

FACTORS INFLUENCING CONSUMER'S BEHAVIOR TOWARDS THE USAGE OF INTERNET BANKING

Nur Hazwani Abdul Aziz^{1*}, Nuradli Ridzwan Shah Mohd Dali² and Syed Zamberi Ahmad³

¹Faculty of Economics and Muamalat, Islamic Science University of Malaysia, Malaysia,
nurhazwani.aa@maybank.com

²Faculty of Economics and Muamalat, Islamic Science University of Malaysia, Malaysia,
nuradli@usim.edu.my

³Management Department, College of Business, Abu Dhabi University, UAE
drszamberi@yahoo.com

Abstract

The purpose of the present study is to understand the factors influencing adoption of internet banking in Malaysia. A model has been proposed based on the technology acceptance model (TAM). The proposed model is referred to as extended TAM and is better suited to identify and quantify the important factors that influence adoption of internet banking (IB) technology in the country. Data were collected from 487 individuals who are either current or prospective internet banking users. Partial Least Squared (PLS) was used to identify the important factors affecting technological adoption. It is found that perceived usefulness (PU) and familiarity have a significant relationship towards the behavior of users to use IB. Perceived ease of usefulness (PEU), awareness and opportuneness on the other hand, have been identified as not having significant relationship towards the behavior of consumers to use IB in the tested mediated model. This study enables IB service providers in Malaysia to design new service offerings or modify current service offerings to achieve higher adoption rates in IB.

Keywords: Technology Acceptance Model (TAM), internet banking, technology adoption, technology innovation

1. INTRODUCTION

The internet has become the most crucial part in people's daily lives since the past century. One of the capabilities of the internet is to allow online services, such as internet banking (hereafter termed as IB). The use of IB is meant to overcome the hurdles of distance, time and cost to perform online activities with regards to banking [1]–[3]. Most scholars defined IB as a channel through the respective banks' websites for customers to perform all kinds of banking services including traditional banking services such as balance inquiry, printing statements, fund transfers to other accounts and bill payments, to name a few [4]. IB and

electronic banking (e-Banking) are the examples of alternatives for people to perform quick banking activities. IB and e-banking are different in a way that e-banking is a higher-level activity that encompasses not only IB, but also Mobile Banking, SMS Banking, ATM and other electronic payment systems that are not operated through the internet. Between both systems, IB acts as the most significant and most popular delivery channel for banking services in this era [3]. It is also known as the channel that offers integrated banking services to its customers at their convenience from end to end [3], [4]. Further benefits of IB as explained by Al-Fahim [5] are cost and time savings, width of population coverage, enhancing banks' reputations as well as better customer experience.

In the year 2000, Central Bank of Malaysia (hereafter termed as BNM) realized the importance of IT through IB. On June 15, 2000 Maybank was the first bank to offer IB services in Malaysia due to it being the largest domestic bank in terms of assets as well as network distribution. The product was called *Maybank2u*. This is a good example of having a competitive advantage during that era, before it was then being vastly followed by its other local competitors in the same industry such as Hong Leong Bank, Southern Bank, Multi-Purpose Bank and etc. Now, all domestic banks licensed under BNM have been identified to have a web presence. For banks to sustain their competitive advantages, studies in young users' interest on using IB is crucial because the future market segment for IB will rely on these group [6]. Thus, it is important to understand how they behave towards IB in order to capture future opportunities.

The theoretical framework of the present study is based on the model of Technology Acceptance Model (hereafter termed as TAM) by Davis [7] which was further extended to include three additional constructs. Of the five dimensions of the study, namely Perceived Usefulness (hereafter termed as PU), Perceived Ease of Use (hereafter termed as PEOU), Familiarity, Awareness, Opportuneness and Intention to Use (hereafter termed as BI), PU and PEOU are taken from TAM. According to BNM, as of March 2016, IB penetration in the Malaysian population is 66.3% with individual subscribers of 19.9 million. The number has increased from previous years indicating that an IB adoption has been well accepted in Malaysia since it was first introduced in 2000. Table 1 is showing the statistics of IB subscribers and its penetration in the Malaysian population, a tacit indication that the trend is increasing every year.

Table 1: Internet banking subscribers and penetration to Malaysian population from 2012 to Q1 2016

Year	Individual Subscribers (million)	Penetration to Population (%)
2012	13.4	46.4
2013	15.2	51.9
2014	17.3	58.2
2015	19.2	63.7
2016	19.9	66.3

Source: Central Bank of Malaysia (2017)

Despite the overwhelming numbers of Malaysian IB subscribers as per Table 1, Department of Statistics Malaysia has shown in overall, the usage of IB by Malaysians in the year 2015 was 27.4% compared to other internet activities. This utilization per population is low when compared to other developed countries for example, United States (US) and United Kingdom (UK), that are said to prefer using IB channel [4]. According to Danurdoro and Wulandari [8], the majority of internet users falls under the age of 18-25 years which specifies that students in general are the majority of internet users. In Malaysia specifically, it has been reported that towards the year 2024, the number of working age individuals from 15 to 64 years is targeted to be growing [32]. Therefore, this population forecast should be taken as an opportunity, to help increase the utilization rate of IB channel through the internet.

