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Young Adult Malaysian Consumers' Intention to Shop via Mobile Shopping Apps

Ing Phang (Grace)
Faculty of Business, Economics and Accountability, Universiti Malaysia Sabah, Malaysia

Osman Zaiton
Labuan Faculty of International Finance, Universiti Malaysia Sabah, Malaysia

Chun How Cheuk
Faculty of Business, Economics and Accountability, Universiti Malaysia Sabah, Malaysia

Abstract

This study aims to understand the intention among young adult Malaysian consumers to shop via mobile shopping apps. Utilizing the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), factors including Performance Expectancy, Effort Expectancy, Facilitating Conditions, Social Influence, Habit, Hedonic Motivation, and Personal Innovativeness are used to understand shopping intention via mobile shopping apps. A total of 180 usable questionnaires were collected and analyzed. Young adult consumers were found to have different sets of considering factors which influence their intention to shop via mobile shopping apps. The results indicate the user context variables proposed by UTAUT2, namely hedonic motivation and habits play the most significant roles on the young adult consumers, followed by social influence. However, this study revealed no significant relationships between performance expectancy, effort expectancy, facilitating conditions and personal innovativeness with intention to shop. Implications, limitations, future recommendations, and conclusion of this study are further discussed in this paper.

Keywords: Mobile Shopping Apps, Intention to Shop, Young Adult Consumers

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Introduction

Mobile shopping has witnessed tremendous growth due to rapid advancement in technology and high consumer familiarity (Lee & Wang, 2016). The availability of mobile shopping apps in recent years has made mobile shopping easier. The mobile apps industry is reported to have grown 80 percent globally in 2015 (Flurry Analytics, 2016) and the annual downloads for apps are expected to hit 268 billion by 2017 (Gartner, 2013). In fact, the total time spent on apps worldwide almost hit 900 billion hours in 2016, an increase of more than 150 billion hours compared to the previous year, with a 40 percent revenue growth to over USD 35 billion for Apple App Store (Thompson, 2017).

In Malaysia, mobile users are reported to spend an average of 66 minutes daily on mobile apps, making it one of the top four countries in Southeast Asia in terms of mobile apps usage (Statista, 2017a&b). A study by Malaysian Communication and Multimedia Commission (MCMC) reported that 96.3 percent of Malaysian respondents have claimed that the mobile phone is important in their daily lives (MCMC, 2015). However, despite its huge popularity and ability to generate huge profits, only 29 percent of Malaysians shop via mobile apps (Lim, 2016). The Our Mobile Planet Report showed that the most frequently downloaded apps among Malaysian users are games (59%), videos (45%), music (42%) and themes (30%) (Tiseno Integrated Solutions report, 2014) rather than shopping apps, indicating that Malaysian mobile shopping apps are still in their infancy (Chong, Chan & Ooi, 2012; Lee & Wong, 2016). The examination of the underlying reasons for the consumers' willingness or reluctance to shop via mobile phone, especially via mobile shopping apps is hence essential. Unfortunately, the published data of total usage of mobile shopping apps in Malaysia is at a minimum thus limiting the understanding of the mobile shopping apps market.

Young adult consumers were chosen as the focus of study for several reasons. First of all, young adults represent a significant group of Malaysian consumers. In fact, 35.1% of Malaysian hand phone users are young adults aged between 20 to 29 years (MCMC, 2014). The second reason is attributed to their higher acceptance of the latest mobile phone services (Islam, Kim & Hassan, 2013). Review of literature shows that young adult consumers tend to portray distinct and different buying attitudes and behaviours from that of the older generations (c.f. Ketcham, Siedler, van Gemmert & Stelmach, 2002; Peters, Hess, Vastfjall & Auman, 2007), especially in terms of media consumption and preferences (Fromm & Garton, 2013).

