

## CONSUMER INTENTION TOWARDS ONLINE SHOPPING IN MALAYSIA

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**Abstract:** *There is a rapid expansion of online purchasing activities in Malaysia and a marked increase in government's attention towards promoting the use of electronic transaction. However, the issue of privacy and security remain among the major concerns. This paper aims to examine the determinants of consumer's intention to engage in online shopping in Malaysia. Utilising primary data collected from 392 respondents, we examined the determinants based on Theory of Planned Behaviour and Technological Acceptance Model using Structural Equation Modelling approach. We found that consumer's intention to shop online in Malaysia is significantly influenced by consumer's attitude toward online shopping and perceived behavioural control. Privacy remains a concern and privacy features of online transaction would boost consumer's positive attitude towards online shopping.*

**Keywords:** *Electronic Commerce, Malaysia, Structural Equation Modelling, Technology Acceptance, Theory of Planned Behaviour*

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## Introduction

The use of electronic commerce or e-commerce is gaining its importance in the East Asian region. Countries such as China, Taiwan, and South Korea are experiencing a rapid increase in e-commerce adoption. Meanwhile, their Southeast Asian counterparts, such as Malaysia, Indonesia, Vietnam, and Thailand, are still relatively new. Though, the market is growing, signalling a promising opportunity for companies through the alternative shopping platform. Malaysia, which consists of 20 million internet users, is reported to have the highest number of online shoppers among the Southeast Asian countries. There was a 161 per cent increase in online transactions recorded from 14.6 million in 2014 to 38.2 million in 2015 (The Star, 2017a). The intensity of online shopping activity is also high as 76 per cent of Malaysians shop online at least once a month (SME & Entrepreneur Magazine, 2017). At macro level, e-commerce growth has been significant (NST, 2018) with its contribution to Gross Domestic Product (GDP) has increased from 5.9 per cent in 2015 to 6.1 per cent in 2016. The figure is expected to continue a rising momentum given the many proposed initiatives by the government to boost the e-commerce sector.

The growing number of mobile shoppers has contributed to the enlargement of e-commerce community in Malaysia. The total transaction generated from online shopping using mobile phone has grown tremendously to 9.3 million in 2016 compared to 3.7 million in 2015 (The Edge Market, 2017). The growing trend of mobile commerce is due to its convenience, which allows consumers to shop 'on-the-go' using the available apps from online store, as well as enticing consumers with promotions that are exclusive to only mobile commerce. E-commerce companies are also constantly redesigning their online shopping platform to provide consumers with better shopping experience that allows consumers to search for certain product easily.

While the advantages of online shopping attract consumers to shop online, security and privacy remain a concern among the consumers. A survey by *PayPal* indicates that more than 58 per cent of respondents are concerned with disclosing their financial information while shopping online out of fear of cyber-criminal and 23 per cent respondents are not confident in disclosing their credit card detail to website that they are not familiar with. The issue of credit card security is one of the top concerns as consumers are hesitant to provide their financial information when they shop online. Credit card fraud was found to be the most common form of payment fraud, amounted to RM 29.4 million in 2013, involving around 60 per cent of the transaction occurred on the internet (The Star, 2014). As more consumers prefer to shop online using their mobile devices, they are more vulnerable to cyber-attack since they often use unsecured public Wi-Fi (Ngui & Estelle, 2015). Besides credit card fraud, online shopping without a proper online payment gateway system has also posed many problems. The usage of website, such as Facebook to sell product, has caused losses up to half a million Ringgit as the most common payment method used is direct online transfer into seller's personal bank account (Free Malaysian Today, 2016a). Even though online shopping has been around for many years in Malaysia, there is still a need for companies to continuously update their online security to prevent cybercrimes.

A reliable service is another area of concern among online consumers. Malaysian National Consumer Complaints Centre (NCCC) reported that they have received around 7000 complaints involving e-commerce services in 2014. The top three complaints are late delivery of goods (51.8 per cent), faulty goods received (19.1 per cent), and poor-quality goods (8.1 per

cent) (Free Malaysian Today, 2016b). Another challenge faced by ecommerce sector in Malaysia is the logistic service that is inefficient enough to cater the needs of the industry (The Star, 2017b). This will affect consumer's online shopping experience, simultaneously their attitude toward online shopping. In addition, consumers in Asia are not happy with the return policy where only 44 per cent are satisfied with the clarity of return policy, while higher percentages are recorded for consumers in Europe and America (The Edge, 2018).

Consumer's acceptance toward online shopping could also be influenced by word-of-mouth, including through the social media. In fact, word-of-mouth recommendation is often considered as the most reliable source of influence for those who shop online in Southeast Asia. Among the Southeast Asian countries, 86 per cent of Malaysia consumers would purchase products that are recommended by people close to them. The combination of word-of-mouth together with digital media would influence even more consumers to shop online (Insight, 2015). This further proven by 45 per cent of respondents worldwide indicate that online reviews, comments, and feedback on social media influence their online purchase (E-Marketer, 2016). Although there is a high rate of internet usage, consumer's circle of influence still plays an important role in shaping their decision to shop online, albeit the lack of evidence so far that provide information on how consumer's decision is shaped by people around them.

Consumers still have to possess the ability to use the internet, electronic device, and online shopping platform in order to start purchasing online. The ownership of mobile device and smartphone among Malaysian adults was around 96 per cent and 71 per cent, respectively, and the total number of active internet users is 20.6 million people. It was also noted that the usage of mobile device to shop online in Malaysia is around 47 per cent, which is above the global average of 44 per cent. The number of mobile shoppers has doubled up to 45.6 per cent in 2014, which put Malaysia in the third place at Asia Pacific in terms of growth rate (Wong, 2016). With only half of the population uses mobile device to shop online, this could indicate that consumers are required to have the ability to use the internet, electronic device and online shopping platform plus there is no evidence so far to indicate whether a person's self-confident plays a role in motivating one to shop online.

