzi *et al.* (1992) stated technology acceptance model is an adoption of the theory of reasoned action (TRA) to the field of information system (IS). TAM focused on two behavioral beliefs which are perceived usefulness and perceived ease of use to determine an individuals' intention to use a system. A study by Hartono *et al.* (2014) found confidentiality, integrity, availability and non-repudiation as the factors that influence intention of online shopping adoption.

2.6 Model Development: The Relationship between Security and Online Shopping

The development of research framework for this study was adopted from TAM theory. TAM will be used to explain the perceived usefulness of security. This study has one dependent variable which is intention of adoption and one independent variable which is security. This independent variable will be further investigated through three dimensions which include confidentiality, integrity and availability and will be explained in detail in next section.

2.6.1 Confidentiality Dimension

Confidentiality defined as limiting unauthorized individual from access to confidential data or information such as using encryption to safeguard transmitted data over network and stored data in servers (Neama *et al.*, 2016). System with superior confidentiality is better to prevent the leakage of information to an unauthorized party (Hartono *et al.*, 2014). Encryption and authentication such as password-based and token-based authentication are commonly used to maintain confidentiality (Cherry *et al.*, 2017). According to Choon-Yin & Sharma (2015), they stated that confidentiality of information as the factor that influences the online shopping adoption.

2.6.2 Integrity Dimension

Integrity refers to the degree of improper modifications of information that are anticipated (Hartono *et al.*, 2014). Integrity involves maintaining the consistency, accuracy and trustworthiness of information and prevention modification from other unauthorized parties (Cherry *et al.*, 2017). Digital signatures and encryption are commonly used to protect the integrity of data (Cherry *et al.*, 2017). According to research by Thakur & Srivastava (2015), they investigated that the aspects of integrity, confidentiality, authentication as the factors that influence the online shopping adoption.

2.6.3 Availability Dimension

Availability refers to the degree to which information is available to authorized subjects when it is required (Hartono *et al.*, 2014). Availability of information involves ensuring that authorized parties are able to access the information when it is needed (Cherry *et al.*, 2017). Availability disruption can occur as a side effect of some problems within the web-based enterprise application such as poor exception management and buffer overflows (Hamed, 2016). Back-up systems are commonly used to maintain availability of information (Cherry *et al.*, 2017). Based on Khare (2016), stated that convenience, information availability and cost factors will influence customer online shopping adoption.
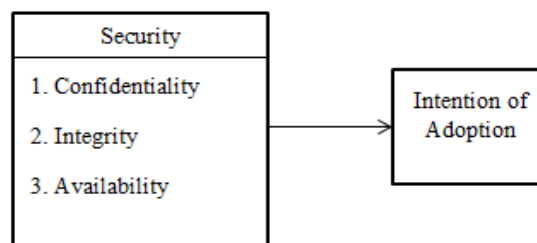
2.7 Conceptual Framework

Figure 1: Conceptual framework

Conceptual framework aims to show independent and dependent variable in this study. In this research, the security dimensions that become independent variable are confidentiality, integrity and availability and the dependent variable is online shopping adoption.

2.8   Hypothesis

H_1: There is a significant relationship between confidentiality and intention of online shopping adoption.
H_2: There is a significant relationship between integrity and intention of online shopping adoption.
H_3: There is a significant relationship between availability and intention of online shopping adoption.

3.   Research Methodology

3.1 Research Design

In this research, both descriptive research and quantitative approach are being used. Descriptive research provides a detailed and highly accurate picture of the research. Quantitative research is being used because this method is fast and can cover a wide range of situation by picking sample to present the population that desired to study. Moreover, the data collected through questionnaire survey and secondary data will provide a more reliable result (Ahmad, 2018).

3.2 Sampling Method

The collection of data conducted in UTHM with an estimated population of 16000 UTHM students. Based on the sampling schedule of Krejcie & Morgan (1970), this study has set a total of 375

respondents to answer the questionnaires that have distributed. Researcher chose this place due to easy accessibility and proximity to researchers.

3.3 Research Instrument

This research used quantitative method with questionnaire as research instrument. The questionnaire is divided into three sections which are section A, B and C. Section A will explain the background of the respondents while section B will ask the question about intention of adoption and section C will ask about security dimensions which are confidentiality, integrity and availability towards intention of adoption. The questionnaire was adopted from past study that conducted by Hartono *et al.* (2014). This instrument consists of several items as measured by using Five Point Likert Scale which is 1 for strongly disagree to 5 for strongly agree.

3.4 Data Collection

Both primary and secondary data are collected for this research and these data are used to answer the hypotheses and research questions.