Young intellectuals can play their role because this is the group of people that is said to be technology-sound [4] and are more exposed to the internet. This is also a group of people who has a potential of having higher demand and taste when it comes to technology. Thus, banks need to continuously innovate and rapidly improvise IB services to cater for this incoming demand. To do so, an understanding of the factors that influence the intention and behavior towards the usage of IB for the young intellectuals, also known as the millennial group, needs to be identified beforehand. Hence, this study is aimed to investigate the relationship of factors influencing the behavior towards IB and the mediating effects of attitude between the variables.

In this present study, IB is defined as a channel for selected traditional banking services online, consisting of

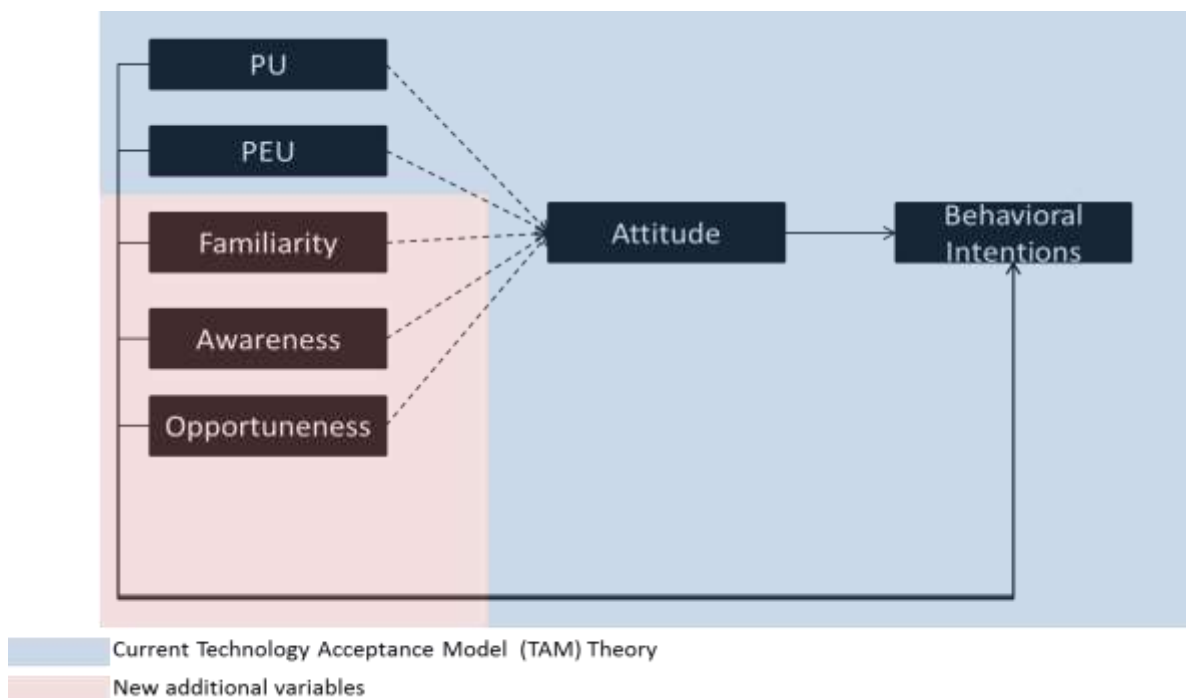
both informational and transactional activities by using any devices with the presence of internet. Based on previous literatures and numerous studies with regards to behavior towards IB, seven variables have been identified; intention to use, PU, PEU, familiarity, awareness and opportuneness, respectively. Inspired by the Expectancy Theory by Vroom [9] behavior is defined in this study as the intention to use IB based on the certain beliefs and what the user perceived as expectation. PEU and PU are adopted from TAM theory by Davis [7]. PU is understood in this study as the “benefits” gained from the IB utilization of the person. “Benefits” in this context is measure through the increased of productivity, performance and efficiency when using IB [8]. On the other hand, PEU is defined as effort “reduction” when using IB. Indicators stated by Davis [7] on the “reduction” of effort are easiness to be learnt, easiness to be followed by the users’ desires, easiness to be operated and increase of skills after using.