Two research gaps motivated this study. First, there are limited studies on adoption of technology for online shopping among young consumers, particularly among university students. We believe it is important to examine their online shopping behaviour as they constitute the highest percentage (16 percent) of internet users in Malaysia. Second, there are not many studies that use extended Technological Acceptance Model (TAM) to help explained consumer's intention to shop online in Malaysia, particularly examining the influence of privacy and security on attitudes towards online shopping. All of these motivate this study to be undertaken.

Therefore, the aim of this paper is to examine the factors explaining the acceptance toward online shopping in Malaysia based on extended Technological Acceptance Model (TAM). Specifically, we examine the effect of perceived usefulness, subjective norm, attitude, and perceived behavioural control on intention to shop online. Our model also evaluates the role of perceived ease of use, privacy and security in explaining attitude towards intention to shop online. In addition, we also examine the role of attitude as mediator between perceived usefulness and intention, and whether perceived usefulness mediates the relationship between

perceived ease of use and attitude towards online shopping. This paper comprises six sections as follow: Section 1 introduces the study, Section 2 presents the relevant literatures on the theoretical foundation of the study, Section 3 deals with the development of hypotheses, Section 4 explains the methods, Section 5 discusses the findings, and Section 6 concludes the paper.

### Theoretical Foundation

Study on behavioural intention is rooted from the Theory of Reasoned Action (TRA) introduced by Fishbein & Ajzen (1975), which uses the individual inner belief to explain their adoption behaviour. TRA assumes that the behaviour of an individual is determined by the individual's intention to engage in certain behaviour. Individual's intention, on the other hand, is determined by two factors, namely attitude towards the behaviour and subjective norm. Attitude refers to *"the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question."* (Ajzen, 1991, p. 188). Attitude is a belief about a behaviour and the person's view of the outcome from performing the behaviour. For example, if an individual views online shopping as a positive event, that individual will have a higher chance to engage in online shopping. Subjective norm is defined as *"a person's perceived social pressure to perform or not to perform a certain behaviour"* (Ajzen, 1991, p. 188). Subjective norm is influenced by a person normative belief that the behaviour is accepted and encouraged by the circle of influence. In the case of online shopping, a person believes that his or her family members, friends, and colleagues have positive view towards certain online behaviour would influence the person to shop online.

TRA is then extended into several theories including Theory of Planned Behaviour (TPB) and Technology Acceptance Model (TAM). TPB was introduced due to some limitations of TRA, which is dealing with voluntary behaviour, while TPB suggested that a person might not have a complete control over certain behaviour. Therefore, the third belief, which is perceived behavioural control, is added into the model to help explain the behavioural intention. Perceived behavioural control refers to *"people's perception of the ease or difficulty of performing the behaviour of interest"* (Ajzen, 1991, p. 183).

Davis (1989), introduced Technology Acceptance Model (TAM), which is widely used in IT-related researches, to predict human behaviour in adoption of technology. According to TAM, user's intention to use a specific technology is determined by their attitude toward the technology. The attitude of the user on the other hand is determined by two beliefs, namely perceived usefulness and perceived ease of use. (Davis, 1989, p. 320) defined perceived usefulness as *"the degree to which a person believes that using a particular system would enhance his or her job performance"* and perceived ease of use is defined as *"the degree to which a person believes that using a particular system would be free from effort"*. The model also indicates that perceived ease of use has indirect effect toward behavioural intention through perceived usefulness and perceived usefulness is assumed to have direct effect on behavioural intention. TAM also indicates a causal relationship between perceived usefulness and perceived ease of use that indicate a person's perception on the technology usage difficulty would influence the person's perception on the usefulness of the technology. Past studies have used TAM to examine the acceptance of enterprise resource planning (Al-Hadi & Al-Shaibany, 2017; Lakawathana, 2017; Lodhi, Tahir, Safdar & Mahmood, 2016; Regmi, Zhang, Khanal, Zhang & Kim, 2019), internet banking (Al-Sharafi, Arshah, Abo-Shanab & Elayah, 2016; Ben Mansour, 2016; Ghani, Rahi, Yasin & Alnaser, 2017; Marakarkandy, Yajnik & Dasgupta,

2017; Samar, Ghani & Alnaser, 2017), education technology (Binyamin, Rutter & Smith, 2019; Gasaymeh & Waswas, 2019; O'Dell & Sulastri, 2019; Scherer, Siddiq & Tondeur, 2019; Walker, Kho, Tan & Lim, 2019), and e-commerce (Nasution & Azmin, 2018; Syarifudin, Abbas & Heriyati, 2018; Valencia, Alejandro, Bran, Benjurnea & Valencia, 2019).