A number of online shopping studies have been conducted (i.e. Holmes, Byrne & Rowley, 2013; Clemons, Wilson, Matt, *et al.*, 2016; Pappas, Kourouthanassis, Giannakos, & Chrissikopoulos, 2016; Thakur, 2016). However, there is less focus on mobile shopping apps, particularly in the context of Malaysia. The review of the academic literature indicates that some of the available Malaysian mobile shopping studies examined the behavioral intention of mobile related services, but not particularly on mobile shopping apps. For instance, Leong, Ooi, Chong, & Lin (2013a) examined the intention to use mobile entertainment among young Malaysian consumers; whereas Jayasingh and Eze (2009) studied the behavioral intention of young adult consumers who

used mobile coupons. Tang, Lai, Law, Liew, and Phua (2014) on the other hand examined the mobile wallet adoption intention among Generation Y users. Generalisation of these findings to mobile shopping apps is debatable due to the fundamental differences between mobile shopping (or m-commerce) and mobile apps shopping, in which the former covers a wider set of applications, and operates not only via apps but also through web pages or web apps on mobile phones. Mobile shopping apps on the other hand, are normally hybrid apps which might not have high visibility compared to web apps (Budiu, 2013). People need to make a further effort to search and download the shopping apps before using them. This fundamental difference could lead to variations in consumer behaviours. As a result, separate and exclusive examination on mobile shopping apps is needed to provide a clearer picture of the influence of mobile shopping apps on consumer behavioural intention.

To present a robust examination of mobile apps shopping intention, this study utilises factors proposed by UTAUT2, namely Performance Expectancy, Effort Expectancy, Facilitating Conditions, Social Influence, Habit, Hedonic Motivation as the determinants to consumers' buying intention. Price value was considered irrelevant in the context of mobile apps shopping as most of the apps are free of charge, and hence not included in the model. However, based on the understanding that people who have higher level of innovativeness tend to use or adopt a new technology easily (Yi, Jackson, Park & Probst, 2006) compared to those who do not, this study also includes personal innovativeness as one of the determinants of consumers' intention to shop via shopping apps.

Literature Review

Introduced by Venkatesh, Thong and Xu in 2012, the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) is an improved version of the original UTAUT (Venkatesh, Morris, Davis & Davis, 2003), from a more organisational use context to a consumer use one. The UTAUT2 contains three additional factors compared to the original four constructs of the UTAUT, namely performance expectancy, social influence, effort expectancy, facilitating conditions, price value, hedonic motivation, and habit. Venkatesh *et al.* (2012) have claimed the UTAUT2 to be a better model to explain the variance in behavioural intention and use of technology as it acknowledges consumer awareness in the consumer use context (Carlsson, Carlsson, Hyvonen, Puhakainen & Walden, 2006). The three important predictors, which are price value, hedonic motivation and habit, have higher predictive power on consumers' intention to shop online (Venkatesh *et al.*, 2012).

Chong *et al* (2012) utilised and expanded the Technology Acceptance Model (TAM) to examine Malaysian consumers' perceived values on mobile shopping. They argued that the traditional variables within TAM were insufficient to provide a robust examination of intention to shop via mobile phone. It has also been arguable that some constructs such as ease of use and usefulness could not be sufficient and hence are less applicable to today's technology (Rocker, 2010). At the same time, numerous new technology adoption studies have applied the UTAUT and UTAUT 2 to examine consumer intention to use new technology such as m-payment, m-banking, m-learning, m-shopping and m-commerce

(c.f. Luo, Zhang & Shim, 2010, Yang, 2010, Venkatesh *et al.*, 2012; Chong, 2013; Chuang, 2011; Yi *et al.*, 2006). Looking into the nature of the mobile shopping apps which stresses a more consumer rather than organizational-use context, the UTAUT2 was adopted in this study to examine consumers' intention to shop via mobile shopping apps. Venkatesh *et al.* (2003) further concluded that future researchers do not have to select or pick a model by neglecting the contributions of other theories as UTAUT provides a unified view to explain user adoption of new technology and the improved UTAUT2 enhances the consumer-use context. Lewis, Fretwell, Ryan, and Parham (2013) further concluded that UTAUT theory acts as a root which is applied by researchers on several organisational technologies. This study excludes price value whereby the mobile shopping apps are mostly free of charge, making price value irrelevant. The framework is extended with the inclusion of a consumer personality variable, namely personal innovativeness.

Performance Expectancy

People's intention to buy is normally influenced by their expectation of the product or service performance they will receive. Performance expectancy is "*the degree to which using a technology will provide benefits to customers in performing certain activities*" (Venkatesh *et al.*, 2012, p. 159). It is presumed that the more a user believes that the performance of the mobile shopping apps will provide benefits (such as how useful it is in helping them to accomplish things quickly in their daily life), the higher the intention to shop via mobile apps. In other words, users will have higher intention to shop via mobile apps when perceived productivity is improved and job effectiveness is enhanced. In the m-commerce and m-banking studies for instance, Chong (2013) and AbuShanab and Pearson (2007) found remarkable positive relationships between performance expectancy and intention to adopt m-commerce and m-banking, respectively. Similar results were found in the Asian based m-commerce and m-banking studies conducted by Sun, Cao and You (2010) and Luo *et al.*, (2010). In the case of mobile apps shopping, higher performance expectancy is expected to contribute to higher behavioral intention. Hence, it is hypothesised that:

H1: Performance expectancy has a positive influence on consumers' intention to shop via apps.

