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Can the demographic and subjective norms influence the adoption of mobile banking?

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Abstract: The study aims to incorporate the demographic factors and subjective norms with the Technology Acceptance Model (TAM) in investigating the intention to adopt mobile banking in Malaysia. Of the 400 questionnaires, 193 usable questionnaires were returned, thus yielding a response rate of 48.25%. The data was tested using multiple regression and factor analysis. Among the four demographic constructs, education and income were found to be positively related with PU. However, only gender and education were positively related with PEOU. The findings also validated the mediating effect of PEOU on PU. Likewise, PEOU, PU and SN positively affect the Malaysian's intention to adopt mobile banking. The study is beneficial for both scholar as well as practitioners such as banking institutions, policy makers, system developers and marketers especially when crafting key decisions.

Keywords: demographic; mobile banking; TAM; technology acceptance model; Malaysia.

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1 Introduction

Gone were those days, where traditional banks were the only mean to conduct banking transactions. With the advancement of mobile phones and the emergence of various wireless communication technologies, another facet of banking services has emerged within the banking industry, namely mobile banking (Mallat et al., 2004; Cruz et al., 2010). Mobile banking also known as 'm-banking' or 'sms-banking' (Tiwari et al., 2007) is defined as 'a channel whereby the user interacts with a bank via mobile devices, such as phones or Personal Digital Assistants (PDAs)' (Barnes and Corbitt, 2003, p.275). With mobile banking services, users can manage their account, transfer money, receive text messages alert and pay bills (Luarn and Lin, 2005; Howell and Wei, 2010) regardless of time and place (Liang et al., 2007). With such functionality accompanied with enormous benefits, thus it is not surprising that m-banking has become one of the most typical applications in the area of mobile commerce (Liu et al., 2009).

Tiwari et al. (2006) has drawn the differences between electronic banking and mobile banking in terms of prefix of 'e' and 'm'. The authors further illustrate that electronic banking is associated with 'anytime access', whilst, mobile banking offers both 'anytime and anywhere access'. Chong et al. (2011) on the other hand, associated the prefix of 'm' to any wireless internet (WiFi) that takes place between people. Despite of the differences,

the benefits of mobile banking can be viewed in terms of ubiquity, flexibility and mobility (Sulaiman et al., 2007). As such banks have laid its emphasis on the launching of the mobile banking services as means to improve on their service quality, reduce operational costs (Zhou et al., 2010), source of product differentiation, additional source of revenue (Tiwari et al., 2007) and to serve the 'unbanked' customers (Porteous, 2006). Stewart (2009) anticipated that financial transactions perform via mobile phones would experience massive growth and will even surpassed those of other banking channels such as retail banking, ATM, online banking and telephone banking. Even so, recent views suggested that the adoption of m-banking is still very much at the infancy stage (Suoranta and Mattila, 2004; Luarn and Lin, 2005; Donner and Tellez, 2008). Kwiatkowski (2010) reported that the adoption rate remains low even within the established markets. Mallat et al. (2004), for example explained how some American banks were forced to terminate their m-banking services due to users' shortage. Likewise, the m-banking transaction levels in Malaysia were reported low despite the high mobile phone's penetration rate (Malaysia Communication and Multimedia Commission (MCMC), 2010).

Taking into consideration the high investments that might have been spent to develop the IT infrastructure (Luarn and Lin, 2005), it is important that users and non-users are actually adopting to the system. While there have been a lot of studies on the adoption of m-banking (Suoranta and Mattila, 2004; Luarn and Lin, 2005; Gu et al., 2009), little attention has been given from the view point of developing nations like Malaysia. As the dynamic growth of mobile penetration were mainly contributed from developing countries (Information Economy Report as cited in United Nations Conference on Trade and Development, 2009, p.26) and Malaysia's being of the fastest growing markets in the area of mobile telecommunications within South East Asia (SEA) (Euromonitor International, 2009), the results from this study remain interesting. Similarly, little attempts have been made to examine the adoption from the perspective of age, education, income and gender (Gefen and Straub, 1997; Porter and Donthu, 2006). Munnukka (2007) found that the demographic variables are important explanatory variables in the purchasing decision (Munnukka, 2007). Likewise, in the context of any information system's (IS) adoption, the consumer's decision is also influenced by the social environment factor. Thus, the subjective norms were included, so that the user's decision whether to adopt m-banking could be better explained.

