Factors that Influence Internet Banking Adoption among Post-Graduate Students

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Abstract — *Internet* **banking is increasingly becoming popular because of its convenience and flexibility. The growing popularity of internet banking was synchronized with rapidly changing technology. The main objective of this research is to investigate the factors that influence Internet banking adoption among student. Trust, perceived ease of use, perceived usefulness and service quality were examined to determine if these factors are affecting internet banking adoption. The research setting among postgraduate student (part time student) in Faculty of Information Management and Faculty of Computer and Mathematical Sciences at Universiti Teknologi MARA. A total of 170 questionnaires was coded and analysed by using SPSS software.**

*Keyword***: Internet banking, customer adoption.**

I. INTRODUCTION

Internet technology has brought an improvement in the business performance. By right, it is currently fully utilized by many companies in order to influence their customer to use it. However, it has become a crucial or significant measure of the success or effectiveness of user adoption towards that technology. The development of information and communication technology in 20 past years has impacted business environment as well as individuals. Internet banking (IB) is an essential technological innovation with potential to change the structure and nature of banking.

Customer satisfaction and customer retention are increasingly developing into key success factors in e-banking (Bauer et al., 2005). According to Saffu et al. (2008), there is an increase in application of e-commerce

in business in the past ten years. Others perspective from McKechnie et al. (2006) and Meuter et al. (2003), they stated that Internet banking, ATMs, telephone banking and electronic retailing are some of the most popular form for self-service technology. However, even the customer can see the benefits of using it, they still to refuse from use it if they do not feel ready and comfortable to use that such technology. That is the reason why banking industry still having the problem in return of investment in technology because customers fail to accept of fully utilized its capabilities. Pang (1995), reported that electronic banking started in Malaysia in 1970's. However, in Malaysia only banking institutions licensed under the Banking and Financial Institution Act 1989 (BAFIA) and the Islamic Banking Act 1983 (IBA) are allowed to offer internet banking services. Perumal and Vignesen (2004) was stated that, during the initial stages when the Internet banking revolution commenced in Malaysia in year 2000, the growth of Internet banking has been very encouraging and consequently, more and more banks began to provide Internet banking services to their customer. Maybank pioneered to provide online banking services to their users through its web portal (Heo Hong, 2013). Prior to 2002, only the foreign banks were allowed to provide online banking transactions in Malaysia. In recent years, most of the Internet banking adoption studies (1999-2011) investigated the respondents "intention to adopt" (Tan & Teo, 2000; Shih & Fang, 2004 & Hernandez & Mazzon, 2007) or comparison between adopters and non-adopters (Sathye, 1999; Suganthi et al., 2001; Gerrard and Gumingham, 2003; Akinci et al., 2004; Chan & Lu, 2004; Laforet & Li, 2005; Lee et al., Gerrard et al., 2006; Awamleh & Fernandez, 2006; Polasik & Winsniewski, 2009 & Foon & Fah, 2011). Besides that, several research works have explored the concept of Internet banking in developed countries (Kwan, 2000; Courchane et al., 2002; Pikkarainen et al., 2004; Mattila and Mattila, 2005; Roussos, 2007; Forrester Research, 2009; The World Bank, 2009; Athanasios et al., 2012; Yousafzai and Yani-de-Soriano, 2012). Yet, few studies have explored the factors influencing the adoption of internet banking for developing countries. In addition, many researchers have applied several theories to predict the factors that influence individuals to use internet banking and some of these theories include technology acceptance model (TAM) (Davis, 1989), theory of reasoned action (TRA) (Fishbein and Ajzen, 1975) and theory of planned behavior (TPB) (Ajzen, 1991). Nevertheless, this research

also will be adopted and applied a few theories from previous researchers and implemented towards postgraduate student in Universiti Teknologi MARA. In fact, the result from factors that influence the usage of internet banking will give meaningful insight and impression on the decision making to improve the internet banking services.