This present study has introduced a combination of experience [8] and skills [10], which is termed as familiarity. Familiarity is defined as the previous experience students have in browsing the IB provided with the ability to use the computer and internet. Awareness is defined as the level of knowledge that the students possess about IB and to the extent of how they think it could benefit them. This is in parallel with the definition adopted by Al-Fahim [5]. Opportuneness is when a user is given the opportunity to have the access to the IB. “Access” in this context consists of not only internet availability, but environment, devices and time as well. In other words, accessibility is defined as the opportunity given and available for users to access information and services from the web, in any condition, with any device.

Lastly, the study by Shanmugam, Savarimuthu and Wen [11] on attitude, was adopted. In this present study, attitude is defined as a reflection of individuals’ positive or negative perception and evaluation towards performing the behavior of using IB. Attitude, is hypothesized as the mediating factor that mediates the relationship between the independent variables (PU, PEU, Familiarity, Awareness, and Opportuneness) and intention to use IB. Armed with the operational definition above, this study introduced a research model as illustrated in Figure 1.

The theoretical framework for this study was grounded on the convergence theory from a number of fields, specifically philosophical or epistemological perspectives and behavioral or motivational expectancy theories. The role of Expectancy Theory by Vroom [9] in the customers’ intention to use IB systems, whether implicitly or explicitly articulated, is critical as it deals with the interpretation and transmission of information, construction of meaning and creation of new knowledge, which together may have influenced a customer’s intention to use IB. Behavior is a function of the expectancies. This approach predicts that when more than one behavior is possible, the behavior chosen will be the one with the largest combination of expected success and value.

Figure 1: Conceptual Framework



This present study makes several significant contributions. First it contributes to the existing literatures using the TAM theory by Davis [7]. Three variables have been extended and compressed to test the user behavior towards IB. One of it is the inclusion of a broader concept of combining experience and skills to become one which we termed as familiarity. Based from previous literatures that have showed that experience and skills influence the intention to use IB, this study believes that experience needs to come together with skills and act as the factor that influence the intention to use IB. In addition, this present study examines attitude as the enhancer or moderator to the other factors that influence intention to use IB, which have rarely been considered.

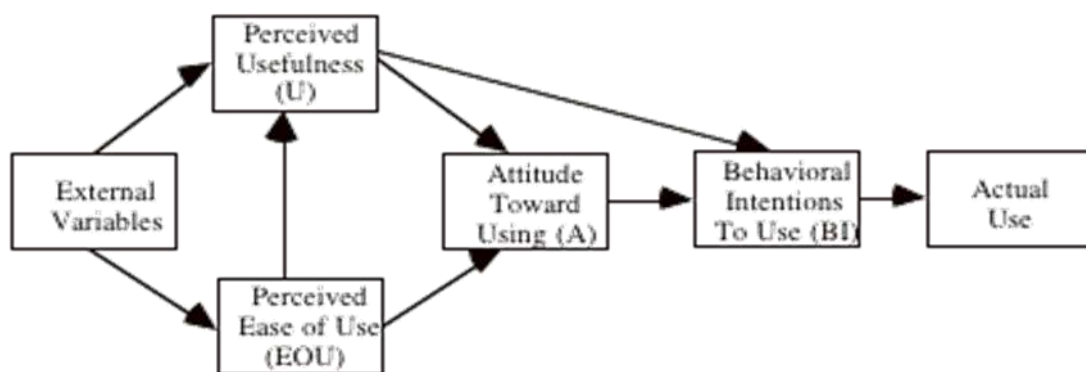
Most of the studies with interest on the behavior of young intellectuals or higher learners towards IB have numerously used Multiple Regression. In contrast, this present study would contribute to the set of literatures by applying the usage of 'Partially Least Squared' (PLS) to analyze the large set of data that has been compiled. According to Nitzl, Roldan and Cepeda [12], there has not been much explicit mediator analysis using PLS in most journals. Hence, this study will be applying the suggested mediator analysis using PLS. Furthermore, contribution towards more researches in quantitative surveys among students in Malaysia, to be specific the Islamic universities in Malaysia, is enhanced via this study. Understanding the factors of behavior towards IB may also help respective Banks to formulate new innovative strategies that could help to create or sustain their competitive advantage. Intellectuals and young generations are the most relevant market segment that could be captured as potential loyal customers in the future.

2. LITERATURE REVIEW

Al-Fahim [13] defines IB as the service that allow customers to perform banking activities remotely using any devices with the presence of internet. The activities are inclusive of almost all activities in a branch for instance, money transfer, account opening, insurance purchases, loans application and *et cetera*. Banks and the financial services in Malaysia are regulated by the central bank, known as Bank Negara Malaysia (BNM). In June 2000 the first IB introduced was Maybank2u, the product of Maybank, followed by other banks in the country. The IB facilities were then extended to foreign owned banks [14]. As of 2016, there are 23 banks offering IB facilities on top of traditional services [15]. Apart from IB, similar terms that has similar definition is online banking and PC banking [1].