3.5 Data Analysis

Analysis of data had taken part in order to identify the finding of the research and to establish whether this research will be meeting the research objectives. Data which collect from the primary sources which was questionnaire will be analyzed by using the descriptive analysis method and correlation analysis.

3.5.1 Descriptive Analysis

Descriptive analysis is used to see percentage and average mean value and frequency (Flynn, 2011). In this study, researcher will use descriptive analysis in relation to know how to obtain the population information from the sample. Statistical analysis method that used to analyze the data for this research is use the SPSS software. Further, the research can made clarification on the basic results and data information from percentage and mean for the research.

3.5.2 Correlation Analysis

Correlation analysis is used to access the relationship between the variables (Akhilesh, 2019). In this study, researcher will use correlation analysis in relation to know how to measures the extent of correspondence between the variables. Spearman's correlation coefficient method is use to express the strength of the relationship between the variables since the normality test showed that the data was not normally distributed (Patrick *et al.*, 2018).

4. Data Analysis and Results

4.1 Response Rate

A total of 375 sets of questionnaires have been distributed to UTHM students but only 100 sets were getting back. The response rate is 26.67%.

4.2 Reliability Test

The Cronbach's Alpha Reliability test had been used to identify the internal consistency approach for each item of scale in the instrument of the study. For pilot test, 30 questionnaires have been distributed to Universiti Tun Hussein Onn students and the result questionnaire has been analysed using SPSS. The table below shows the reliability test of pilot study. Table 1 shows the Cronbach's alpha value for 30 respondents while Table 2 shows the Cronbach's alpha value for the actual data in this

study. According to Bonett and Wright (2014), the value of Cronbach's alpha value should be more than 0.7 to be acceptable in research.

Table 1: Cronbach's Alpha value for pilot test

Factors	Cronbach's Alpha	No. Item
Confidentiality	0.874	3
Integrity	0.874	3
Availability	0.895	3
Intention of Adoption	0.880	4

Table 2: Cronbach's Alpha value for actual study

Factors	Cronbach's Alpha	No. Item
Confidentiality	0.813	3
Integrity	0.837	3
Availability	0.874	3
Intention of Adoption	0.894	4

4.3 Descriptive Analysis (Demographic)

Table 3: Gender of Respondents

Gender	Frequency	Percentage (%)	Cumulative Percentage
Male	38	38	38
Female	62	62	100
Total	100	100	

Table 3 shows the number of male respondents a total of 38 respondents while the total number of female respondents is 62 respondents out of 100. Majority of respondents have age range between 22 to 24 years old. While students from FPTP provide the highest respond with 24 respondents while students from FKAAS provide the lowest respond with only 8 respondents.

4.4 Descriptive Analysis (Variables)

Descriptive analysis is used to examine the characteristics of individual variables. Thus, the researcher has examined the data to describe the mean and standard deviation for all variables which are confidentiality, integrity, availability and intention of adoption. Besides, this analysis is an efficient way to differentiate each part in the mean distribution based on Likert Scale to measure the level of all independent variables and dependent variables.

4.4.1 Confidentiality

Table 4: Mean and Standard Deviation for Confidentiality

No.	Item	Mean (M)	Std. Deviation (SD)
1	Using online shopping can make someone uses my username and read my transactional information.	3.34	1.017
2	Using online shopping can make someone uses my username and make order.	3.18	0.770
3	Using online shopping can make someone steals my account information.	3.18	1.038
	Total Average	**3.23**	**0.810**

The mean or average interpretation scale based on the scale set by previous researcher in the study conducted. The level of agreement is low if the level is between 1.00 to 2.33. Besides, the mean average is categorized as moderate if the level is between 2.34 to 3.67. Lastly, the average mean range is high if the level value is between 3.68 to 5.00. The same table also presents the mean value. Table 4 shows the value of mean, standard deviation and the level of agreement for each item for confidentiality variable. It shows that the average of mean value is 3.23.

4.4.2 Integrity

Table 5: Mean and Standard Deviation Analysis for Integrity

No.	Item	Mean (M)	Std. Deviation (SD)
1	Online shopping transmits my transactional information accurately.	4.16	0.788
2	Online shopping may alter my transactional information.	3.28	0.900
3	Online shopping records my transactional information incorrectly.	2.62	0.919
	Total Average	**3.35**	**0.756**

Table 5 shows the value of mean, standard deviation and the level of agreement for each item for integrity variable. It shows that the average of mean value is 3.35. While the average value for standard deviation is 0.756.