Therefore, the study aims to bridge the gap by extending the Technology Acceptance Model (TAM) with demographic factors such as gender, age, education and income and subjective norms. Specifically, the objectives of this study is to examine the relationships between demographic constructs, Perceived Usefulness (PU), Perceived Ease of Use (PEOU) and Subjective Norms (SN) towards behavioural intention to adopt mobile banking. The paper begins with an overview of m-banking in Malaysia and the factors that drives m-banking adoption. Subsequently, by reviewing the literature, we developed our research framework and hypotheses. This is followed by the research methodology. While in the final section, we will include the conclusions, limitations and suggestions for further research.

2 Literature review

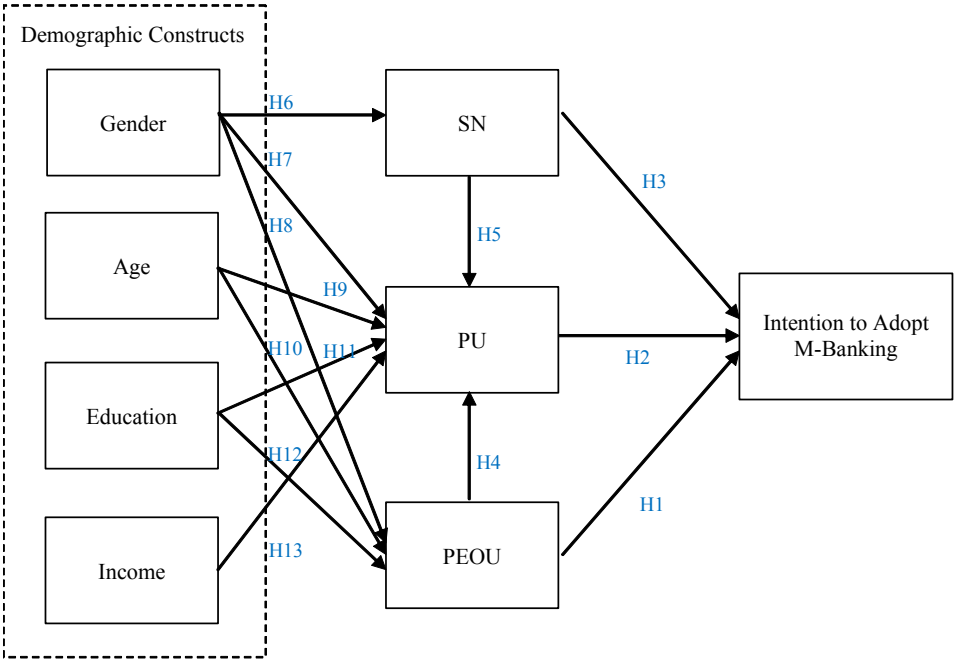
2.1 An overview of mobile banking in Malaysia

Traditionally, mobile phones are meant for making calls and texting messages. With the continuous efforts by Malaysian cellular operators such as Maxis, Digi and Celcom to promote their internet data plans packages, this has indirectly affected the adoption rate of smartphones and the use of mobile applications (i.e. m-banking). According to GFK Retail and Technology Asia (2011), the sales of smartphones in Malaysia registered a double digit gains last year and thus providing opportunities for banking institutions to launch new m-banking applications. From 2010 to 2011, for example, the number of banks registered to offer m-banking services has increased from 10 to 12 financial institutions. The new institutions include Al Rajhi Banking and Investment Corporation (Malaysia) Berhad and RHB Bank Berhad. With this added new facilities, it is not surprising that Malaysian are gradually shifting to the adoption of m-banking services. However, the adoption rate has yet to meet the expectations of the industries (Malaysia Communication and Multimedia Commission (MCMC), 2007) with only 2.5% penetration rate (Bank Negara Malaysia, 2010). Guru et al. (2000) commented that the prospects to adopt the services must be large enough to reach a critical mass volume so that profits could be generated. Therefore, it is crucial for banking institutions to venture into m-banking channels by conducting more research and development so as to identify new customer needs instead of just looking for expansion through existing banking services.