TAM has been proposed by Davis [7] to predict how users behave towards accepting and using a technology. This model is said to be one of a number of studies that have helped in the research on technology adoption for the last two decades [13]. Since it was first introduced, a number of recent studies have continued the legacy by applying TAM in finding behaviors towards the adoption and use of IB [2], [3], [13], [16]–[18].

Figure 2: Technology Acceptance Model



TAM defined PEU as a degree on which a person believes that effort can be minimized when using a particular system or technology. Simply put, an application perceived to be easier to use than another is more likely to be accepted by users [4]. Another variable introduced by TAM is PU, where it is defined as a degree which a person believes that performance can be enhanced by using a particular system or technology. A number of literatures on the factors that influence customer behavior towards IB services that used the two variables adopted from TAM, had combined the two variables with other factors. Chong [19] had identified the factors that affect the adoption of IB in Vietnam. Result of the study shows that PU, trust and government support are positively related to the customer intention to use IB. The finding of non-

significant effect of PEU on behavioral intention had similar result in the study by Al-Fahim [13]. The researchers explored the influencing factors on the IB adoption among students of higher education in Pakistan. The independent variable of PEU was not significantly related to the behavioral intention to adopt IB among the students.

In contrast, the study by Sekyere Mbrokoh [20] found that consumers' PEU and PU significantly influenced behavioral intentions. The researchers mentioned that PU of the IB technology had influenced consumers' adoption of the system and they suggested that banks can consider offering free trial services to consumers to enhance the acceptance of the technology. Similarly, Guriting and Ndubisi [21] found that PU, PEU and intention to adopt IB are positively related. When IB is perceived as useful, customers' intention to adopt it would be greater. Polasik and Wisniewski [22] stated that computer efficacy and anxiety constitute crucial factors influencing the PEU. The researchers have found out that educated respondents were more familiar with the medium of internet and are indeed more positively inclined towards IB. The results indirectly support the importance of PU in the process of decision-making, due to the customers with greater and more developed banking needs were shown to have a stronger drive to accept technology. Hence, the derived hypotheses are:

H₁: Perceived ease of use influences the intention to use IB

H₂: Perceived usefulness influences the intention to use IB

New technology is usually being selected by the pioneers of adopters that have internet access and knowledge about the facilities. The constraints of some users in using IB is not having computer skills and lack of access to the IB. Users with amplified computer skill may adopt IB more easily and their ability may also improve their competence in the use of IB. In contrast, those without said skills may not recognize the benefits of IB [10]. Muzividzi, Mbizi, and Mukwazhe [10] argued that the adoption rate of a technology will be low if knowledge and skills on the internet and IB are low. Due to this, the next hypothesis is:

H₃: Familiarity influences the intention to use IB

Al-Fahim [5] has found out that awareness is crucial in determining the relationship with intention to use IB. Bendigeri and Hulgur [23] suggested banks to improvise awareness program on using IB because awareness is important in determining the adoption of IB. Similarly, Kathri [24] found out that awareness about IB and its benefits and security were identified as the major reason behind low utilization of IB among customers in Nepal. In a study by Tandon, Goel, and Bishnoi [25], the awareness of the public is still low. Knowing the crucial role of awareness based on these statements, another hypothesis has been identified:

H₄: Awareness influences the intention to use IB

Al-Fahim [5] relates accessibility to convenience and deemed that this factor is important. Inadequate access to computers or internet has been the most prominent factors obstructing the dissemination of technology [26]. At the same time convenience is the main attraction and focus of the customers who use IB. This brings to the next hypothesis which is:

H₅: Opportuneness influences the intention to use IB

Attitude refers to a person's feelings, convictions, or liking for an object, idea or individual. Chinakidzwa, Mbengo and Nyatsambo [26] refers to this definition and argued that a user's general assessment of a product such as IB depends for the most of his or her attitude. Interestingly, Jahangir & Begum [27] found out that attitude acts as the mediating factor between PEU, security, privacy and users' adoption to technology. Due to the big role of attitude in daily lives, the present study believes that attitude should play a major role in bridging the factors towards intention to use IB. Hence, the last hypothesis of this study would be:

H₆: Attitude mediates the relationship between PEU, PU, awareness, familiarity, opportuneness and intention to use IB