TAM is further extended to include additional constructs to increase the predictive power of the model and provide better explanation for individual to perform a particular behaviour (Arora & Sahney, 2018; Gómez-Ramirez, Valencia-Arias & Duque, 2019; Haldar & Goel, 2019; Yu, Yi, Feng & Liu, 2018), for instance, extended TAM by including TPB constructs and three additional constructs namely privacy, security, and compatibility that would affect attitude that are relevant in predicting consumer's intention to shop online. Study by Afiana & Priyanto (2018); Ha & Nguyen (2019); Haldar & Goel (2019); Mezghani & Almansour (2019); Yu, et al., (2018) also used the combination of TAM and TPB to understand the factor that would affect the adoption of internet banking. In contrast, Nasri & Charfeddine (2012) consider security and privacy as one construct. In understanding the initial adoption of online tax system in Taiwan, Wu & Chen (2005a) incorporates trust into their model as it was believed to have significant impacts on perceived usefulness, attitude, subjective norm, and perceived behavioural control. Meanwhile, Luarn & Lin (2005) examine the consumer's mobile banking usage by using an extended TAM with additional constructs related to trust and resource, namely perceived credibility, perceived self-efficacy, and perceived financial cost.

While there are many studies conducted by researchers in other countries that employed extended model to help explained intention to adopt technology, there are not many studies conducted in Malaysia that uses extended model of behavioural theory to help explained consumer's intention to shop online, particularly in looking into the influence of privacy and security. This sets as motivation in our study to adopt the extended model of TPB and TAM.

### **Hypotheses Development**

The baseline models of our analysis are TAM and TPB. The dependent variable is the intention to adopt or use a technology, defined by Shierz, Schilke & Wirtz, (2010, p.211) as the likelihood that an individual will use a technology, in our case online shopping. Attitude is the central variable that influences intention and mediates the relationship between other variables with the intention. Attitude refers to an individual's thought on performing the online shopping. Positive attitude toward certain behaviour would often result in the individual performing that behaviour. Thus, a consumer who has a positive view toward online shopping will prefer to shop online. The effect of attitude on intention to use electronic transaction has been advocated by many past studies (Arora & Kaur, 2018; Marafon, Basso, Espartel, de Barcellos & Rech, 2018; Namahoot & Laohavichien, 2018; Ngo, Chiu & Lai, 2018; Singh & Srivastava, 2018a). Therefore, we hypothesized that attitude toward online shopping determines one's intention to shop online.

*H1: Attitude toward online shopping has positive effect on consumer's intention to shop online.*

Consumers will only involve in online shopping if they perceive the activity as beneficial. For instance, technology is able to provide assistance and reduce the time taken to execute certain task would encourage an individual to utilize that technology and develop his/her positive

attitude toward the technology (Cai, Fan & Du, 2017; Scherer, Tondeur, Siddiq & Baran, 2018). Other studies also found significant positive impacts of perceived usefulness on attitude toward online shopping including (Jeng & Tseng, 2018; Moslehpour, Pham, Wong & Bilgicli, 2018; Tao, 2019). Based on these evidences, we propose the following hypothesis regarding the relationship between perceived usefulness and intention to shop online:

*H2: There is a positive relationship between perceived usefulness of online shopping and attitude toward online shopping.*

Perceived usefulness has also been linked to intention directly. A study by Marafon et al. (2018); Mutahar, Daud, Thurasamy, Isaac & Abdulsalam, (2018) claimed that perceived usefulness influenced intention for online banking in most of the continents. Other studies also found a significant role of perceived usefulness in determining intention, including Moslehpour et al. (2018); Shittu, Gambari, Gimba & Ahmad, (2018). However, the direct effect of perceived usefulness toward intention to shop online has mixed results. Studies by Ramadania & Braridwan (2019); Sichone, Milano & Kimea, (2018) found no evidence to support the direct relationship between perceived usefulness and intention of online banking activities. Despite the mixed findings, we propose the following hypothesis:

*H3: Perceived usefulness of online shopping positively affects consumer's intention to shop online.*

Technology that is relatively easy to use with simple guidance would encourage individuals to utilize it. Perceived ease of use refers to a person's belief on the difficulty level of using any particular system. The influence of perceived ease of use on behavioural intention to shop online has been theorized and validated by numerous studies. Among others are Vijayasarathy (2004) on online shopping, Al-Somali, Gholami & Clegg, (2009) on online banking adoption, and on adoption of online tax system by Wu & Chen (2005a). However, not all studies recorded significant relationship between perceived ease of use and attitude (Chien, Chu, Lee, Yang, Lin, Yang, Wang, & Yeh, 2019). The reason for perceived ease of use failed to affect attitude could be linked to consumer's prior experiences with certain technology. A consumer with prior experiences with a certain technology would make the particular technology to be user-friendly, which make the ease of using the technology less of a concern to the consumer. Based on the evidences, the following hypothesis is considered in this study:

*H4: Perceived ease of use positively affect consumer's attitude toward online shopping.*

Due to consumer's prior experience, instead of a direct effect of perceived ease of use toward attitude, perceived ease of use has been found to affect attitude indirectly through perceived usefulness. Sheppard & Vibert (2019) found that perceived ease of use has a direct effect toward perceived usefulness. Few studies in different settings that advocated the significant impacts of perceived ease of use on perceived usefulness in online transactions. Examples could be found in Artanti, Prasetyo & Sulisyowati, (2019); Nasri & Charfeddine (2012). In view of these findings, we hypothesized the following:

*H5: There is a positive relationship between perceived ease of use and perceived usefulness of online shopping.*

Privacy plays an important role in shaping consumer's attitude toward online shopping. Consumers that are sceptical on the safety of their personal information will be reluctant to engage in the transaction. Privacy refers to a person's belief that his or her personal information will not be misused by online shopping companies. It is an important factor to consider as online transaction requires consumers to disclose certain personal information. With the growing online market, companies must maintain good business ethics that will increase the trust and confidence among the consumers (Agag, 2019). Companies also need to disclose and state clearly its privacy policy to boost consumer's confidence toward disclosing personal information (Vijayasathya, 2004). Support for the contributions of privacy on attitude toward technology could be found in Lee, Eze & Ndubisi, (2011); Nasri & Charfeddine (2012); Santoso, Kusyanti, Catherina & Sari, (2018). Accordingly, the next hypothesis is:

*H6: Privacy has a positive effect on consumer's attitude toward online shopping.*

Other than privacy, consumers also place a substantial emphasis on security. Privacy and security are two different concerns often faced by online shopping consumers. While privacy refers to consumer's concern on misuse of personal information, security refers to consumer's concern with their personal data being compromised and given to third party (Martin & Murphy, 2017; Martin, Borah & Palmatier, 2017; Rainie & Duggan, 2016). Consumers would often shop online on a platform that is supported by reputable payment system. The link between security and attitude toward technology has been supported by several studies in the past. These include Alraja, Farooque & Khasbab, (2019), Shih (2004); Vijayasathya (2004). These evidences direct us to the following hypothesis:

*H7: There is a positive relationship between security and attitude toward online shopping.*

Subjective norm indicates that the perception and belief of others in a group, which an individual belongs to, would influence the individual behaviour toward the use of a particular technology. Subjective norm has been used by several studies to predict individual behavioural intention to adopt technology. However, subjective norm is often found to have the least significant influence on behavioural intention as compared to attitude and perceived behavioural control. Vijayasathya (2004) conducted a study on online shopping found subjective norm to be significant in determining of behavioural intention. A study on online service by Liao, Chen & Yen, (2007) shows subjective norm to have higher significant impact on behavioural intention as compared to perceived behavioural control. Study by Nasri & Charfeddine (2012); Alharbi, Kang & Hawryszkiewicz, (2015); Shin & Hancer (2016) indicates significant influence of subjective norm toward behavioural intention. Therefore, our hypothesis stating the relationship between subjective norm and intention to shop online is:

*H8: Subjective norm has a significant effect on consumer's intention to shop online*

A person is most likely to perform a particular behaviour when he or she obtains certain resources (external factor) and confidence (internal factor), which refers to as perceived behavioural control. The link between perceived behavioural control and behavioural intention has been validated by several studies. In a study by Nasri & Charfeddine (2012), they found that perceived behavioural control to be a significant determinant toward behavioural control. Liao, Chen & Yen, (2007), also found similar result when they examine customers' intention

to continue using e-service in the United States. Wu & Chen (2005a), who conducted a study on the adoption of online tax in Taiwan also found behavioural intention to be significantly influenced by perceived behavioural control. A comparative study on online shopping by Lin (2007), showed that perceived behavioural control has significantly affected the behavioural control in both TPB and Decomposed TPB. Given the evidences, the next hypothesis is formed:

*H9: Perceived behavioural control influences consumer's intention to shop online positively.*

Self-efficacy, which is one of perceived behaviour control internal factors, refers to an individual's judgment on how well they would perform a particular behaviour (Bandura, 1991). Individuals who have high self-confidence in performing a particular task are more likely to perform self-efficacy. Self-efficacy is not based on the skill a person has but the person's confidence level to perform a particular behaviour with the skill he or she has at that time. The link between self-efficacy and perceived behavioural control has been examined by several studies in the past. Self-efficacy is often included as a construct to help provides better explanation for perceived behavioural control influence toward behavioural intention. A study by George (2004), on internet purchasing among college students found self-efficacy to have a significant positive effect on perceived behavioural control. Nasri & Charfeddine (2012), also found similar results where individuals that are able to use a computer well have a higher confidence to adopt internet banking. A comparative model study by Lin (2007), also found perceived behavioural control to be significantly affected by self-efficacy. Based on the results of previous studies, this study hypothesizes that:

*H10: Self-efficacy has a significant effect toward consumer's perceived behavioural control.*

#### Summary of Past Literature

Constructs	Source
• Perceive Ease of Use	• Hausman & Siekpe (2009); Marza, Idris & Abror, (2019); Moslehpour et al. (2018); Ramadania & Braridwan (2019)
• Perceived Usefulness	• Frimpong, Li, Gyamfi, Asaah & Amoah, (2018); Hong, Kim & Lennon, (2018); Kahar, Wardi & Patrisia, (2019); Mosunmola, Adegbuyi, Kehinde, Agboola & Olokundun, (2019); Pikkarainen, Pikkarainen, Karjaluota & Pahnla, (2004)
• Security	• Ramadania & Braridwan (2019); Tao (2019)
• Privacy	• Cui, Lin & Qu, (2018); Chiu, Lai & Thi, (2019); Lin (2007) • Bandara, Fernando & Akter, (2020); Belkhamza, Niasin & Idris, (2019); Jain, & Mishra, (2019); Rahman (2013); Shih (2004); Heijdenet, Verhagen & Creemers, (2003); Wu & Wang (2005b)
• Attitude	• Arora & Aggarwal (2018); Arora & Rahul (2018); Changchit, Cutshall, Lonkani, Pholwan & Pongwirithon, (2019); Chen, Chu, Wu, Tsembel & Shen, (2019); Hausman & Siekpe (2009); Jukariya & Singhvi (2018); Kaplan (2018); Loketkrawee & Bhatiasevi (2018); Rao, Hymayathi, & Rao, (2018); Shih (2004); Singh & Srivastava (2018b); Pikkarainen et al. (2014)