2.2 Factors that drives mobile banking adoption

Understanding the acceptance and rejection of technology innovation has been one of the core challenges in the study of IS (Chung and Kwon, 2009). Numerous researchers have attempted to investigate the adoption of m-banking (Suoranta and Mattila, 2004; Luarn and Lin, 2005; Gu et al., 2009), however the models adopted were rather mix as different frameworks were used to predict the intention to adopt m-banking. For example, the Diffusion of Innovations (Rogers, 1983), Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), Theory of Planned Behaviour (TPB) (Ajzen, 1991) and the Technology Acceptance Model (TAM) (Davis, 1989). In view of the differences, Puschel et al. (2010) remarked on the difficulties for researchers to compare those findings. As TAM is one of the most widely adopted frameworks (Chung and Kwon, 2009), in order to investigate the acceptance of m-banking in Malaysia, the study shall adopt to the TAM. Taking into consideration that TAM can only explain up to 40% of its variance (Venkatesh and Davis, 2000) and often did not take into consideration the external factors (Szajna, 1993) such as the demographic factors (Gefen and Straub, 1997) and subjective norms (Taylor and Todd, 1995), the study shall deliberately extend the TAM with gender, age, education, income and subjective norms. According to FitzGerald and Arnott (1996) and Karahanna and Straub (1999) the variations in the demographic factors and subjective norms would affect the purchasing behaviours of users. Therefore, in order to investigate the intention to adopt m-banking in Malaysia the study extends the TAM with demographic factors and subjective norms. See Figure 1 for the research model.

Figure 1 Research model



Notes: SN = Subjective norms.
PU = Perceived usefulness.
PEOU = Perceived ease of use.

3 Hypothesis development

3.1 Perceived usefulness, perceived ease of use and subjective norms

In the TAM, PU and PEOU can manipulate an individual's attitude towards the adoption of a particular technology (Davis, 1989). Numerous studies have validated the significance of both constructs in examining the user's intention to adopt to IS (Venkatesh and Morris, 2000; Luarn and Lin, 2005; Gu et al., 2009). For example, a study by Luarn and Lin (2005) demonstrated that PU and PEOU are significant determinants in the adoption of m-banking in Taiwan. The study was further supported by Amin et al. (2008) through a survey on 150 customers in Bank Islam Malaysia Berhad (BIMB). If the users believe that using the system (i.e. m-banking) would be 'free from effort' and can 'enhance their job performance' (Davis, 1989), they are likely to develop positive feelings towards both perceptions and more likely to adopt to m-banking. Thus, the following hypotheses are formulated.

H1: PEOU has a positive significant association with the intention to adopt m-banking.

H2: PU has a positive significant association with the intention to adopt m-banking.

Subjective norms refer to "individual perception that most people who are important to him think he should or should not perform the behavior in question" (Fishbein and Ajzen, 1975, p.302). A recent study by Riquelme and Rios (2010) found that SN has significant influence on the acceptance of m-banking services. The findings were further supported by studies from Puschel et al. (2010) where they found that SN is one of the most crucial elements in influencing the users to adopt m-banking. According to Ajzen (1985), SN is posited as perceived social pressure towards adoption decision. Puschel et al. (2010) further illustrated that the social pressure was mainly attributed by friends, family or individuals within the same social group. As such, the finding simply implies that the social pressure towards the use of m-banking services would likely influence users to adopt the services. Thus, the following hypothesis is proposed.

H3: SN has a positive significant association with the intention to adopt m-banking.

Despite the substantial literatures on TAM and behavioural intention, numerous attempts have been tested to examine the relationship between PEOU and PU. For example, Lee et al. (2003) through the meta-analysis of TAM literature concluded that 69 studies confirmed the relationship between PEOU and PU. Contradictory to the findings, 13 studies were found to have insignificant relationship between PEOU and PU. In addition, an empirical research by Riquelme and Rios (2010) through 600 current e-banking' users found that perception of ease of use by female's users led to the perception of usefulness when performing m-banking transactions. The relationship between PEOU and PU were further supported by studies from Davis (1989), Wang et al. (2003) and Kleijnen et al. (2004). Their findings suggested that the greater the perception of ease of use towards m-banking, the greater the perceived usefulness for m-banking. Therefore, the following hypothesis is proposed.

H4: PEOU has a positive significant association with PU.

Although, SN was removed from the original TAM (Davis, 1989) and Venkatesh and Davis (2000) found that SN has both direct and indirect impact on PU. Meanwhile, Schepers and Wetzels (2007) through a quantitative meta-analysis of TAM found that SN has significant relationship with PU. Therefore, we propose the following hypothesis.

H5: SN has a positive significant association with PU.

3.2 Gender, age, education and income

The impact of gender on innovation diffusion has received increasing attentions from researchers in recent years. For example, Venkatesh and Morris (2000) found that gender to be an indispensable predictor on technology acceptance and usage. In addition, Riquelme and Rios (2010) concluded that gender plays a role in moderating the effect on the intention to adopt m-banking services through SN, PU and PEOU in Singapore. According to Venkatesh and Morris (2000), female tends to be influenced by SN when compared to male. The study is also supported by Gefen and Straub (1997) in which SN was found to be a more salient factor in the female category. Contrary, Roberts (1991) argued that both male and female are equally kind to social cues. Therefore, we suggest the following hypothesis.