II.   RESEARCH QUESTION

Many previous studies on internet banking have expressed that on-line trust surely influence internet banking (Avinandan and Prithwira, 2003), (Urban, Sultan and Qualls, 2000). TAM (which is the same technology acceptance by customer) helps very much in understanding and perceiving and developing trust especially within developing countries. (Serva, 2007, Benamati). Therefore the first question of this research is:

RQ 1: What is the effect of trust on customer acceptance of internet banking?

Perceived ease of use means that a situation which person believes that will be away of trial by using information system (Davis, 1989), (Sanders and Manrodt, 2003), (Venkatesh, 2000). According to some researches some important characteristics of electronic banking are recognizing instance reflect, quick transactions and easy availability (Ekin and Polatoglu, 2001). Therefore the second question of this research is:

RQ 2: How perceived ease of use can result an adoption of internet banking?

The research objectives are below:

a)   To examine the level of students' trust in UiTM towards an adoption internet banking.
b)   To investigate the level of perceived of use of internet banking adoption among students in UiTM

III.   LITERATURE REVIEW

A. Internet banking(IB)

Internet Banking (IB) also known as an electronic banking. It is defined as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels (Daniel, 1999; Sathye, 1999). E-banking includes the systems that enable financial institution customers, individuals or businesses, to access accounts, transact business, or obtain information on financial products and services through a public or private network, including the Internet.

B. Customer Adoption

The definition of customer adoption as suggested by Manser (1986) in Macmillan English Dictionary, defines adoption as "course of action". Sathye (1999) defines

adoption as the acceptance and continued use of a product, service or idea. For this study, customer adoption can be define as consumers learn about goods and services offers by the internet banking provider throughout the development of experiences. The experiences are a major determinant of consumer choice and preferences (Foxall, 2003). It is revealed that not only banks customers use but also customers' acceptance supports and determines the success of Internet.

C. Trust

Based on previous research, trust has been defined as a set of specific beliefs dealing primarily with the integrity, benevolence, and ability of another party (Doney and Cannon, 1997; Gefen and Silver, 1999). Gefen (2000) defined that trust is a general belief that another party can be trusted. While Boon Ooi et al. (2010) well defined trust as the extent to which an individual believes that using online banking is secured and has no privacy threats. In this study, the researcher try to focuses on the element of security and privacy from the consumers' perceptions as to whether they believe transactions on internet banking is secured and private. Such definition is similar to Eriksson et al. (2005) in which they define trust from the customers' perception on security and reliability of the online banking system.

D. Concept of Internet banking

This study will be implemented at the largest University in Malaysia and the target population are Faculty of Computer and Faculty of Information Management. Internet banking refers to the systems that enable bank customers to get access to their accounts and the general information on bank products and services through the use of bank's website, without the intervention or inconvenience of sending letters, faxes, original signatures and telephone confirmations. It is the type of services through which bank clients can request information, and carryout most retail banking services such as balance inquiry, inter account transfer, bill payments within the comfort of their homes or organisation (Hanemman, 1984). Mu Yibin, (2003) identified three functional levels or kinds of internet banking that are currently employed in the market place and these are informational, communicative and transactional.

i. Informational- this can be identified as the first level of internet banking, typically the bank has marketing information about the bank's products and services on a standalone server and the bank's internal network.
ii. Communicative - This type of internet banking allows some interaction between the bank's system and the customer. The interaction is limited to e-mail account, inquiry loan application and static file updates (name and address). It does not permit any funds transfer.
iii. Transactional-This level of internet banking allows bank customer to execute transactions. Since the path exists typically between the bank's server and the outsourcer's internal network, this is the highest risk architecture and

must have strong controls. Customer transactions can include accessing accounts, payment of bills and transferring of funds.