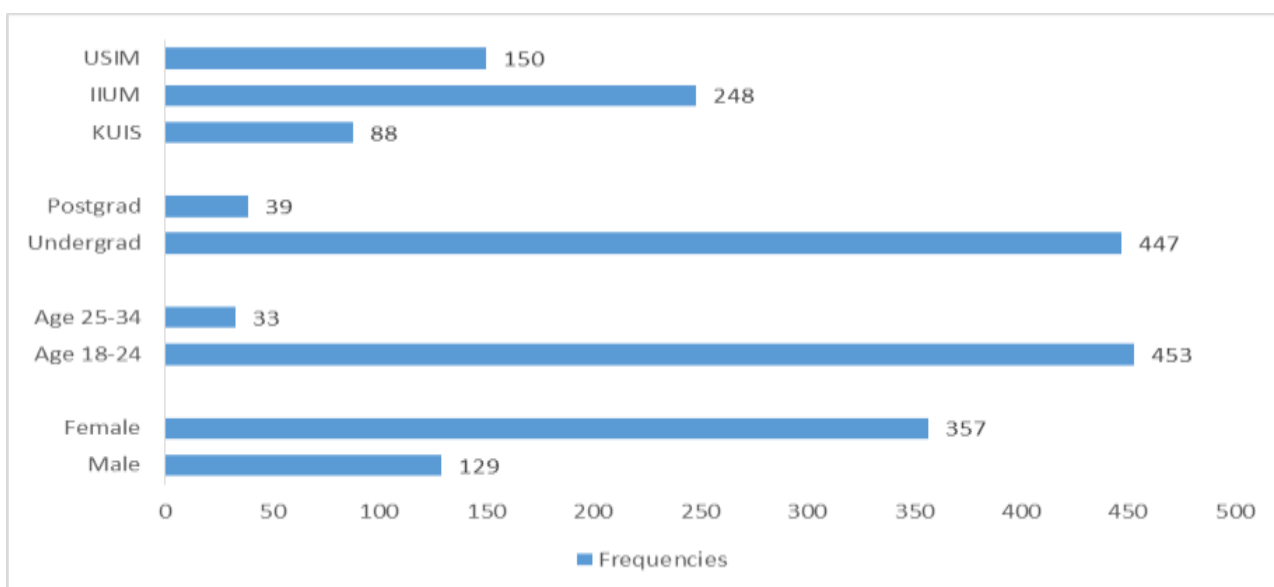
3. RESEARCH METHODOLOGY

The present study emphasizes on explanatory study as the study purpose because a causal relationship has been established among variables. It is intended to empirically test the factors of TAM theory proposed by Davis [7] together with additional factors; awareness, opportuneness and familiarity, respectively. Youngsters are used as the unit of analysis for this present study. The approach is quantitative and it used a deductive model in testing the relationship between variables which are PU, PEU, awareness, familiarity, opportuneness, attitude and behavioral intentions. Thereafter, the relationships are tabled as an evidence for the hypotheses. As the main goal of this present study is to find the factors influencing intention of IB usage

in millennial and youths, contemporary events are being researched and the strategy was to conduct survey analysis.

Kalaiarasi and Srividya [3] believed that students are considered the biggest representative of young population in any country. In this present study, university students have been chosen. University students are known as a favorable population in the adoption of innovations and technology. This is due to the fact that students are believed to have knowledge and several skills on technology usage, and internet, to be exact [5]. In this present study, the university students are taken from 3 known Islamic universities and college namely Universiti Islam Antarabangsa (UIA), Universiti Sains Islam Malaysia (USIM) and Kolej Universiti Islam Selangor (KUIS). Undergraduate and postgraduate students between the ages of 18 to 34 years have been chosen via the non-probability sampling, to be specific the purposive sampling. An online survey via surveymonkey.com is used for the respondents. The return respondents were 487 surveys. This number of return receipts comply with the requirements by Sekaran and Bougie [28] on the minimum number of respondents for population of above 10, 000. Figure 3 summarized the respondents' information in frequencies.

Figure 3: Frequency tabulation of the respondents



A 5 point Likert-scale survey has been adapted from previous studies. Table 2 lists the measurements of each of the construct.

Table 2: Variables' measurements

Variables	Category	Operational definition
Perceived Ease of Use	Independent Variable	"Benefits" gained from IB utilization of the person. "Benefits" in this context is measure through the increased of productivity, performance and efficiency when using IB.
Perceived Usefulness	Independent Variable	Effort "reduction" when using IB. Indicators on the "reduction" of effort are easiness to learn how to use IB, easiness of IB to follow users' desires, easiness to operate IB and increases of skills after using IB.
Familiarity	Independent Variable	Previous experience students have in browsing the internet banking provided with the ability to use the computer and internet.
Awareness	Independent Variable	Level of knowledge that the students possess about IB and to the extent of how they think it could benefit them
Opportuneness	Independent Variable	Opportunity given and available for users to access information and services from the web, at any conditions, with any devices.