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|---------------------------------|---|
| • Behavioural Intention         | • Agarwal & Singh (2018); Habeeb & Sudhakar (2019); Vijayasarathy (2004)  |
| • Subjective Norms              | • Frimpong et al. (2018); George (2004); Suh & Han (2002); Ramadania & Braridwan (2019); Santy & Zulianti (2018)  |
| • Perceived Behavioural Control | • George (2004); Li, Xu & Xu, (2018)  |
| • Self-Efficacy                 | • Ahmad, Attiq, Ahmad, Ilyas & Kulsoom, (2019); Jeng & Tseng (2018); Li et al. (2018); Massad & Berardelli (2016); Nasri & Charfeddine (2012); Ramadania & Braridwan (2019); Thakur, (2018); Zamzuri, Kassim, Shahrom & Humaidi, (2018) |

Sources: Author Compilation

### Data and methods

The population of our study is university students representing young consumers by employing purposive sampling technique. Malaysian Communications and Multimedia Commission in their survey of “Malaysia Internet Users Survey 2018” reported, the highest percentage (15.6 per cent) of internet users is from the age of 20-24, which are the age of university students (Malaysian Communications and Multimedia Commission, 2018). Moreover, the majority of internet users are individuals with education level of at least upper secondary level, making the university students as the biggest population of online shoppers. Therefore, by using university students as the subject of this study, we are able to analyse the acceptance of online shopping of existing and future online shopping users.

The samples consisted of 392 university students who participated in this study. We rely on primary data collected through survey to achieve the outlined objectives. The list of all constructs included in the questionnaire could be found in Appendix A. Five-point Likert Scale was used for measurement ranging from 1 (strongly disagree) to 5 (strongly agree). We decided on the 5-points Likert scales to increase response rate as it appears to be less confusing instead of the higher scales. It also provides enough variances in variables measurement (Bouranta, Chitiris & Paravantis, 2009). On the other hand, the higher scales (7 and 10-points) were avoided as they are more time consuming for respondents to answer questions (Johns, 2010). We applied Structural Equation Modelling (SEM) approach to examine the determinants of intention to shop online among consumers. SEM is a second-generation statistical method that is used to analyse the relationship between variables in a model (Awang, 2012). SEM may function better than multiple regression as it takes into account the modelling of interaction, nonlinearities, correlated independents, measurement error, correlated error terms, and multiple latent independents each measured by multiple indicators (Lowry & Gaskin, 2014). SEM is often more preferable to Ordinary Least Square (OLS) especially when latent construct is used in the model consisting of multiple items. This is because latent variables cannot be measured directly as latent variables are hypothetical in concept, such as consumer’s behaviour, purchase intention, customer satisfaction, and others. One of the advantages of using SEM is that it is able to estimate the relationship among constructs simultaneously in the model. SEM is also capable of assessing the model fitness, reduce measurement error through confirmatory factor analysis (CFA), analysing mediating effect among constructs, and correlate error terms among items to improve the model.

### Summary of Fitness Indexes

Name of Category	Name of Index	Index Value	Level of Acceptance
Absolute Fit	RMSEA	0.05	< 0.08
	GFI	0.847	> 0.90
Incremental Fit	CFI	0.962	> 0.90
	TLI	0.958	> 0.90
	NFI	0.926	> 0.90
Parsimonious Fit	Chisq/df	1.988	> 5.0

Source: Author Calculation

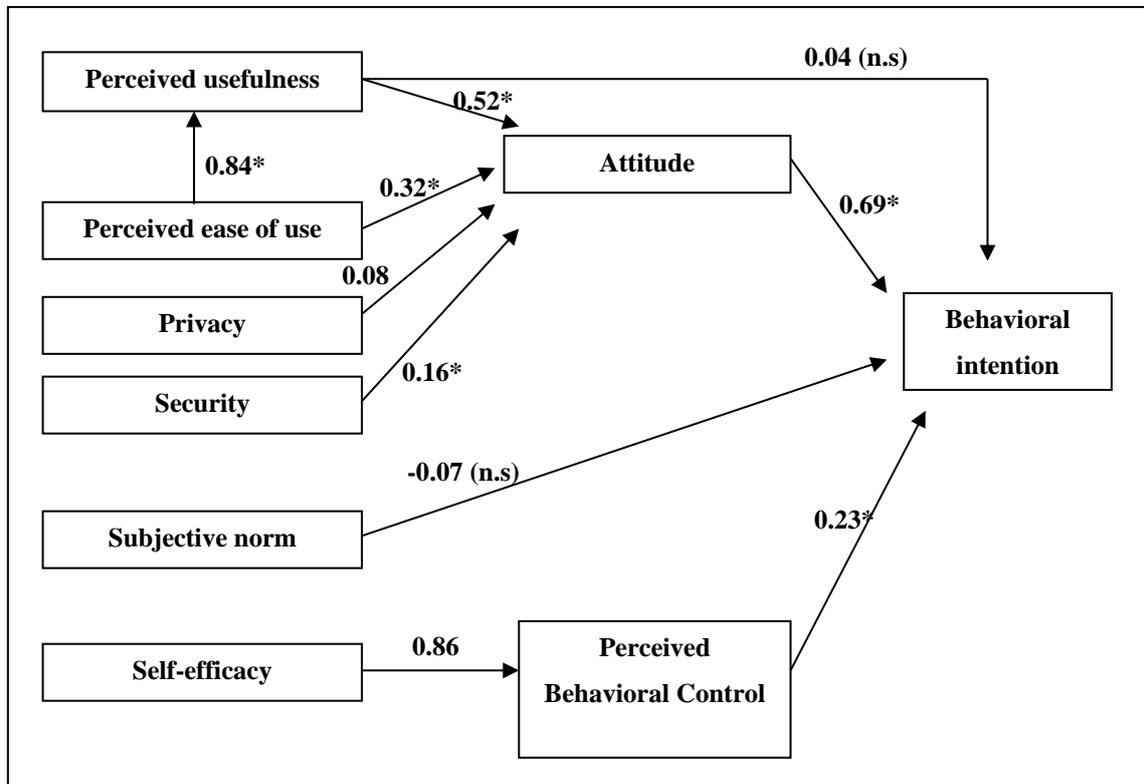
The Fitness Index is used to validate the overall fit of the model, specifically to indicate how well the proposed theory fits the observed data set. The model has RMSEA of 0.059, GFI of 0.821, CFI of 0.946, TLI of 0.942, NFI of 0.910, and  $\chi^2/df$  of 2.361, which indicate that the structural model has a good model fit. All the fitness indices exceed their acceptable level; thus, we conclude that the model has achieved adequate goodness-of-fit.