Internet banking offers many benefits to both the banking institution and the customer. According to Jayawardhena and Foley (2000), the main benefits to the banks are cost saving, reaching new segments of the population, efficiency, enhancement of bank's reputation and better customer service. A research conducted by Booz –Allen and Hamilton (1997), concluded that the establishment of a specialised internet banking requires only USD 1-2 million which is very low than the branch based set up. The research also established that traditional banking costs amounts to 50 % to 60% of its revenues while internet banking was estimated to be at 15% to 20% of revenues. The researches indicate that internet banking is a strategic tool for cost reduction in the banking sector. Internet banking presented to be helpful more than any other delivery channel in the banking sector. According to Laukkanen (2007), internet banking gives customers access to almost any type of banking transactions at the click of a mouse, except withdrawal 24 hours a day. The branch banking venue is characterised long winding queues and it is quite logical for the people with knowledge and accessibility to switch over to internet banking (Kerem, 2008) .Thus he advocated for people to use internet banking because of its convenience. The greatest benefit of Internet banking is that it is cheap or even free to customers. Kerem (2008) also compared the costs associated with traditional branch banking and internet banking to the customer. His conclusions were that online banking charges are much less than those of traditional banking. However, price seemed to be one factor militating against Internet banking (Sathye, 1999). Internet banking has the advantage that the customer avoids travelling to and from a bank branch. In this way, Internet banking saves time and money, provides convenience and accessibility, and has a positive impact on customer satisfaction (Karjauloto, 2003). Customers can manage their banking affairs when they want, and they can enjoy more.

E. Theoretical Review

Factor Affecting Internet banking Adoption Among Young Adults: Evidence From Malaysia (Uchenna Cyril Eza, Ling Heng Yaw, Jeniffer Keru Manyeki and Lee Chai Har, 2011)

This study investigated the factors that influence the use of internet banking services among young Malaysian adults. It is becoming critical for bank managers to understand their customers in order to deliver service effectively. The finding would be useful for literature development in the subject area, particular in Malaysia. The finding also is useful to theoretical development in internet banking. This study used quantitative method. There are 310 samples of respondent and 229 valid response. The conceptual framework is based on extended Technology Acceptance Model with six independent variables. According to below theoretical framework, this study identified perceived ease of use,

perceived usefulness, relative advantage, self-efficacy, perceived credibility and trialability tend to influence consumers to adopt internet banking.
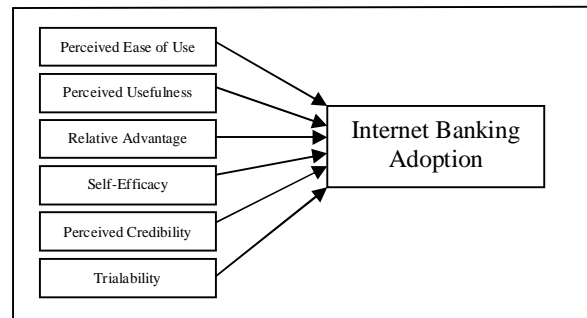

Fig 1: Research Model by Uchenna Cyril Eza, Ling Heng Yaw, Jeniffer Keru Manyeki and Lee Chai Har (2011)

IV. RESEARCH METHODOLOGI

A. Research Paradigm

Paradigm is a term frequently used in the social sciences, but one which can lead to confusion because it tends to have multiple meanings. The definition of paradigm is a way of examining social phenomena from which particular understanding of these phenomena can be gained and explanation attempt. In view the work of Burrell and Morgan (1982) is particularly helpful in summarising and clarifying the epistemologies and ontologies. Ontologies are concern with nature of reality. While epistemologies are concern what constitutes acceptable knowledge in a field study. There are four research philosophies in business and management research which are pragmatism, positivism, realism and interpretivism. Pragmatism can be defined as asserts that concept is only relevant where they support action (Kelemen and Rumens 2008). For pragmatist, the importance of the meaning of an idea (or a research finding) is its practical consequences. Realism is another philosophy position which relates to scientific enquiry. The essence of realism is that what we sense is reality: that objects have an existence independent of the human mind. While for interpretivism is advocates that it is necessary for the researcher to understand differences between human in our role as social actor. According to this study, the research paradigm is positivism. The research reflects the philosophy and adopts the philosophical stance of the natural scientist. It is prefer collecting data about an observable reality and search for regularities and causal relationship in data to create law-like generalisations like those produced by scientist (Gill and Johnson 2010). All natural science has developed from an engagement with the world in which data were collected and observation made prior to hypotheses being formulated and tested. The hypothesis developed lead to the gathering facts that provide the basis subsequent hypothesis testing. Besides that, the important component of the positivism approach is that the research is undertaken, as far as possible and in a value-free way. As

the methodology of this case study is quantitative, the data collection techniques are highly structured, use a large of samples, specific population, and also measurement from the data.