H6: Gender has a positive significant association with SN.

Venkatesh and Morris (2000) conducted a survey of 342 employees and found that males were strongly affected by the PU in technology acceptance. However, the female gender was found to be strongly affected by the PEOU and other determinants such as SN. In the similar vein, Gefen and Straub (1997) examined the impact of gender differences on IS adoption. Interestingly, similar findings also endorsed that PU was a more salient factor for male, whereas PEOU is more salient towards female. Therefore, we propose the following hypotheses.

H7: Gender has a positive significant association with PU.

H8: Gender has a positive significant association with PEOU.

In general, elderly people were found to have less interest on technological innovations. Howcroft et al. (2002) revealed that both elderly and wealthy people were more likely to avoid to the adoption of electronic channels (e.g. m-banking). Similarly, Mattila et al. (2003) found that mature customers were usually late adopters in the adoption of internet banking. Further evidence by Suoranta (2003) suggested that m-banking users were between the ages of 34–35 years old. Pijpers et al. (2001) in their studies on the senior executive's use of IT asserted that age is negatively related to PU and PEOU. Interestingly, Yang (2005) in his study on the m-commerce adoption in Singapore, found that age has a positively influence on the user' PU, but not PEOU. Contrary, Porter and Donthu (2006) hypothesised that the relationship between PU and the internet usage is lower for older individuals was not supported. Thus, we propose the following hypotheses.

H9: Age has a positive significant association with PU.

H10: Age has a positive significant association with PEOU.

The influence of educational in the adoption of m-banking cannot be neglected. According to Quazi and Talukder (2011), the appreciation towards the adoption of innovation is very much dependable on education. Based on the previous literature's review, Suoranta (2003) found that education background has the greatest influence on the acceptance of m-banking. Along the line, Zhu and He (2002) and Dwivedi and Lal (2007), revealed that educational background is a key demographic factor in the understanding of internet adoption. Further evidence by Agarwal and Prasad (1998) concluded that there is a significant relationship between education level and PEOU. Pijpers et al. (2001) on the other hand found that education is positively related to both PU and PEOU. Thus, the following hypotheses are proposed.

H11: Education has a positive significant association with PU.

H12: Education has a positive significant association with PEOU.

M-banking's transaction is commonly conducted via mobile devices such as PDAs, 3G phones and smart phones. According to Sulaiman et al. (2007), the devices are usually owned by young consumers with higher disposable income. Meanwhile, Dickerson and Gentry (1983, p.226) denotes that "a higher income could mean that the financial risk associated with the purchase is smaller, since the cost is a smaller portion of the

household disposable income". Therefore, users with average income (e.g. clerical work) have significant relationship with the adoption m-banking (Suoranta, 2003). Laforet and Li (2005) revealed that m-banking users normally posses an annual income of between 60–120K Yuan and 120–128K Yuan. Contrary to the above findings, Akman and Mishra (2010) found that income has no significant impact on the average usage of internet for electronic services (e.g. e-communication, e-shopping, e-banking and e-government). As income was found to have significant relationship with PU (Porter and Donthu, 2006), thus, the following hypothesis is suggested.

H13: Income has a positive significant association with PU.

4 Research methodology

4.1 Sampling and data collection

The main purpose of this study is to investigate the demographic factors and subjective norms on the adoption of m-banking in Malaysia. In view of the high mobile phones penetration rate in Malaysia, it is crucial to understand how users respond towards the acceptance of m-banking services. Thus, naturally the target respondents of this study are any individuals who owned a mobile phone and also a bank account holder. The respondents were chosen, as individuals with mobile phones and bank account holders are potential users of m-banking services. The survey was conducted at one of the largest private university in Malaysia. The university was chosen as sampling location as it has a fair balance of respondents with different demographic backgrounds from all over Malaysia. In view that Malaysia is multiracial country, hence, the data can be generalised to represent the Malaysia context. The techniques adopted were in line~~s~~ with studies by Tan et al. (2010) and Leong et al. (2011).

A total of ($N = 400$) convenience samples were engaged through online and offline as suggested by Wallace et al. (2004). The authors illustrates that the method can minimise the coverage bias as a consequences of relying on one data collection method. Of the 400 questionnaires, 193 usable questionnaires were returned, thus yielding a response rate of 48.25%. Based on the technology adoptions literatures, the sample is compatible with other studies such as 107 respondents (Davis, 1989), 105 (Amin et al., 2008), 181 (Chong et al., 2011) and 172 (Sim et al., 2011)

4.2 Survey instruments

In order to examine the demographic constructs, the four demographic variables namely, gender, age, education and income were derived from existing literature review. The constructs for PU, PEOU and SN were adopted from scholar as shown in Table 1. A total of 16 questions were constructed to examine the intention to adopt m-banking in Malaysia. All questions in this study were measured using the 5-point Likert scale, where '1' denotes as strongly disagree, '2' denotes as disagree, '3' denotes as neutral, '4' denotes as agree and '5' denotes as strongly agree.