Effort Expectancy

Venkatesh *et al.* (2012, p. 159) defined effort expectancy as "*the degree of ease associated with consumers' use of technology*". Venkatesh *et al.* (2012) and Chong (2013)'s studies have concluded that effort expectancy is one of the significant determinants of intention. In the case of mobile shopping apps, the mobile apps users perceive the apps application as simple when they could easily and clearly learn about the apps and its usage. Users eventually become more skillful and form a higher adoption rate of a technology such as mobile shopping apps, especially when it is easier to use (Leong, Hew, Tan & Ooi, 2013b). Similarly, in the case of mobile apps shopping, it is hypothesised that:

H2: Effort expectancy has a positive influence on consumers' intention to shop via apps.

Functional Conditions

Functional conditions or facilitating conditions are users' perceptions on the availability of "*resources and supports available to perform a behaviour*" (Venkatesh *et al*., 2012, p. 159), among the users of a new technology (Lewis *et al.*, 2013). These functional conditions are the necessary resources and knowledge to use a particular mobile apps, and indicates how easily one can get help from others when they face difficulties. Users are also encouraged when the apps used are compatible with other technologies that they have used before. On the contrary, higher reluctance and resistance to use new apps will be experienced if the functional conditions are insufficient. The review of the literature shows that functional conditions significantly influence the intention to adopt m-commerce (Chong, 2013) as well as intention to use 3G mobile telecommunication services (Wu, Tao & Yang, 2007). Other m-banking studies in developing countries such as Ghana and Malaysia, by Crabbe, Standing, Standing and Karjaluoto (2009) and Yeoh and Chan (2011), have further confirmed the roles of functional conditions on intention. It is hence hypothesised that:

H3: Facilitating conditions have a positive influence on consumers' intention to shop via apps.

Social Influence

Social influence is defined as "*the extent to which consumers' perceive that important others believe they should use the technology*" (Venkatesh *et al*., 2012, p. 159). It is proven in Chong's (2013) study on e-commerce adoption that social influence is a significant determinant of intention. Chong posits that social influence factors such as peers, family, media, and other users of m-commerce are likely to have a huge influence on intention formation among m-commerce users. His study is further supported by Taylor, Voelker and Pertina (2011), in which young adults' adoption of mobile apps is found significantly influenced by their peers or friends. In other words, these social influencers are anyone important and influential to the users. In the case of young adult consumers, as their opinions are much valued and appreciated by the young adult consumers, higher intention will be formed when the social influencers think it is appropriate to use a particular new technology. Hence, it is hypothesised that:

H4: Social influence has a positive influence on consumers' intention to shop via apps.

Habit

Habit in the context of information system is defined as "*the extent that people tend to execute behaviours automatically*" (Limayem, Hirt & Cheung, 2007, p. 705). According to a telecommunication study carried out by Chuang (2011), habit is one of the vital factors of intention to change mobile service providers in Taiwan. The same proposition is also supported by Liao, Palvia and Lin (2006) where habit is found to affect the intention to adopt e-commerce. In the case of mobile shopping apps, it is postulated that users who are used to or addicted to any apps would naturally use mobile shopping apps and eventually the usage becomes a habit for them. They will then form higher buying intention. Hence, it is hypothesised that:

H5: Habit has positive influence on consumers' intention to shop via apps.

Hedonic Motivation

Hedonic motivation is defined as "*the fun or pleasure derived from using a technology*" (Venkatesh *et al.*, 2012, p. 161). It is generally found to be an important factor to influence intention to adopt mobile internet (Venkatesh *et al*., 2012), even though Magni, Taylor and Venkatesh (2010) argue that its influences could be varied across different stages of technology adoption. Despite the different findings, hedonic motivation is important as consumers tend to use a mobile entertainment which bring them joy and happiness (Leong, Ooi, Chong & Lim, 2013a), or when it is considered as fun, entertaining and provides pleasure. They eventually form higher buying intention. Therefore, it is hypothesised that:

H6: Hedonic motivation has a positive influence on consumers' intention to shop via apps.