We performed CFA on a pooled measurement model that includes all latent constructs in one measurement model. The initial step before performing CFA is to examine the measurement model unidimensionality and modification index (MI). Items that have factor loading below 0.60 will be deleted. Paired error terms with modification index value above 15 will be correlated with each other and set as “free parameter estimate”. Individual constructs are then examined for validity and reliability. There are three types of validity test to determine the model validity, namely convergent, construct, and discriminant validity. We found the convergent validity exceeds the required level since all items in the measurement model is statistically significant where the AVE value for each construct is greater than 0.50. Construct validity is also achieved as the measurement model achieves the required fitness indexes level, while discriminant validity is achieved as the Average Variance Extracted (AVE) is greater than Maximum Shared Variance (MSV) and the square root of the AVE is greater than its inter-construct correlations. All constructs achieved all types of validity. On the other hand, for reliability, the internal reliability is checked based on Cronbach’s alpha, construct validity, and AVE. To be considered reliable, the Cronbach’s alpha must be above 7.0, the CR value must be above 6.0 and the AVE value must be above 5.0. All constructs surpass these requirements.

### Findings

The result of structural equation modelling is presented in Figure 1. The finding of this study indicates that the extended Theory of Planned Behaviour is capable of explaining a high proportion ( $R^2 = 75$  per cent) of the variation in consumer’s intention to shop online.

### SEM Final Model



\* $p < 0.01$ ; n.s: not significant  
 Source: Author Computation

The direct path analyses have examined all ten hypotheses derived in this study and the results are summarized in Table 3. We found a significant positive relationship between attitude and intention to shop online ( $\beta=0.812$ ,  $p < 0.01$ ), in support of H1. Upon examining the determinants of attitude, the estimation results indicate that perceived usefulness ( $\beta=0.433$ ,  $p < 0.01$ ), perceived ease of use ( $\beta=0.291$ ,  $p < 0.01$ ), and security ( $\beta=0.139$ ,  $p < 0.01$ ) are significant in influencing consumer's attitude toward online shopping. Therefore, H2, H4, and H7 are supported as shown in Table 4. Perceived usefulness ( $\beta=0.039$ ,  $p = 0.495$ ) however does not explain intention to shop online, leading to rejection of H3. Perceived ease of use ( $\beta=0.949$ ,  $p < 0.01$ ), on the other hand, is found to influence perceive usefulness significantly, therefore H5 is supported. Meanwhile, privacy ( $\beta=0.056$ ,  $p = 0.124$ ) is found to be insignificant in determining attitude and thus H6 is rejected. Other than attitude, intention to shop online is also explained by perceived behavioural control ( $\beta=0.197$ ,  $p < 0.01$ ), supporting H9. In the light of H8, which examined the role of subjective norm on intention to shop online, our estimation results suggest that the hypothesis is to be rejected ( $\beta=-0.059$ ,  $p = 0.022$ ). Finally, self-efficacy ( $\beta=1.009$ ,  $p < 0.01$ ) has a positive significant relationship with perceived behavioural control, thus H10 is supported.

Consequently, several indirect paths are also examined using our model. The first indirect path is the role of perceived usefulness in mediating the relationship between perceived ease of use and attitude toward online shopping. The second indirect path is between perceived usefulness

and intention where attitude is the mediating factor. The indirect path analyses suggest full mediation in both relationships, as presented in Table 4.

#### Summary of Mediating Testing Analysis

			Direct Relationship without Mediator	Direct Relationship with Mediator	Indirect Relationship	Mediation Effect
AT	←	PEOU	0.79***	0.215 (n.s)	0.582***	Full Mediation
INT	←	PU	0.73***	0.083 (n.s)	0.685***	Full Mediation

Notes: PEOU = Perceived Ease of Use; PU = Perceived Usefulness; AT = Attitude; INT = Behavioural Intention; \*\*\* p < 0.001; n.s: not significant.

Attitude is found to be the major determinant on consumer's intention to shop online. This finding is consistent with many studies conducted in the past on different technology, such as online shopping, internet banking, and others. Hasbullah, Osman, Abdullah, Salahuddin, Ramlee & Soha, (2016); Jaffar & Musa (2016); Zeweld, Van Huylenbroeck, Tesfay & Speelman, (2017) have found attitude to be the main determinant toward behavioural intention. Similar results were also found from studies on internet banking adoption by Mansour, Eljelly, & Abdullah, (2016); Nasri & Charfeddine (2012).