Table 1 Constructs and sources

Constructs		*Number of items*	*Sources*
Perceived ease of use (PEOU)		5	Davis (1989)
PEOU1:	Learning to operate mobile banking is easy for me.		
PEOU2:	It is easy for me to remember how to operate the mobile banking services.		
PEOU3:	I find it easy to operate mobile banking.		
PEOU4:	It would be easy for me to become skilful in using mobile banking services.		
PEOU5:	Overall, I find the mobile banking is easy to use.		
Perceived usefulness (PU)		5	Davis (1989); Shih (2004)
PU1:	Using mobile banking enhances the efficiency of my banking activities.		
PU2:	Using mobile banking makes me easier to handle my banking activities.		
PU3:	Using mobile banking enables me to accomplish my banking activities more quickly.		
PU4:	Using mobile banking eliminates the constraints of time and space when conducting banking transactions.		
PU5:	In general, I believe that mobile banking is useful.		
Subjective norms (SN)		3	Riquelme and Rios (2010)
SN1:	If I adopt mobile banking, it would give a higher status among colleagues.		
SN2:	If I adopt mobile banking, I would be more prestigious among my peers than those who have not adopted it.		
SN3:	I would be trendy if I adopt mobile banking.		
Intention to adopt m-banking (IU)		3	Gu et al. (2009)
IU1:	I intend to use mobile banking continuously in the future.		
IU2:	I will recommend others to use mobile banking.		
IU3:	I will frequently use mobile banking in the future.		

5 Data analysis

5.1 Profile of respondents

The respondents' demographic profile is presented in Table 2. The demographic profile consists of gender, age, education and income. Of 193 respondents, 39.90% are male, whilst 60.10% are female. The analysis also reveals that majority of respondents

are relatively young between 21–25 years with 58.03%. In terms of academic qualification, the results revealed that 55.96% of the respondents hold a bachelor degree. Likewise, 68.91% of respondents with the income lower than RM1500.

Table 2 Demographic profile of respondents

Variables		*Frequency*	*Percentage*
Gender	Male	77	39.90
	Female	116	60.10
Age	≤ 20	41	21.24
	21–25	112	58.03
	26–30	31	16.06
	31–35	3	1.55
	36–40	4	2.07
	> 40	2	1.05
Education	No college degree	40	20.73
	Diploma/advance diploma	19	9.84
	Bachelor degree/professional qualification	108	55.96
	Master degree	26	13.47
Income	RM0–RM1,500	133	68.91
	RM1501–RM2,500	9	4.66
	RM2501–RM3,500	35	18.14
	RM3501–RM4,500	12	6.22
	More than RM4501 and above	4	2.07

6 Factor analysis and reliability

The Principle Component Analysis (PCA) and varimax rotation were conducted with Exploratory Factor Analysis (EFA). In fact, EFA was employed to segregate the dimensions of both factor adoptions and intention to use m-banking (Ooi et al., 2011b). Kaiser–Meyer–Olkin (KMO) and Bartlett's test as in Table 3 indicates good sampling adequacy of 0.821 and a significant Bartlett's sphericity ($\chi^2 = 1419.064$, $p < 0.001$) hence permitting further factor analysis to be carried on (Bartlett, 1954). The Cronbach's alpha coefficient ranges from 0.809 to 0.884, in which all these values are greater than 0.70 and thus the data are considered good reliability and good internal consistency (Nunnally and Bernstein, 1994). The factor loadings of less than 0.5 were suppressed while the Kaiser's criterion of using Eigenvalues > 1.0 is utilised. Four factors with a 67.553% total variance explained have been successfully extracted using EFA. Table 3 shows the factor loadings of these factors.

6.1 Statistical analysis

The proposed framework as shown in Figure 1 was examined using the Multiple Regression Analysis (MRA). The MRA was used to examine the relationship between adoption factors and the intention to adopt m-banking. In fact, MRA is a useful technique which can be adopted to examine the relationship between several independent variables and single dependent variable (Hair et al., 1998).