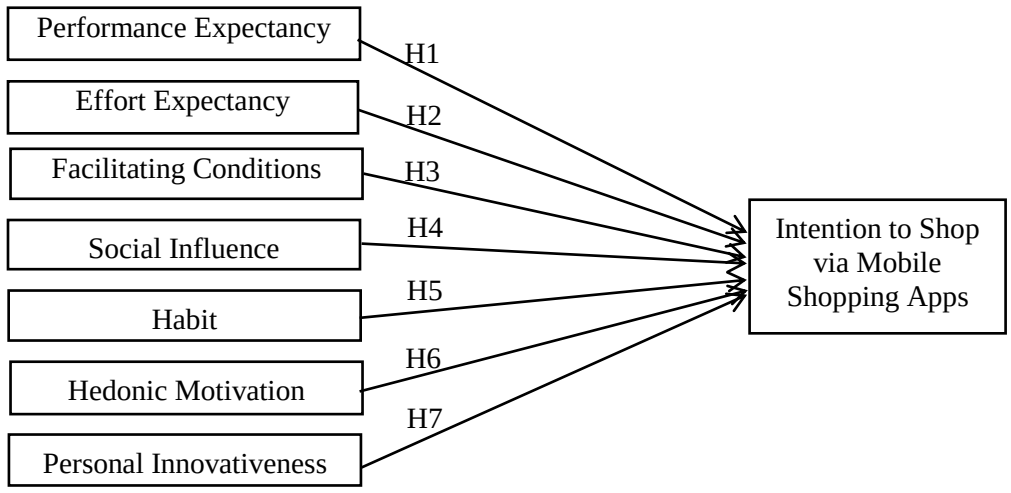
Personal Innovativeness

Besides the seven factors proposed by the UTAUT2 model, this study also includes personal innovativeness, which is defined as "*a predisposed tendency toward adopting an innovation*" (Yi *et al.*, 2006). Personal innovativeness is an important determinant of information technology acceptance (Yi *et al.*, 2006). In a study on insurance agent's behaviour intention to use mobile learning, Low (2015) concluded that personal innovativeness influences intention to use mobile learning. The importance of personal innovativeness was further supported by Oliveira, Thomas, Bantista and Campos's (2016) study on new technology adoption. Compared to those with lower personal innovativeness, people with higher personal innovativeness tend to have higher intention to use a new technology, in this case, the mobile shopping apps. They would have little or no hesitation to look for ways to experiment with the apps and are usually among the earliest to try it out, driven by their positive attitude (Yi *et al.*, 2006). Therefore, it is hypothesised that:

H7: Personal innovativeness has a positive influence on consumers' intention to shop via apps.

Research Model

Adapting from Venkatesh *et al.* (2012), the following framework is developed to test the hypotheses:



Source: Adapted from Venkatesh et al., (2012)

Figure 1: Research Model

Research Methodology

This study examines the young adult Malaysian consumers' intention to shop via mobile shopping apps by adopting Purcell's (2011, p. 2) definition of mobile apps as a "software that produced for the mobile phone which enhances the performance of the phone". The study adopted non-probability convenience sampling method, which is common in many marketing studies as it is quick and practical (Weir & Jones, 2008). To ensure the target respondents have enough experience with mobile apps (though not shopping apps), a screening question of "Have you used mobile apps?" was asked and only those who had the experience with mobile apps were deemed eligible to answer the questionnaire. Respondents were asked to answer the questionnaire and pass it back once it was completed. Researchers were available should the respondents need any clarification or explanation. The survey process took less than 20 minutes and the whole data collection period lasted for one month. The G*Power analysis suggested a minimum number of 160 for sample size. From a total of 200 questionnaire distributed, 180 questionnaires were found useful and valid.

The total of 36 measurement items was adapted from past literature. Performance expectancy was measured using the 5-point four item scale developed by Venkatesh *et al.* (2012) and Al-Gahtani *et al.* (2007); effort expectancy and social influence were

measured using the 5-point five item scale and 5-point four item scale developed by Venkatesh *et al.* (2012) and San Martin and Herreto (2012). Habit was measured using the 5-point four item scale developed by Venkatesh *et al.* (2012) and Tomas and Elena (2013). Hedonic motivation was measured using the 5 point four item scale developed by Venkatesh *et al.* (2012) and Yang (2013). Personal innovativeness was measured using the 5-point four item scale developed by Yi *et al.* (2006) and lastly, behavioral intention was measured using the 5-point four item scale developed by Venkatesh *et al.* (2012) and Al-Gahtani *et al.* (2007).