B. Research Process

Research process represent as a multi-stage process that must follow in order to undertake and complete the research project. The example of research process usually include formulating and clarifying a topic, reviewing the literature, designing the research, collecting data, analysis data and writing up. According to Antonius (2003), research design is a careful planning of operations to be done to collect data in rigorous systematic way in accordance with method and ethic of research. There are 8 steps in conducting research which are develop research question, literature review, theoretical framework, research design, data collection, data analysis, interpretation result and conclusion and further question. Develop a research questions is important to decide what is the purpose of study. Basically, from research questions, it helps the research to find out the research objective and as a guide for the study. The research questions will be answer at the end of the study. According to this study, there are 4 research questions to ensure the study is follow and meet the objectives.

C. Data Analysis

Data collection from questionnaire will be analysis. The objective of data analysis are to get a feel of data, testing the goodness of data and testing the hypothesis develop for the research. Data need to be edited and translate into the appropriate form before proceed to the analysis. Data collected in this study will be using Statistical Package for Social Science (SPSS) software version 21. Descriptive statistic would be used to analyse each variable, while research hypothesis would be tested using correlation analysis. Basically, there are 5 analyses that have been used which are: Reliability analysis, Descriptive Profile of Respondents, Descriptive Statistics of Main Research Variables, Correlation analysis, Regression analysis.

V. FINDING

This chapter focuses on the findings of the study. The result will be divided into 5 sections. First section is for demographic information of the respondents, reliability analysis, and correlation and regression analysis. It was required to test that the reliability of selected variables. Thus, Cronbach's Alpha test has been applied in order to determine a scale's internal consistency and average correlation of each variable with all the variables in the same scale.

Descriptive Statistic of Main Research Variables

This section provides the descriptive statistics of 3 main variables in this study. The purpose of this descriptive statistic is to determine the most selected option by the

respondents in this study for each of the variables by computing its overall means. There are 3 main variables which are: Trust, Perceived ease of use, Service quality.

A. Trust

Standard Deviation (SD) provides an indication of how far the individual responses to a question vary or deviate from the mean value. From Table 1, it show that the entire respondent has similar standard deviation which are the range is 0.0337 to 0.03909. Besides that, the maximum answer by respondent is 5 scale (strongly agree) and the minimum scale is 2 (Disagree). It shows that, most of the respondent overall trust with the internet banking.

TABLE 1: Descriptive statistic of trust variable

Variable	Measure	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
T1	I trust the transaction conducted through IB is secure and private	170	2.00	3.00	5.00	4.0529	0.03662	0.47744
T2	I trust the payment will be process secure	170	2.00	3.00	5.00	4.0647	0.03745	0.48825
T3	I believe my personal info will be kept confidentially	170	2.00	3.00	5.00	4.0706	0.03596	0.46887
T4	I believe my bank info is secure and protected	170	2.00	3.00	5.00	4.0588	0.03307	0.43112
T5	I confident IB has enough specialist to detect fraud and info theft	170	3.00	2.00	5.00	4.0235	0.03909	0.50970

TABLE 2: Frequency statistic of trust variable

Variable	Measure	Likert scale	Statictical data		
			Frequency	Percent	Cumulative Percent
T1	I trust the transaction conducted through IB is secure and private	Neutral	15	8.8	8.8
		Agree	131	77.1	85.9
		Strongly Agree	24	14.1	100.0
T2	I trust the payment will be process secure	Neutral	15	8.8	8.8
		Agree	129	75.9	84.7
		Strongly Agree	26	15.3	100.0
T3	I believe my personal info will be kept confidentially	Neutral	13	7.6	7.6
		Agree	132	77.6	85.3
		Strongly Agree	25	14.7	100.0
T4	I believe my bank info is secure and protected	Neutral	11	6.5	6.5
		Agree	138	81.2	87.6
		Strongly Agree	21	12.4	100.0
T5	I confident IB has enough specialist to detect fraud and info theft	Diagree	1	0.6	0.6
		Neutral	17	10.0	10.6
		Agree	129	75.9	86.5
		Strongly Agree	23	13.5	100.0