Table 3 Instrument reliability and validity

Variable	*Item*	*Cronbach's alpha*	*Factor loading*[a]	*A set of items*	*Eigen values*	*Percentage of variance explained*	*Cumulative percentage of variance explained*
Perceived ease of use (PEOU)				5	5.171	32.321	32.321
	PEOU2	0.850	0.814				
	PEOU5		0.810				
	PEOU3		0.761				
	PEOU1		0.739				
	PEOU4		0.705				
Perceived usefulness (PU)				5	2.372	14.826	47.147
	PU2	0.809	0.777				
	PU1		0.777				
	PU3		0.705				
	PU5		0.691				
	PU4		0.665				
Subjective norms (SN)				3	1.796	11.226	58.373
	SN3	0.884	0.900				
	SN2		0.896				
	SN1		0.882				
Intention to adopt m-banking (IU)				3	1.469	9.180	67.553
	IU3	0.836	0.874				
	IU2		0.801				
	IU1		0.781				

Notes: [a]Rotation converged in 4 iterations; Extraction method: Principal component analysis; Rotation method: Varimax with Kaiser's Normalisation; $n = 193$.

In addition to the size of sample, the estimated parameter ratio of 15:1–20:1 was adequate to accomplish a significant estimation of sample size (Hair et al., 1998; Ooi et al., 2011a). In the existing study, the sample size to the estimated ratio of parameter was 27.57:1. Hence, it can be presumed that the sample size is satisfactory (Hair et al., 1998). In order to test the proposed hypotheses, factors such as PEOU, PU, SN, behavioural intention to adopt m-banking (IU) and demographic variables were included in the MRA. Results revealed that TAM model has significant impact in explaining the user's ultimate decision in the adoption of m-banking services. Please see Table 4 for more information.

The factors within the proposed framework namely PEOU, PU, SN and IU have subsequently formed the hypotheses which were discussed in the second section. The empirical findings suggested that PEOU, PU and SN have significant positive relationship with IU. As such, H1–H3 were fully supported by our empirical findings. Based on the Model 1, the variance accounted for 24.7% while explaining the consumers' intention towards IU, PU, PEOU and SN. Likewise, the findings also indicated a positive association between PEOU, PU, SN and IU. This implies that that the greater of PU

(β = 0.304, p < 0.01), PEOU (β = 0.228, p < 0.01) and SN (β = 0.160, p < 0.05) would ultimately influence the behavioural intention towards m-banking usage. In regards to the associations of PEOU and PU (Model 2), the variance recorded at 17.2% in consumers' PU of m-banking services (β = 0.414, p < 0.01) which are accounted by PEOU. Thus, *H4* was supported. Overall, the findings were consistent with past TAM studies which suggested there are strong association between PEOU, PU, SN and m-banking adoption. Thus, the hypotheses from H1–H4 were supported. The relationship between variables that provides the β values for every hypothesis studied is shown in Table 4.

Table 4 Results of multiple regression analysis (MRA)

Regression tests	*β*	*p-value*	*Remarks*
Model 1: (PEOU, PU, SN → IU)			
H1: PEOU → IU	0.228	0.001**	Supported
H2: PU → IU	0.304	0.000**	Supported
H3: SN → IU	0.160	0.013*	Supported
Model 2: (PEOU → PU)			
H4: PEOU → PU	0.414	0.000**	Supported
Model 3: (SN → PU)			
H5: SN → PU	0.105	0.145	Not Supported
Model 4: (Gender → SN)			
H6: Gender → SN	0.051	0.481	Not Supported
Model 5: (Gender, Age, Education, Income → PU)			
H7: Gender → PU	0.078	0.272	Not Supported
H9: Age → PU	–0.257	0.009**	Supported
H11: Education → PU	0.184	0.020*	Supported
H13: Income → PU	0.303	0.005**	Supported
Model 6: (Gender, Age, Education → PEOU)			
H8: Gender → PEOU	0.219	0.002**	Supported
H10: Age → PEOU	–0.066	0.380	Not Supported
H12: Education → PEOU	0.158	0.037*	Supported

Note: *p-value < 0.05; **p-value < 0.01; PEOU = Perceived ease of use; PU = Perceived usefulness; SN = Subjective norms; IU = Intention to adopt m-banking.

Moreover, the findings also revealed that there is an insignificant relationship between SN and PU (Model 3 as shown in Table 4). Thus, *H5* was not supported.

The impacts of demographical factors have subsequently formed the H6–H13. It consists of gender (H6, H7 and H8), age (H9, H10), education (H11, H12) and income (H13). Among the constructs, gender was found to predict PEOU (β = 0.219, p < 0.01), hence, the H8 was supported. Whilst, the constructs of age was found to predict PU (β = –0.257, p < 0.01) but not PEOU. Therefore, H9 was supported. Meanwhile, education was found to predict both PU and PEOU, thus, both H11 and H12 were supported. Lastly, income was able to predict PU (β = 0.303, p < 0.01), hence, H13 was supported in this study.