From the total of 200 questionnaires distributed, 180 valid questionnaires were collected and analysed (response rate of 90%). The analysis of the respondents' information reveals that the majority of the respondents were female (65%) Malay and Bumiputera (69.5%) aged between 20-24 years old (60%), and possessing a university degree (65.6%). All respondents have downloaded mobile shopping apps to their mobile phone and use mobile apps. The majority of them have an average of less than three years' experience with mobile apps. Among the shopping apps, Lazada is the most well-known shopping apps, followed by Amazon, Taobao and eBay.

Common method variance has caught attention as the data was collected from 180 respondents with a single method (questionnaire survey). The outcome of the common method variance is typically the measurement error (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Harma's single factor technique was adopted in this study and the result indicated a variance of 43.342%, less than the 50% variance suggested by Podsakoff *et al.* (2003).

Findings

Convergent Validity

The measurement model was first evaluated for convergent validity. This was examined through the factor loadings, composite reliability (CR), and average variance extracted (AVE) (Hair, Hult, Ringle, & Sarstedt, 2017). The recommended values of loadings and AVE should be greater than 0.5 while CR should be higher than 0.7. Table 1 shows that all the loadings and AVE values constructed were higher than 0.5 and CR values were greater than 0.7. The data exhibits satisfactory convergent validity.

Table 1: Convergent Validity

Construct	Measurement Item	Loadings	AVE	CR	Cronbach's Alpha
Intention to Shop	BI1	0.754	0.702	0.904	0.857
	BI2	0.854			
	BI3	0.848			
	BI4	0.889			
Effort Expectancy	EE1	0.877	0.713	0.925	0.899
	EE2	0.829			
	EE3	0.892			
	EE4	0.755			
	EE5	0.864			
Facilitating Conditions	FC1	0.840	0.619	0.866	0.792
	FC2	0.826			
	FC3	0.789			
	FC4	0.684			
Habit	HA1	0.876	0.719	0.911	0.871
	HA2	0.855			
	HA3	0.770			
	HA4	0.885			
Hedonic Motivation	HM1	0.875	0.79	0.938	0.911
	HM2	0.899			
	HM3	0.908			
	HM4	0.873			
Performance Expectancy	PE1	0.859	0.762	0.927	0.897
	PE2	0.898			
	PE3	0.882			
	PE4	0.852			
Personal Innovativeness	PI1	0.867	0.675	0.892	0.839
	PI2	0.799			
	PI3	0.756			
	PI4	0.861			
Social Influence	SI1	0.876	0.747	0.922	0.887
	SI2	0.886			
	SI3	0.890			
	SI4	0.801			

Discriminant Validity

Next, Fornell and Larcker's (1981) criterion and HTMT measurement were used to test discriminant validity (Hair *et al.*, 2017). For Fornell and Larcker's criterion, the square root value of AVE must be greater than the correlation between the constructed measurement and other conducted measurement. Table 2 shows that the Fornell and Larcker's discriminant criteria have been met.

Table 2: Fornell and Larcker's Criterion

Constructs	BI	EE	FC	HA	HM	PE	PV	SI
Intention to Shop (BI)	**0.838**							
Effort Expectancy (EE)	0.601	**0.845**						
Facilitating Conditions (FC)	0.510	0.711	**0.787**					
Habit (HA)	0.713	0.561	0.470	**0.848**				
Hedonic Motivation (HM)	0.745	0.618	0.556	0.686	**0.889**			
Performance Expectancy (PE)	0.600	0.721	0.523	0.638	0.583	**0.873**		
Personal Innovativeness (PI)	0.594	0.548	0.387	0.630	0.547	0.663	**0.822**	
Social Influence (SI)	0.638	0.397	0.416	0.620	0.651	0.334	0.421	**0.864**

Note: Values in the diagonal (bolded) represent the square root of the AVE, whereas the off-diagonals are correlation.