Attitude	Moderating Variable	A reflection of individuals' positive or negative perception and evaluation towards performing the behavior of using IB
Behavioral Intention	Dependent Variable	Intention to use internet banking based on the certain beliefs and what the user perceived as expectation

The present study employs the partially least squared (PLS) method to evaluate both measurement and structural model. The tool that has been used is smartPLS 3.1.5 [29]. Wang, Chen and Benitez-Amado[29] also concluded that PLS is normally broadly used in IT research and it is used when the study of the variables of the theory is scarce. This study examines how the independent variables influences the intention to use IB with attitude as the mediating role.

4. RESULTS AND ANALYSIS

4.1. Reliability testing

To exhibit the inter-item consistency of first order latent construct, Composite reliability or Cronbach Alpha is used. According to Yin and Yang [30] in social scientific research, a construct is said to be in adequately reliable if composite reliability is greater than 0.7. According to Table 4.1-1, the composite reliabilities for the constructs are all above the suggested value of 0.7. The composite reliability of our constructs ranges from 0.7** to 1. ***. This shows that all first-order constructs display higher internal consistency.

Table 3: Reliability test: Composite reliability for each construct

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Attitude	0.816	0.817	0.891	0.731
Awareness	1.000	1.000	1.000	1.000
Behaviour	0.718	0.718	0.876	0.780
Familiarity	0.504	0.549	0.796	0.663
Opportuneness	1.000	1.000	1.000	1.000
PEU	0.848	0.849	0.908	0.767
PU	0.742	0.767	0.885	0.793

4.2. Validity testing

Construct validity consists of convergent and discriminant validities where it measures how well each construct relate to the measurement items [30]. The convergent validity has been examined by the output of average variance extracted (AVE). The recommended value is above 0.5 [29]. The AVE values ranges from 0.6** to 1. ***, above the threshold of 0.5 as per Table 3.

Table 4 displays the Fornell Larcker discriminant validity measurements. Typically, the square root of the AVE of a construct must be larger than that of the construct's correlations with the other constructs. The result indicated that the constructs fulfilled the said criterion, thus confirming its discriminant validity.

Table 4: Discriminant validity using Fornell-Larcker criterion

	Attitude	Awareness	Behaviour	Familiarity	Opportuneness	PEU	PU
Attitude	0.855						
Awareness	0.120	1.000					
Behaviour	0.635	0.135	0.883				
Familiarity	0.275	0.048	0.254	0.814			
Opportuneness	-0.034	-0.022	-0.015	-0.133	1.000		
PEU	0.699	0.229	0.502	0.360	-0.086	0.876	
PU	0.591	0.227	0.454	0.158	-0.019	0.570	0.891

4.3. Structural model

The present study had used the mediation analysis as guided by recent method using PLS [12]. The significant level of each variables is determined by the indirect effect using the below formula:

$$\text{Indirect effect (a x b)} = \text{total effect (c)} - \text{direct effect (c')} \quad (1)$$

Table 5: Indirect effect: Significant at $p < 0.05$ level.

Step 1. Indirect effects		Beta (β)	P value (α)	Significant level
H ₁	PU → Behavioral intention	0.153	0.024	Significant
H ₂	PEU → Behavioral intention	0.273	0.410	Not significant
H ₃	Awareness → Behavioral intention	-0.036	0.139	Not significant
H ₄	Familiarity → Behavioral intention	0.022	0.013	Significant
H ₅	Opportuness → Behavioral intention	0.011	0.607	Not significant

The indirect effect has shown that PU ($\beta=0.153$, $\alpha=0.024$) and familiarity ($\beta=0.022$, $\alpha=0.013$) have a significant positive relationship towards behavioral intention to use IB. On the other hand, PEU, opportuneness and awareness have a non-significant relationship towards the behavioral intentions to use IB. The latter variable carries the negative relationship.

Next step is to determine the mediating effect of attitude. Nitzl, Roldan and Cepeda [12] adopted the steps suggested by Zhao, Lynch Jr. and Chen [31] in determining the mediating effect using PLS. According to these researchers, when the indirect effect (a x b) is significant, a mediating effect will always exist. Therefore based on the results yielded for indirect effect, the variables that have mediating effect are PU and familiarity. To know the type of mediating effect that each variable carry, the direct effect (c) needs to be considered. Nitzl, Roldan and Cepeda [12] argued that partial mediation effect occurs when both direct and indirect effect of the relationships are significant. In this study, attitude partially mediates the relationship of PU and familiarity towards IB behavioral intention. Further analysis has shown that attitude is yielding a positive confounding or consistent model due to its having the same positive direction in both direct and indirect effect [12], [31].

Table 6: Direct effect: Significant at $p < 0.05$ level.