7 Discussion

7.1 Relationship between PU, PEOU, SN and intention to adopt M-Banking

As expected, PU was positively associated with the intention to adopt m-banking. The findings were consistent with Luarn and Lin (2005), Lee et al. (2008) and Chung and Kwon (2009). The results imply that the usefulness of m-banking services would affect the intention to adopt m-banking. Take for example, to retrieve information and conduct banking transaction regardless of time and place (Wei et al., 2009). In view of the low adoption rate of m-banking services at this moment, banks should communicate the benefits of adopting m-banking services through various platforms such as advertisement, marketing events or through sales personnel. Specifically, the benefits such as location-free advantages, time savings, ubiquitous connectivity, 24/7 access to real-time account information and performing other banking activities should be clearly emphasised. The higher the PU of the service rendered by banking institutions, this would lead to higher intention to adopt m-banking services.

Similarly, PEOU is positively associated in determining the intention to adopt m-banking. The findings were supported by Lee et al. (2008), Amin et al. (2008) and Chung and Kwon (2009). The findings reflect that users believe that adopting m-banking services requires minimum effort. Given this reason, banks should continually to innovate by simplifying the system interface and to develop more user friendly services. In addition, banks should provide fundamental skills on performing m-banking services through brochures, the bank official websites and posting video demonstrations via social networking sites such as 'Facebook'. With such efforts, users may have positive perception of PEOU and thus will adopt to m-banking services. As expected, PEOU showed a positive relationship towards PU. This implies that users perceived m-banking as useful provided that it is easy to use. The findings of the study was consistent with scholars such as Davis (1989), Wang et al. (2003), Legris et al. (2003) and Kleijnen et al. (2004). Thus, PEOU has positive significant impact towards behavioural intention to adopt m-banking via moderating effect of PU. SN was found to have positive significant relationship in the intention to adopt m-banking. The results were similar with studies from Schepers and Wetzels (2007), Puschel et al. (2010) and Sripalawat et al. (2011). As SN can be created by word-of-mouth technique (Schepers and Wetzels, 2007), banking institutions can adopt to viral marketing by promoting m-banking services via social media sites through the uploading of video clips, images and text messages. In this way, banks are able to grab the user attentions through self-replicating viral processes which may ultimately affect the adoption of m-banking services. On the other hand, our findings revealed that SN has no significant relationship with PU. The study contradicts with the findings from Venkatesh and Davis (2000). One possible explanation is that the relationship between SN on PU takes place only with the existence of moderating variable such as experience (Venkatesh and Davis, 2000).

7.2 Relationships between demographic variables and PU, PEOU and SN

The study reveals that gender has no significant relationship with PU, but was positively associated with PEOU. Contrary to our findings, Gefen and Straub (1997) found that gender is a predictor towards PU and PEOU. According to Venkatesh and Morris (2000) in their examination towards gender differences on user's perceptions towards PU and

PEOU, they found that male are more favourable towards PU than female, whilst, female are more favourable towards PEOU than male. Of the 193 respondents, in this study, 116 respondents were female, thus is not surprising that the gender significant affects more towards PEOU instead of PU. According to Venkatesh and Morris (2000) female tends to be influence by SN. However, despite having a high percentage of female respondents results proved to be different. There is a possibility that the percentage is not large enough to show any significance of occurrence.

Our findings show that age was negatively significant with PU. The study is line with Pijpers et al. (2001) but contradicts with prior researchers such as Yang (2005) and Sim et al. (2011). The study therefore requires further investigation. On the relationship between age and PEOU, the study found no relationship. The study again contradicts with the finding from Sim et al. (2011). One possible explanation is that the majority of the respondents are educated with 55.96% holding a bachelor degree; hence, they might not have any problem perceiving the ease of use of m-banking services.

Contrary with findings from Yang (2005), the findings reveal that education was positive significant with PU and PEOU. The findings were similar with findings from Pijpers et al. (2001) and Sim et al. (2011). The findings indicate that users with higher education are more likely to adopt to m-banking services. In view that 55.96% of the respondents held a bachelor degree, the findings are not surprising. As conventional banking involves process from searching for parking to long waiting time and fixed banking hours, m-banking on the other hand is hassle-free whereby users are able to perform banking activities anytime and anywhere with easy steps. Thus, higher educated users would adopt to this new innovation due to its convenience. Similarly, in view that the majority of the respondents are universities graduate, they should not have any problem navigating their mobile phones for m-banking services, thus, this is one possible explanation why education is positive significant with PEOU.