We found no significant direct influence of perceived usefulness toward consumer's intention to shop online. This finding is similar to the studies done by Vijayasathy (2004); Shih (2004) which also found perceived usefulness to have no significant direct influence on consumer's intention to adopt online shopping. Different studies by Abdullah, Jayaraman, Shariff, Bahari, & Nor, (2017); Wu & Chen (2005a) that looked into online tax also found no significant impact of perceived usefulness on behavioural intention. However, this study did in fact find perceived usefulness to have significant indirect influence on behavioural intention through attitude. With perceived usefulness having significant indirect effect on behavioural intention through attitude, this would indicate that perceived usefulness has significant direct effect toward attitude. This finding is similar to several studies in the past by Ha & Stoel (2009); Lin (2007); Erasmus, Rothmann & Van Eeden, (2015); Sondakh (2017). Perceived usefulness refers to consumer's perception that shopping online will benefit them and will make shopping much more convenient. In the light of our findings, if online shopping is able to help consumers to purchase items faster, easier, and without having to spend extra time to the store, consumers would develop a positive attitude toward online shopping.

Perceived ease of use has significant direct effect on both perceived usefulness and attitude. This finding is similar to Abdullah, Kamal, Azmi, Lahap, Bahari, Din, & Pinang, (2019); Erasmus et al. (2015). We also found that perceived ease of use influences the consumer's attitude through perceived usefulness. The finding on perceived ease of use is consistent with the original Technology Acceptance Model, which suggests that perceived ease of use has direct and indirect effects on attitude. Perceived ease of use refers to consumer's perception on how easy it is to shop online. In this age of technology, many online merchants are competing to attract consumers by providing a platform that is relatively simple and easy to use. Many of these platforms are also providing features, such as items categorizing, variety of payment

channels, and special events that allow consumers to have a pleasant and enjoyable experience while shopping online. Majority of our respondents have prior online shopping experience and our samples are university students who are usually computer literate and are familiar with internet-based transactions. Therefore, easy interactive platform and consumer's prior experience with online shopping enable consumers to understand the benefits of online shopping and are able to engage in online shopping with ease, which in turn develop a positive attitude toward it.

Privacy and security are two important concerns in e-commerce. Upon examining the role of privacy and security, our estimation results suggest that privacy does not statistically influence consumer's attitude toward online shopping (Akturan & Tezcan 2012; Kokolakis, 2017) also found no relationship between privacy and attitude in their studies. Akturan & Tezcan (2012), who conducted a study on mobile banking with university students as their respondents mentioned that university students are more computer literate and more experienced in dealing with internet transactions, also are relatively higher risk tolerant toward online shopping as compared to the general population. This result could also indicate that consumers have resigned acceptance of certain level of privacy invasion would occur when shopping online in this age of database marketing (Vijayarathu, 2004).

However, security is found to have a significant effect toward consumer's attitude. This finding is consistent with previous studies by Vijayarathu (2004); Shih (2004); Nasri & Charfeddine (2012). The significant positive relationship between security and attitude indicates that consumers are being cautious when using credit card to make payment online. While innovation on technology has improved over the year since online payment started, issues of online security breach that expose consumer's credit card information to third party could reduce consumer's confidence toward online shopping. Therefore, online merchant has to provide high standard security payment system by using reputable online payment gateway such as PayPal or Ipay88 in order to change consumer's attitude toward online shopping.

Consumer's intention to shop online is not influenced by subjective norm, in contrast to some previous findings (Hasbullah et al., 2016). In this case of young consumers, their decision to shop online is not persuaded by their circle of influence, which includes family and close friends. On the other hand, perceived behavioural control has significant positive impacts toward behavioural intention. This result is consistent with Cai, Long, Li, Liang, Wang & Ding, (2019); Ru, Wang & Yan, (2018). This study also found self-efficacy to have significant positive impacts on perceived behavioural control. Studies by George (2004); Liao, Chen & Yen, (2007); Lin (2007); Nasri & Charfeddine (2012) also found similar results in their studies where individuals with high self-confident engage more in online shopping as they are more comfortable to shop online and are more likely to shop online. Consumer's self-efficacy on online shopping plays an important role in influencing individual to shop online. Consumers who have high self-efficacy would view online shopping as user friendly and easy to use since consumer would spend less effort and time learning to shop online and are likely to have less resistant to changes (Bandura, 1991). Prior experience with online shopping also contributes to consumer's self-efficacy and perceived behavioural control as shown in our survey where majority of our respondents have shopped online in the past.

## Conclusions

The objective of this study is to determine the influence of perceived usefulness, perceived ease of use, privacy, security, subjective norm, perceived behavioural control, and self-efficacy toward consumer's intention toward online shopping in Malaysia. Primary data collected through self-administered questionnaire from 392 respondents is utilized to examine the proposed research hypotheses. The measurement model suggests that the constructs used in this study have adequate validity and reliability, while the structural equation modelling shows a high model fit for the empirical data. The extended Theory of Planned Behaviour was able to provide a high explanatory power that is similar to prior research. The study found that consumer's behavioural intention to shop online in Malaysia is determined by consumer's attitude toward online shopping and perceived behavioural control. Perceived usefulness is found to influence behavioural intention indirectly through attitude and not directly as shown in the mediation analysis. Perceived ease of use is found to influence attitude both directly and indirectly through perceived usefulness. Privacy was the only construct that do not contribute to attitude toward online shopping. Subjective norm was found to have no effect on behavioural intention, which is a new finding as compared to past studies that found subjective norm to have positive effect toward behavioural intention. The significant positive result of perceived behavioural control and self-efficacy on behavioural intention is consistent with past studies.