Step 2. Direct effects		Beta (β)	P value (α)	Significant level
H ₁	PU → Behavioral intention	0.101	0.024	Significant
H ₂	PEU → Behavioral intention	0.050	0.410	Not significant
H ₃	Awareness → Behavioral intention	0.035	0.365	Not significant
H ₄	Familiarity → Behavioral intention	0.080	0.027	Significant
H ₅	Opportuneness → Behavioral intention	0.020	0.532	Not significant

5. DISCUSSION AND CONCLUSION

The present study concluded that PU and familiarity have a significant relationship towards the behavior of students to use IB. Familiarity in this study is the combination of experience and internet skills possessed by the students. Familiarity has shown to have a significant relationship towards behavior to use IB among students and attitude offers no mediation effect. In short, no matter what the attitude of the students are, experience and skills will still be the factors influencing IB intention among students [5].

The present study further concludes that PEU, awareness and opportuneness do not have significant relationship towards the behavior of students to use IB. Such result encountered for awareness was due to the respondents not being segregated into genuine users of IB, whereby they may not be having the accounts with the respective banks, causing them not having much experience in using IB. Further, Al-Fahim [13] has found out that awareness may not be the most important point to look at when taking into consideration the intention to use IB among students.

Opportuneness is the present study is defined as accessibility to IB, regardless of conditions, and with any device. Xue, Hit and Chen [2] in their study found that channel accessibility does not have a significant impact towards IB adoption. The same result was found by Park [16] when system accessibility was tested against the behavior of Korean students towards IB. According to the recent report released by Department of Statistic Malaysia [32], in 2015, the percentage of individuals in Malaysia aged 15 years and above had showed a tacit improvement and the most location detected was in mobility. Hence, the availability of internet

access in Malaysia has been proven sufficient enough that opportuneness has not been a significant factor in determining the behavioral intention towards IB among students.

It is suggested that banks should be focusing not merely on IB advertisements and awareness campaigns, but on so-called 'mobile IB clinic' to practically expose the students on the hands-on in using IB. Universities and schools may also contribute by including the knowledge on banking technology specifically in IB. Although this study is sufficient to represent new knowledge over the prior literatures, there were some limitations. First, the data of this study are limited to a few Malaysian Islamic universities, so there is no totality in representing the Malaysian millennial and youths' behavior towards intention to use IB. Secondly, this study have not segregated the IB adopters and non-adopters in order to take into consideration the IB experiences of the students. Non-adopters may have big chances of not having any experience with IB at all. Hence, this may affect the findings. Lastly, although causal interpretations have been identified, there is a big possibility that intention to use decision is correlated with a behavior that this study method could not observe.

REFERENCE LIST

- [1] M. A. Jalil, M. Talukder, and M. K. Rahman, "Factors Affecting Customer's Perceptions Towards Online Banking Transactions in Malaysia," *J. Bus. Manag.*, vol. 20, no. 1, pp. 25–45, 2012.
- [2] M. Xue, L. M. Hitt, and P. Chen, "Determinants and Outcomes of Internet Banking Adoption," *Manage. Sci.*, vol. 57, no. 2, pp. 291–307, 2011.
- [3] H. Kalaiarasi and V. Srividya, "A study on factors influencing young user's online banking channel usage in india," *J. Commer. Account. Res.*, vol. 1, no. 3, pp. 17–22, 2011.
- [4] F. O. Omotayo and A. K. Adebayo, "Factors influencing intention to adopt internet banking by postgraduate students of the university of Ibadan, Nigeria," *J. Internet Bank. Commer.*, vol. 20, no. 3, 2015.
- [5] N. H. Al-Fahim, "An Exploratory Study of Factors Affecting the Internet Banking Adoption: A Qualitative Study among Postgraduate Students," *Glob. J. Manag. Bus. Res. Financ.*, vol. 13, no. 8, 2013.
- [6] M. S. M. Ariff, Y. S. Min, N. Zakuan, N. Ishak, and K. Ismail, "The effects of computer self-Efficacy and technology acceptance model on behavioral intention in Internet banking systems," *Rev. Integr. Bus. Econ. Res.*, vol. 2, no. 2, pp. 587–601, 2012.
- [7] F. D. Davis, "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology," *MIS Q.*, vol. 13, no. 3, pp. 319–340, 1989.
- [8] K. Danurdoro and D. Wulandari, "The Impact of Perceived Usefulness , Perceived Ease of Use , Subjective Norm , and Experie nce Toward Student ' s Intention to Use Internet Banking," vol. 8, no. 1, pp. 17–22, 2016.
- [9] V. H. Vroom, *Work and Motivation*, vol. 5. 1964.
- [10] D. K. Muzividzi, R. Mbizi, and T. Mukwazhe, "An Analysis of Factors that Influence Internet Banking Adoption among Intellectuals: Case of Chinhoyi University of Technology," *J. Contemp. Res. Bus.*, vol. 4, no. 11, pp. 350–369, 2013.
- [11] A. Shanmugam, M. T. Savarimuthu, and T. C. Wen, "Factors affecting Malaysian behavioral intention to use mobile banking with mediating effects of attitude," *Acad. Res. Int.*, vol. 5, no. 2, pp. 236–253, 2014.
- [12] C. Nitzl, J. L. Roldan, and G. Cepeda, "Mediation analysis in partial least squares path modeling," *Ind. Manag. Data Syst.*, vol. 116, no. 9, pp. 1849–1864, 2016.
- [13] N. H. Al-Fahim, "Factors Affecting the Adoption of Internet Banking Amongst IIUM' students: A Structural Equation Modeling Approach," *J. Internet Bank. Commer.*, vol. 17, no. 3, pp. 1–14, 2012.
- [14] G. Radhakrishna, "Liability Issues in Internet Banking In Malaysia," *Commun. IBIMA*, vol. 7, no. ii, pp. 1–7, 2009.
- [15] B. N. M. BNM, "Internet Banking and Mobile Banking Subscribers," Kuala Lumpur, 2016.