4.4.3 Availability

Table 6: Mean and Standard Deviation Analysis for Availability

No.	Item Availability	Mean (M)	Std. Deviation (SD)
1	I will make online shopping by referring the available information provided by the sellers.	4.08	1.061
2	I will make online shopping depends on the security payment method provided by the sellers.	3.76	1.147
3	I will make online shopping if there is no problem with the system.	3.58	1.027
	Total Average	3.81	0.964

Table 4.11 shows the value of mean, standard deviation and the level of agreement for each item for availability variable. It shows that the average mean value is 3.81.

4.4.4 Intention of Adoption

Table 7: Intention of Online Shopping Adoption

No.	Item	Mean (M)	Std. Deviation (SD)
1	Online shopping will be my first option whenever I want to do my shopping.	3.60	1.101
2	I will use online shopping again.	4.00	0.985
3	I will use online shopping regularly.	3.28	0.965
4	I will use online shopping frequently.	3.18	0.957
	Mean Score Value	3.52	0.874

Table 7 shows the value of mean, standard deviation and the level of agreement for each item for intention of adoption. It shows that the average mean value is 3.52.

4.5 Normality Test

Normality analysis is required before continuing to the next test which is correlation analysis. According to Asghar and Saleh (2006), normality test is used to determine whether the study population is normally distributed, or not. If the data is normally distributed, then data parametric test is used by conducting Pearson correlation test. However, if the data is not normally distributed, then the non-parametric test will be conducted using Spearman correlation test. Besides, researcher needs to use whether Kolmogrov-Smirnov or Shapiro-Wilk test to determine the distribution of data normality.

Table 8: Normality Test Analysis

Variables	Kolmogrov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Confidentiality	.169	100	.000	.910	100	.000
Integrity	.124	100	.001	.957	100	.003
Availability	.188	100	.000	.851	100	.000
Intention of Adoption	.153	100	.000	.927	100	.000

Table 8 shows that the results of normality test using Kolmogrov-Smirnov and Shapiro-Wilk test. The analysis used 100 respondents and Kolmogrov-Smirnov values were taken into account because it was exceeded 50 respondents. This analysis shows that all the value of variables, p value <0.005 which are 0.000, 0.001 and 0.003. Hence, this data is not normal and non-parametric test of Spearman's Rho

correlation test will be used to describe the relationship between two variables and to achieve the objectives of the study.

4.6 Correlation Analysis

In this study, Spearman Rho's correlation will be used to measure the relationship between two variables.

4.6.1 The relationship between Security and Intention of Adoption

Table 9: Result of Correlation Analysis

Variable	Intention of Adoption
Confidentiality	-.008
Integrity	.086
Availability	.476**

** . Correlation is significant at the 0.01 level (2-tailed)

Table 9 shows the Spearrman correlation results for the relationship between security sub-dimensions and intention of adoption. From the table, it shows the result of confidentiality (-0.008), integrity (0.086) and availability (0.476). If the value of $p<0.05$, there is relationship between all the variables. Thus, the correlation coefficient shows that there is a significant relationship between availability and intention of adoption.

4.7 The Level of Correlation

The result shows that availability dimension has a significant relationship with intention of online shopping adoption with r=0.0476 which is moderate strength of relationship. However, confidentiality and integrity have less significant relationship with intention of adoption.

5.0 Discussion, Recommendation & Conclusion

5.1 Discussion

5.1.1 Research objective to investigate the level of security toward intention of adoption among gen Z.

Based on the result, availability dimension is at high mean level. However, confidentiality and integrity are at medium mean level. The result shows the availability dimension is strong factor that influence intention of adoption. According to Hartono *et al.* (2014), they found availability of information, security payment method provided by sellers and no problem with the system may influence the intention of adoption.

5.1.2 Research objective to examine the level of intention towards online shopping among gen Z.

Based on the result, most of the respondents agreed that they will use online shopping again which is at high mean level. However, online shopping will be their first option whenever they want to do their shopping, they will use online shopping regularly and frequently are at medium mean level. Overall, respondents in this study have a very positive feedback when they shopped online which can

conclude that the level of intention towards online shopping among gen Z is between medium and high level.

5.1.3 Research objective to identify the relationship between security and intention of adoption online shopping among gen Z.

The result shows that there is a significance relationship between availability dimensions toward intention of online shopping adoption among generation Z. In general, only one hypothesis is accepted which is H$_3$. Based on Khare (2016), stated and proved that the relationship between Technology Acceptance Model (TAM) and information availability towards intention of adoption have positive relationship and related.