Table 3: HTMT Criterion

Constructs	BI	EE	FC	HA	HM	PE	PV	SI
Intention to Shop (BI)								
Effort Expectancy (EE)	0.684							
Facilitating Conditions (FC)	0.622	0.843						
Habit (HA)	0.807	0.618	0.547					
Hedonic Motivation (HM)	0.843	0.681	0.654	0.747				
Performance Expectancy (PE)	0.668	0.789	0.596	0.726	0.628			
Personal Innovativeness (PI)	0.698	0.629	0.474	0.741	0.617	0.759		
Social Influence (SI)	0.729	0.44	0.500	0.673	0.722	0.352	0.475	

Henseler, Ringle, and Sarstedt (2015) suggested the assessment of the correlations' heterotrait-monotrait ratio (HTMT) to examine the discriminant validity. This recent approach shows the estimation of the true correlation between two latent variables. A threshold value of 0.90 has been suggested for HTMT (Henseler *et al.*, 2015), whereby a value above 0.90 shows a lack of discriminant validity. Furthermore, the confidence interval of the HTMT should not involve the value of 1. Table 3 shows that HTMT criterion has been fulfilled for our PLS model.

Lateral Collinearity Assessment (VIF)

Lateral collinearity issue must be avoided before evaluating the structural model. Even though the criteria of discriminant validity are met, lateral collinearity issue may sometimes cause misleading results as it will mask the strong causal effect in the model (Kock & Lynn, 2012). Table 4 presents the outcome of the lateral collinearity test. All the inner VIF values for the independent variables (Effort Expectancy, Facilitating Conditions, Habit, Hedonic Motivation, Performance Expectancy, Personal Innovativeness, and Social Influence) were less than 3.3, indicating that lateral multicollinearity is of no concern (Diamantopoulos & Siguaw, 2006).

Table 4: **Lateral Collinearity Assessment**

Construct	Behavioral Intention (VIF)
Intention to shop	
Effort Expectancy	3.199
Facilitating Conditions	2.159
Habit	2.776
Hedonic Motivation	2.738
Performance Expectancy	2.970
Personal Innovativeness	2.101
Social Influence	2.069

Hypotheses Testing

The hypothesis testing was conducted by bootstrapping the values of the samples. The level of acceptance is set at 5 percent or p value of 0.05 with positive value of standard beta to be considered as significant and supportive of the hypotheses constructed (Hair, Ringle, & Sarstedt, 2011). Cohen (1988) guideline is also used to measure the effect size, whereby the values of 0.02, 0.15, and 0.35 represent small, medium, and large effects respectively (Cohen, 1988).

Table 5 shows the results of the hypothesis testing. The R^2 for the model was 0.674 which indicated a substantial model (Chin, 1998). 67 percent of the variability in intention to purchase via mobile apps can be explained by the differences in the seven independent variables tested. From the total of the seven hypotheses tested, four were not supported (H1, H2 and H3 and H7) and three were supported (H4-H6). In this study, functional related factors such as performance expectancy, effort expectancy and facilitating conditions were found to be not important to young adult consumers in determining their intention to shop via mobile shopping apps. This could be attributed to the wide variety of choices available to consumers to perform shopping tasks, which are not limited to mobile apps. Young adult consumers, compared to their elders, are technologically savvy (Bennet, Maton & Kervin, 2008). They are capable of using mobile phones, laptop or desktop and buy through online webpages, rather than depend on a single medium. The functional related criteria such as usefulness, productivity, effectiveness, timeliness, ease of use, clarity, understandability, and simplicity are basic requirements for them, regardless of the medium used. The functional related factors such as performance expectancy, effort expectancy and facilitating conditions are hence less significant to cause variation to their intention to shop via mobile shopping apps. In other words, “ease of use” is not enough to attract the users (Wu *et al.*, 2007).

Table 5: Hypotheses Testing

Hyp	Relationship	Std Beta	Std Error	t-value	P Values	Decision	R^2	f^2	Effect Size	Q^2	q^2
H1	Performance Expectancy -> Behavioral Intention	0.082	0.103	0.793	0.214	NS	0.674	0.01	N	0.457	0
H2	Effort Expectancy -> Behavioral Intention	0.094	0.099	0.952	0.171	NS		0.01	N		0
H3	Facilitating Conditions -> Behavioral Intention	0.012	0.069	0.168	0.433	NS		0.00	N		-0.004
H4	Social Influence -> Behavioral Intention	0.199	0.087	2.302	0.011*	S		0.06	S		0.024
H5	Habit -> Behavioral Intention	0.203	0.095	2.135	0.017*	S		0.05	S		0.018
H6	Hedonic Motivation -> Behavioral Intention	0.306	0.09	3.39	0.00**	S		0.11	S		0.041
H7	Personal Innovativeness -> Behavioral Intention	0.105	0.068	1.546	0.061	NS		0.02	S		0.002