Consumer's attitude toward online shopping has the most influence on consumer's intention to shop online, therefore it is worth for online retailers to also attract consumers in general to shop online. The usefulness of online shopping seems to be the most concern when they shop online. For instance, while online shopping does provide the convenience of shopping without having to physically visit the store and goods are delivered to their houses, but availability to receive the package are among the drawbacks. Majority of the consumers are working from nine am to five pm, which make it difficult for them receive the package. Therefore, online retailers could provide new mechanism or alternative to cater the needs of consumers to attract more customers. One of the strategies to increase the usefulness of online shopping is perhaps by providing convenient goods pick up location for consumers after working hours, such as 24 hours convenient store. Online shopping businesses should also often monitor the merchants that are selling products as consumers are more likely to purchase items from merchants that have good review and positive customer's feedback.

In order to protect consumer's safety online, Online Payment Gateway, such as PayPal and iPay88, are used where they will act as a 'middle man' for online website to accept payment from consumers and transfer it to the merchant while holding on to consumer's payment information, such as credit card details. By doing so, this would prevent merchants from getting hold of consumer's information that could cause the information to be stolen by others, as merchants do not have sufficient security system to protect consumer's information. PayPal reported that more than 70 per cent of respondents felt safe when transaction payment is done using reputable payment system.

Another concern faced by consumers in shopping online is the ease of using the online shopping website or apps. Online shopping businesses should test out their website or apps with a wide range of users, so they are able to investigate their consumer's experiences. Consumer's feedback is crucial to the improvement of consumer's online shopping experience and allow for a more enjoyable shopping environment. Lastly, online shopping security does play a role

in affecting consumer's attitude toward online shopping. Consumers are concerned with disclosing their credit card details to online store that do not use reputable and trusted payment system, such as PayPal or iPay88. If online store were to provide better customers' protection policies, using reputable and trusted payment system, and allowing consumers to make payment without disclosing credit card details, consumers would feel safer and are more likely to shop online.

Besides the effort of online retailers, the government should also provide a helping hand to boost the ecommerce industry. As seen in the Malaysia budget 2018, the government has emphasized that ecommerce will push Malaysia toward achieving a fully developed digital economy. The government has planned to create a Digital Free Trade Zone (DFTZ) that will provide online retailers with skill training, financial support, and better internet connectivity that allow online retailers to have better online system. Ecommerce sector in Malaysia is expected to experience an accelerated growth with the help from the government and potentially boost the consumer's confidence toward online shopping.

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## Appendix A

**Table A1.** Constructs and the Items

Constructs	Items
<b>Perceived usefulness</b>	<p>Online shopping makes it easy to do product/service comparison</p> <p>Online shopping allows me to access useful shopping information</p> <p>Online shopping would save me time when buying product/service</p> <p>Online shopping provides broader selection of products/services</p> <p>I prefer online shopping for its convenience</p> <p>Online shopping allows me to purchase products/services from other countries</p>
<b>Perceived ease of use</b>	<p>My interactions with online shopping platform are clear and understandable</p> <p>I think online shopping platform is easy to use</p> <p>I think learning to shop online is easy</p> <p>I think it is easy to make payment for online shopping</p> <p>I think it is easy to become skillful at shopping online</p> <p>I think it is easy to purchase products/services online</p>
<b>Security</b>	<p>Matters to security have no influence on my online shopping</p> <p>Using credit cards to make purchases for online shopping is safe</p> <p>In general, making payments for online shopping is secure</p> <p>I feel safe in my transactions with shopping online</p> <p>Online shopping platform has adequate security features</p> <p>I trust in the technology an online shopping platform are using</p>
<b>Privacy</b>	<p>Online shopping companies should not use personal information for any purpose other than the one authorized</p> <p>Online shopping company should not share personal information about me without my permission</p> <p>I trust the ability of an online bank to protect my privacy</p> <p>My privacy is protected when shopping online</p>
<b>Attitude</b>	<p>The idea of online shopping is appealing</p> <p>I like the idea of buying products/services online</p> <p>I am satisfied with shopping online for products/services</p> <p>I feel that shopping online is interesting</p> <p>I like buying products/services online</p> <p>I think shopping online is a good idea</p>
<b>Subjective norm</b>	<p>People who are important to me would encourage me to use online shopping</p> <p>People who influence my behavior would encourage me to use online shopping</p> <p>My friends think that I should shop online</p> <p>I shop online because my friends use it</p> <p>I will have to shop online if my friends have already shop online</p> <p>I have to shop online because my friends think I should</p> <p>My family think that I should shop online</p> <p>I will have to shop online if my family have already shop online</p> <p>I have to shop online because my family think I should</p>
<b>Self-efficacy</b>	<p>I am confident of using internet banking even if there is no one around show me how to use it</p> <p>I am confident at shopping online even if I have never used it before</p> <p>I am confident at shopping online if I have only online instructions for reference</p> <p>I am confident at shopping online if I have seen someone else using it before trying it myself</p> <p>I am confident at shopping online if someone else has helped me get started</p> <p>I am capable of buying products/services online</p> <p>Online shopping is entirely within my control</p> <p>I have the resources and knowledge and ability to buy products/services online</p> <p>It is easy to find the needed products/services when shopping online</p>

	<p>It is easy for me to order products/services online</p> <p>It is easy to receive products/services purchased via online shopping and to have them delivered to my home</p>
<b>Intention</b>	<p>I will shop/continue to shop online for products/services in the near future</p> <p>I intend to shop/continue to shop online in the near future</p> <p>I expect to shop/continue to shop for products/services online in the near future</p> <p>I intend to shop/continue to shop online to be more familiar with online shopping platform</p> <p>Given the chance, I predict I will shop/continue to shop online in the future</p>