5.2 Limitation of Study

In this study, there are some limitations that may result in the rejection of some of the hypotheses. First, respondents are only among Universiti Tun Hussein Onn students; thus, the result cannot be generalized of Malaysian students. Second, the author has used quantitative method in collecting the data. Therefore, the answer provided by the respondents are limited to questions that have been prepared.

5.3 Recommendation for Future Research

In research, future research or recommendation is needed to improve the research. The first recommendation is to expand the target respondents to students all over Malaysia. Second, future researcher could use other type of methodologies such as qualitative method to examine the security towards online shopping with the online shopping outcome such as online shopping satisfaction.

5.4 Conclusion

As conclusion, the level of availability dimension toward intention of adoption among generation Z is high as compared to other security dimension. This show that customers will opt to online shopping if the security provided by the seller is good and information about the security is available and transparent. Further, the other two dimension of security which are confidentiality and integrity have less significant relationship towards intention of adoption online shopping. Therefore, all three objectives that have been stated in the early of this study have been achieved. Hence, this research contribute to the body of knowledge especially in understanding the respondents' perceptions towards security dimensions and intention of adoption on online shopping.

References

Akhilesh, G. (2019). What Is the Correlation Coefficient. Retrieved from *https://www.investopedia.com/terms/c/correlationcoefficient.asp*

Agyapong, H. A. (2017). Exploring the Influential Factors of Online Purchase Intention in Finland. *Business Economics and Tourism, International Business*, 1-45.

Ahmad, M. (2018). Online Shopping Behavior among University Students: Case Study of Must University. *Advances in Social Sciences Research Journal*, 5(4), 228-242.

Bansal, G., Zahedi, F. M.,& Gefen, D. (2016). Do Context and Personality Matter? Trust and Privacy Concerns in Disclosing Private Information Online. *Journal of Information and Management*, 53(1), 1-21.

Bauerova, R., & Klepek, M. 2018. Technology Acceptance as a Determinant of Online Grocery Shopping Adoption. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 66(3), 737–746.

Bonett, D. G. (2008). Meta-Analytic Interval Estimation for Bivariate Correlations. *Psychological Methods*, 13(3), 173-181.

Bonett, D.G., &Wright T.A. (2014). Cronbach's Alpha Reliability: Interval Estimation, Hypothesis Testing, and Sample Size Planning. *Journal of Organizational Behavior*, 36(1), 3-15.

Butler, P. and Peppard, J. (1998). Consumer Purchasing on the Internet: Processes and Prospects. *European Management Journal*, 16(5), 600-610.

Cherry, M. A., Switzer, M. H., & Schenk, M. (2017). Method to secure file origination, access and updates. *United States Patent Application Publication,* 1(19), 1-13.

Choon-Yin, S., & Sharma, C. (2015). An Exploration into the Factors Driving Consumers in Singapore towards or away from the Adoption of Online Shopping. *Global Business & Management Research,* 7(1), 60-73.

Chua, Y. P. (2006). Research Method. Malaysia: McGraw-Hill Companies.

Dhanapal, S., Vashu, D., & Subramaniam, T. (2015). Perceptions on the Challenges of Online Purchasing: A Study from Baby Boomers, Generation X and Generation Y's Point of Views. *XIV International Business and Economy Conference Bangkok,* 1-16.

Doody, O., & Doody, C. M. (2015). Conducting a pilot study: Case study of a novice researcher. *British Journal of Nursing*, 24(21), 1074-1078.

Farah, G. A., Ahmad, M., Muqarrab, H., Turi, J. A., & Bashir, S. (2018). Online Shopping Behavior among University Students: Case Study of Must University. *Advances in Social Sciences Research Journal*, 5(4), 228–242.

Gail, M.S., & Anthony, R.A. (2013). Analyzing and Interpreting Data From Likert-Type Scales. *Journal of Graduate Medical Education,* 5(4), 541–542.

Ghani, N. A., & Sidek, Z. M. (2009). Personal Information Privacy Protection in E-Commerce. *Journal of Information Science and Applications*, 6(3), 407–416.

Hamed, T. (2016). Understanding of E-service Security Dimensions and its effect on Quality and Intention to Use. *Information & Computer Security*, 1–26.

Harn, A.C.P., Khatibi, A. & Ismail, H. (2006). E-Commerce: A Study on Online Shopping in Malaysia. *Journal Social Science*, 13(3), 231-242.

Hartono, E., Holsapple, C. W., Kim, K., Na, K., & Simpson, J. T. (2014). Measuring Perceived Security in B2C Electronic Commerce Website Usage: A Respecification and Validation. *Decision Support Systems*, 2(6), 1–37.