- [16] S. Y. Park, "An Analysis of the Technology Acceptance Model in Understanding University Students' Behavioral Intention to Use e-Learning," *Educ. Technol. Soc.*, vol. 12, no. 3, pp. 150–162, 2009.
- [17] S. N. Baraghani, "Factors Influencing the Adoption of Internet Banking," Tarbiat Modares University Faculty of Engineering, 2008.
- [18] N. Karuppiah, U. Subramanian, S. Seng Hu, and R. J. Radin Mas Basiuni, "Customer Acceptance of Internet Banking in Brunei Darussalam," *SSRN Electron. J.*, 2014.
- [19] A. Y.-L. Chong, "Online banking adoption: an empirical analysis," *Int. J. Bank Mark.*, vol. 36, no. 6, pp. 350–287, 2010.
- [20] A. Sekyere Mbrokoh, "Exploring the Factors that Influence the Adoption of Internet Banking in Ghana," *J. Internet Bank. Commer.*, vol. 21, no. 212, 2016.
- [21] P. Guriting and N. O. Ndubisi, "Borneo online banking: evaluating customer perceptions and behavioural intention," *Manag. Res. News*, vol. 29, no. 1/2, pp. 6–15, 2006.
- [22] M. Polasik and T. P. Wisniewski, "Empirical analysis of internet banking adoption in Poland," *Int. J. Bank Mark.*, vol. 27, no. 1, pp. 32–52, 2009.
- [23] M. Bendigeri and V. Hulgur, "Awareness and Knowledge of Internet Banking Services Among the Customers Of Private and Public Sector Banks in Hubli City," *Asian J. Res. Bank. Financ.*, vol. 4, no. 8, pp. 222–236, 2014.
- [24] J. R. Khatri and K. Upadhyay-Dhungel, "Internet Banking in Nepal : Use and Challenges," *Bank. J.*, vol. 3, no. 2, pp. 57–77, 2013.
- [25] A. Tandon, M. Goel, and S. Bishnoi, "Consumer Awareness towards Internet Banking : A Comparative Study of Public , Private and Foreign Banks," *Int. J. Hybrid Inf. Technol.*, vol. 9, no. 6, pp. 77–90, 2016.
- [26] M. Chinakidzwa, P. Mbengo, and M. Nyatsambo, "Mobile money usage in rural areas of Zimbabwe - case of Mudzi District," vol. 6, no. 2, pp. 128–132, 2015.
- [27] N. Jahangir and N. Begum, "The role of perceived usefulness , perceived ease of use , security and privacy , and customer attitude to engender customer adaptation in the context of electronic banking," vol. 2, no. 1, pp. 32–40, 2008.
- [28] U. Sekaran and R. Bougie, "Research methods for business," in *Research methods for business*, 2013, p. 436.
- [29] Y. Wang, Y. Chen, and J. Benitez-Amado, "How information technology influences environmental performance: Empirical evidence from China," *Int. J. Inf. Manage.*, vol. 35, no. 2, pp. 160–170, 2015.
- [30] G. Yin and B. Yang, "The construction of firm's IT capability and its impact on IT assimilation: an empirical investigation in China," *Serv. Sci.*, vol. 2, no. 2, pp. 110–121, 2011.
- [31] X. Zhao, J. G. Lynch Jr., and Q. Chen, "Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis," *J. Consum. Res.*, vol. 37, no. 2, pp. 197–206, 2010.
- [32] Department of Statistics Malaysia, "Department of Statistics Press Release Ict Use and Access By Individuals and Households Survey Report ," Kuala Lumpur, 2016.
- [33] D. Arias-Aranda, "Reasons for information technology adoption and sophistication within manufacturing SMEs," in *POMS 22nd Annual Conference: Operations management: The enabling link*, 2011, no. April-May 2011, pp. 1–40.