The construct of income was found to be positively significant with PU. The findings were supported by Suoranta (2003) and Porter and Donthu (2006). Even though majority of the respondents fell in between the income range of RM0 and RM1500.00 however, the inexpensive of smart phones and affordable package offered by Telecommunication Service Providers may lead users with positive perception of usefulness. Therefore, the result was not unexpected.

8 Implications

In this section, we begin with the implication of this study. This is followed by the limitation and future studies and the conclusion of the paper.

8.1 Theoretical and managerial implications

In view of the little attempts to examine the demographic factors and subjective norms on the intention to adopt m-banking, firstly, this study had successfully extended prior research conducted in other developed and developing countries. Specifically, the study extended the TAM with the inclusion of four demographic constructs such as gender, age, education and income and social influences such as subjective norms. Hence, this study provides better understanding on how demographic factors and subjective norms affect the intention to adopt m-banking from the emerging market's perspective like Malaysia.

In view of the efforts and dollars that might be used in developing and launching m-banking services, it is crucial to convert non m-banking uses to adopt m-banking services. Attention should be given to PU, SN and PEOU. Firstly, since PU was positively significant with the intention to adopt m-banking services, banking institutions should convince the users on the benefits to adopt those services. The benefits of m-banking should be clearly emphasised and communicated. Apart from the enormous benefits such as ubiquitous coverage, flexibility and accessibility studies revealed that active use of m-banking would indirectly lead to "increased family savings rates, increased incomes, and resilience to financial shocks" (Donner and Tellez, 2008, p.328). Thus, it would be beneficial if the message could be crafted in their marketing communication strategies. Secondly, as SN has a positive significant relationship with the intention to adopt m-banking, it should not be neglected. Banking institutions can adopt viral marketing techniques when designing their marketing strategies. Likewise, given the relationship with PEOU and the intention to adopt m-banking services, banks should continue to simplify their interface systems and applications. Consumers do not want to adopt any applications which are not easy to use. Thus, by simplifying their software, users may have the perception of PEOU and thus will adopt m-banking services. In addition, bankers should pay attentions towards the demographic variables which are positively associated in the intention to adopt m-banking services. In view that customers have different needs and preferences, the findings from demographic factors serve as crucial tool to assist bankers in marketing planning especially when formulating their marketing strategies. Specifically, bankers may be able to identify the users that best fit with their services, hence, assist in segmenting the market more effectively.

9 Limitations and future studies

To provide more comprehensive view of Malaysian adoption on m-banking, therefore, several limitations in this study should be taken into consideration for future studies. Firstly, the majority of respondents are relatively young and in view that the majority possesses a bachelor degree, the study does not reflect the views of the population in Malaysia. Different demographic factors may lead to different findings; hence, future studies should focus on comparing different demographic factors in investigating the adoption of m-banking. Secondly, as the technology for mobile phone develops, it would certainly affect user's perceptions on m-banking services. For example, the performance of m-banking applications is driven by the phone features and wireless connectivity; hence it may lead to the consumer's scepticism on m-banking and may eventually affect user's perceptions towards m-banking services if the phone and the internet are not on par with the user's expectation. Therefore, it is recommended that a longitudinal research be conducted to investigate Malaysian m-banking adoption in different time frames. Thirdly, the samples were mainly drawn from Malaysia, thus, the interpretation on the findings may not be relevant to other developing countries. Doran (2002) in the cross-cultural studies urged that researchers should take into consideration of different environments such as cultures which may affect the overall of the research findings. Given the reason, future research may conduct a comparison study on m-banking adoptions between two or more countries. Lastly, the study has successfully extended the TAM by incorporating certain demographic variables and subjective norms. However,

other demographic construct such as marital status, ethnicity and other variables such as personal innovativeness and past adoption behaviour may also influence the adoption of m-banking. Therefore, future research should also take this perspective into consideration.

10 Conclusion

The paper aims to examine the demographic factors and subjective norms that affect the intention to adopt m-banking services in Malaysia. The study has provided insights from emerging markets like Malaysia, hence, bridging the research gap. Specifically, we found that the demographic factors associated differently with PEOU, PU and SN, whilst, the constructs of PEOU, PU and SN were found positively significant with intention to adopt m-banking. In view of the success of m-banking relies on different parties such as telecommunication providers, government agencies and service providers, hence the study serves as a basic foundation which is crucial for bankers, policy makers, marketers, and software engineers to work hand-in-hand so as to bring the usage of m-banking services to a higher level.

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