Jain S. & Angural V. (2017). Use of Cronbach's Alpha In Dental Research. 4 (3), 285-291

Justin, S. (2019). Mobile eCommerce Stats in 2018 and the Future Online Shopping Trends of mCommerce. Retrieved from: https://www.outerboxdesign.com/web-design-articles/mobile-ecommerce-statistics

Katawetawaraks, C., & Wang, C. L. (2011). Online Shopper Behavior: Influences of Online Shopping Decision. *Asian Journal of Business Research*, 1(2), 66–74.

Khare, L. (2016). Consumer Shopping Styles and Online Shopping: An Empirical Study of Indian Consumers. *Journal of Global Marketing,* 1(1), 40-53.

Lang, G., Stengård, E., & Wynne, R. (2016). Developing A Scale Measuring Perceived Knowledge and Skills Dimensions For Mental Health Promotion: A Pilot Test Using A Convenience Sample. *The Journal of Mental Health Training, Education and Practice,* 11(1), 10-22.

Masoud, E.Y. (2013). The Effect of Perceived Risk on Online Shopping in Jordan. *European Journal of Business and Management*, 5(6), 1-20.

Meskaran, F. (2015). The Effect of Perceived Trust, Perceived Security and Attitude On Online Purchase Intention. *Proceedings of the International Conference on Electronic Business (ICEB),* 417–426.

Moshrefjavadi, M. H., Asadollahi, A., Nourbakhsh, M., Poursaeedi, A., & Rezaie Dolatabadi, H. (2012). An Analysis of Factors Affecting on Online Shopping Behavior of Consumers. *International Journal of Marketing Studies*, 4(5), 81-98.

Neama, G., Alaskar, R., & Alkandari, M. (2016). Privacy, Security, Risk, and Trust Concerns In E-Commerce, 1–6.

Patel, K. K., & Patel, S. M. (2016). Internet of Things-IOT: Definition, Characteristics, Architecture, Enabling Technologies, Application & Future Challenges. *International Journal of Engineering Science and Computing*, 6(5), 6122–6131.

Patrick, S., Christa, B & Lothar, S. (2018). Correlation Coefficients: Appropriate Use and Interpretation. *Anesthesia & Analgesia* , 126(5), 1763-1768

Prescott, P. A. & Soeken, K. L. (1989). The Potential Users of Plot Work. *Nursing Research,* 38(1), 60-62.

Ramlan, R., & Omar, Z. F. (2011). A Study on Factor That Influence Online Shopping in Malaysia, *Journal of Marketing and Consumer Research*, 6(2), 32–40.

Rasool, A., Gupta, V., Slathia, B., & Mahajan, G. (2017). Online Shopping Adoption and Influencing Factors: A Study in Karnataka. *Journal of Management Sciences and Technology,* 4(2), 29–40.

Sari, R. P. (2017). Marketing Mix Implementation in Small Medium Enterprises: A Study of Galeristorey Online Business. *Etikonomi*, 16(1), 115–126.

Savarimuthu, I., & Devi, S. K. (2016). Customer Satisfaction Towards Online. *International Journal of Marketing and Technology*, 6(9), 14–20.

Shin, M., & Pathirage, D. (2017). Security Requirements for Tolerating Security Failures. *Proceedings of the 29th International Conference on Software Engineering and Knowledge Engineering*, 1(1), 487–490.

Siali, F., Mohammad A.S, M., & Rasool, A. (2017). Customer Satisfaction and Repurchase Intention in Online Social Network (OSN) Shopping Experience. *International Business Management,* 11(12), 2119-2129.

Tarhini, A., Alalwan, A. A., Al-Qirim, N., Algharabat, R., & Masa'deh, R. (2018). Analysis of the Factors Influencing the Adoption of Online Shopping. *International Journal of Technology Diffusion*, 9(3), 1–20.

Teing, C. H. (2014). Factors Affecting Online Shopping of Purchasing Apparels among Young Adults. 561–565.

Yilmaz, M. B., & Orhan, F. (2010). The Use df Internet by High School Students For Educational Purposes In Respect To Their Learning Approaches. *Procedia - Social and Behavioral Sciences*, 2(2), 2143–2150.

Zhang, L., Long, L., Xu, Y., & Tan, W. (2013). Influences of perceived factors on consumer purchasing behavior: In the perspective of online shopping capability of consumers. *Research Journal of Applied Sciences, Engineering and Technology*, 5(24), 8632–8639.