P values for one-tailed test: *p < 0.05, **p < 0.01.
Decision: NS=Not supported and S=Supported; Effect Size: N=None and S=Small

In addition, facilitating criteria such as resources and knowledge are also less significant to these "digital natives" who possess information and think differently from the older generation due to the technologically rich environment they are born into (Prensky, 2001a; Prensky, 2001b). The digital natives are posited to be extremely comfortable with internet and digital gadgets in that the "*immersion is so complete that young people do not even consider computers 'technology' anymore*" (Frand, 2000, in Bennet, *et al*., 2008, p. 5). Shopping via mobile shopping apps could be new and challenging to the digital immigrants but not the digital natives who are comfortable with mobile phones and mobile apps. This result is consistent with Islam *et al.* (2013) who attributed the insignificant role played by facilitating conditions to the lesser need for support infrastructure among younger adults who possess IT knowledge necessary to use advanced mobile phone services. The young adult users are found to use gadgets without referring to the user manual (Prensky, 2001a&b).

The result shows that personal innovativeness did not significantly influence the intention to shop via mobile apps. The result is inconsistent with Oliveira *et al*.'s (2016) study which found that innovativeness has a positive influence towards intention to adopt new technology. In Oliveira's case, people who have higher innovativeness have no hesitation to look for ways to experiment with new technology. However, in the case of shopping apps, innovativeness did not have direct relationship with shopping intention. This could be attributed to the target respondents in this study. As mentioned earlier, the young adult consumers are familiar and comfortable with mobile apps such as games, videos and music apps. They do not view mobile apps as something new that requires high level of innovativeness, making personal innovativeness irrelevant. Nevertheless, the inconsistent findings of the present study with the previous literature suggest innovativeness could be tested as a moderator.

Hedonic motivation was found to be the most significant driver to influence shopping intention via mobile shopping apps. This is not surprising as shopping apps are designed to be pleasurable. This finding also confirmed Venkatesh *et al.*'s (2012) proposition which found that hedonic motivation is an important factor influencing intention to adopt mobile internet. Besides, Yang (2010) also suggests that hedonic aspects are critical determinants of m-shopping services. In Leong *et al*.'s (2013a) study, consumers are found to use mobile entertainment if it brings joy and happiness. The findings of the present study show that when people perceive it as being more fun, enjoyable, entertaining and pleasurable to use mobile shopping apps, their intention to shop will be higher.

Habit was found to be the second most influential construct in the model. The result is consistent with Lewis *et al.* (2013), where habit is found to positively influence the intention to adopt classroom technology. One possible reason is that mobile phone and mobile apps have entered into human lives so much so it has become something natural to them, particularly among the young adult consumers. This has increased the reliance on mobile phones and mobile apps.

The result also shows that users tend to consult their family members or friends in the decision to shop via mobile shopping apps. These social influencers are important people to the users and their opinions will influence the buying intention. Users form higher buying intention when the social influencers consider the usage of mobile shopping apps as appropriate. This finding is consistent with Akour's (2010) study on m-learning intention among freshmen in America whereby extrinsic influence (e.g. superior and peer influence) was noted to have the most influence. Another study by Chong (2013) on m-commerce also suggests that peers, family, media, and other users of m-commerce are likely to influence m-commerce users in forming behavioural intention.

Finally, the predictive relevance of the model was examined using the blindfolding procedure. The model has predictive relevance for a certain endogenous construct if the Q^2 value is greater than 0 (Hair *et al.*, 2014). The Q^2 value was 0.457, which was greater than 0, indicating that the model has sufficient predictive relevance. Also, the effect size of 0.02, 0.15, and 0.35 indicate that an exogenous construct has a small, medium, and large predictive relevance for a certain endogenous construct (Hair *et al.*, 2014). The results showed no effect in the effect size for performance expectancy, effort expectancy, facilitating conditions, and personal innovativeness. Small effect sizes were shown in social influence, price value, habit, hedonic Motivation and personal innovativeness conditions (Hair *et al.*, 2014).

Conclusion, Limitations and Implications

This study examined the key determinants influencing the behavioural intention to shop via shopping apps, utilising the UTAUT2 model. Findings revealed that hedonic motivation had the most significant influence on intention to shop, followed by habit and social influence, while performance expectancy, effort expectancy, facilitating conditions and personal innovativeness did not significantly influence the intention to shop via mobile shopping apps.

Several theoretical implications are identified. This study successfully examined young adult consumers' intention to shop via mobile shopping apps utilising the UTAUT2, which is insufficient in the Malaysian context. An additional factor was added to the framework to enhance the robustness of the study, namely personal innovativeness. The insignificant relationship between personal innovativeness and intention to shop implies the unique characteristics of the young adult consumers, who are technologically savvy. They do not view mobile shopping apps to be something different from the other web apps that require innovativeness.

The findings also identify important factors such as hedonic motivation, followed by habit and social influence. Performance expectancy, effort expectancy and facilitating conditions are considered as not relevant in this context. These results indicate that the additional consumer-user context variables proposed by UTAUT2 such as hedonic motivation and habit have greater influences on mobile apps shopping intention than the original UTAUT model. Only social influence is found significant among the four variables tested. In other words, UTAUT2 is an appropriate model to use in studies

related to mobile apps shopping intention. This model could be expanded to different countries, age-groups, and technologies, identifying relevant factors to extend it whenever possible.

Overall, the result of this work is beneficial to the business practitioners in the mobile apps industry, especially in designing, promoting and even enhancing the existing and new shopping apps. The managerial implications for this study indicate the importance of hedonic motivation and habit aspects in any mobile shopping apps promotion campaign. Besides creating shopping apps that enhance enjoyment, fun, pleasure and excitement, app developers should constantly reinforce users' habit with value added services and upgrades. The promotional programs should focus on promoting shopping via mobile apps as a daily activity that is common to young adult consumers. Endorsers, either celebrities or social influencers, could be used in the promotional campaign to induce higher perceived hedonic values. The suitable endorsers will then influence consumer attitude and purchase intention (Lim, Mohd Radzol, Cheah & Wong, 2017), Furthermore, shopping app developers could alter users' habit that had been cultivated elsewhere by providing greater benefits in their apps than that of their competitors'.

Since shopping apps users' decision are influenced by people surrounding them, shopping apps developers must uphold their reputation as consumers are more likely to use the shopping apps with good reputation. Users of a new technology application such as shopping apps will normally ask or search for information or advices from their family members, friends, peers or other users of a shopping apps. Social media platforms such as SNSs, media sharing and mobile messaging are effective in spreading positive eWOM.

Despite its theoretical and managerial implications, this research has several limitations. First of all, the results are limited to Malaysian consumers' intention to shop via apps. The majority of the respondents being university students may raise some concern on external validity. Pahnila, Siponen and Zheng (2011) argue that the average profile of university students does not represent typical purchasers of online products and services, which limit the generalisability of the results. As aforementioned, young adult consumers are chosen based on several reasons. They constitute a significant portion of the Malaysian population which undeniably represents a huge market potential. They also possess technologically savvy digital natives' characteristics such as long hours of daily mobile phone usage and different preferences of media consumptions, making them suitable respondents.

Secondly, moderators were not incorporated in this research to avoid confusion and misleading findings because the approaches or definitions may be appropriate in some situations but not in others (Sharma, Durand & Gur-Arie, 1981). A cross-sectional study was used to measure respondents' perceptions and intentions at a point in time. Given that perceptions and intentions change over time, information obtained may only be applicable to the present situation in Malaysia. As such, exploring the longitudinal evidences on the behavioural intention to shop via apps is limited.

Based on the limitations that exist in this research, future studies should generalise the findings of this study across countries. Additionally, future research can build on this study by testing the UTAUT2 among different age groups. Future studies can extend the model that was applied in this study to predict the intention of continual usage and compare the results with adoption intention. Follow-up studies should also construct a more comprehensive model by incorporating moderating variables to predict adoption intentions. Past studies have proved that age, gender, and experience could have significant influences on adoption intention.

Lastly, future researchers should also use the longitudinal approach to predict adoption intention over time. As such, the model should be validated at different points in time. For example, future studies should study intention to shop via apps in stages, such as pre-intention and post-intention of shop via apps.

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