B. Perceived Ease of Use

Table 3 presents the descriptive statistics of variable perceived ease of use. It show the range answer by respondents are in likert scale such as 2= Disagree, 3= Neutral, 4=Agree and 5= strongly agree. For variable E1 – "IB is easy to use", some users have answer 2=disagree

with this statement. For variable E2 until E5, there are respondents who answer neutral, agree and strongly agree.

TABLE 3: Descriptive statistic of perceived ease of use variable

Variable	Measure	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
E1	IB is easy to use	170	3.00	2.00	5.00	3.9353	0.52335	0.274
E2	Learning to use IB is easy for me	170	2.00	3.00	5.00	3.9529	0.54188	0.294
E3	My interaction with IB is clear and understandable	170	2.00	3.00	5.00	3.9706	0.50356	0.254
E4	It is easy for me to remember how to perform task with IB	170	2.00	3.00	5.00	3.9588	0.54779	0.300
E5	I can completed IB transaction easily	170	2.00	3.00	5.00	3.9706	0.50356	0.254

TABLE 4: Frequency statistic of perceived ease of use variable

Variable	Measure	Likert scale	Statictical data		
E1	IB is easy to use	Neutral	Frequency	Percent	Cumulative Percent
			26	15.3	15.9
		Agree	126	74.1	90.0
		Strongly Agree	17	10.0	100.0
E2	Learning to use IB is easy for me	Neutral	29	17.1	17.1
		Agree	120	70.6	87.6
		Strongly Agree	21	12.4	100.0
E3	My interaction with IB is clear and understandable	Neutral	24	14.1	14.1
		Agree	127	74.7	88.8
		Strongly Agree	19	11.2	100.0
E4	It is easy for me to remember how to perform task with IB	Neutral	29	17.1	17.1
		Agree	119	70.0	87.1
		Strongly Agree	22	12.9	100.0
E5	I can completed IB transaction easily	Neutral	24	14.1	14.1
		Agree	127	74.7	88.8
		Strongly Agree	19	11.2	100.0

C. Service Quality

Table 5 presents the descriptive statistics of variable service quality. It show the range answer by respondents are in likert scale such as 2= Disagree, 3= Neutral, 4=Agree and 5= strongly agree. For variable SQ4 – "Customer has complaint and customer service deal it with rapidly" and SQ5 – "IB provides convenience customer services (24 hours)" the minimum range answer by respondent is 2= disagree. The lowest mean fall to SQ2 which is 3.8765 and SQ1, SQ3, SQ4 and SQ5 have similar value of mean which the range is 4.0353 to 4.0882. However, the highest value for standard deviation is SQ1 which is 0.63157 and the lowest standard deviation is SQ3 which is 0.48453. From this table, the data from this variable is not consistence with each other.

TABLE 5: Descriptive statistic of service quality variable

Variable	Measure	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
SQ1	IB website info updated regularly	170	2.00	3.00	5.00	4.0588	0.63157	0.399
SQ2	IB provider clear info on how to make transaction	170	2.00	3.00	5.00	3.8765	0.59786	0.357
SQ3	Product, features,	170	2.00	3.00	5.00	4.0882	0.48453	0.235

	services correctly presented							
SQ4	Customes has complaint, customer service deal it with rapidly	170	2.00	2.00	5.00	4.0353	0.60466	0.366
SQ5	IB provides convenience customer services (24 hours)	170	3.00	2.00	5.00	4.0118	0.56514	0.319

TABLE 6: Frequency statistic of service quality variable

Variable	Measure	Likert scale	Statictical data		
SQ1	IB website info updated regularly	Neutral	Frequency	Percent	Cumulative Percent
			26	17.1	17.1
		Agree	102	60.0	77.1
		Strongly Agree	39	22.9	100.0
SQ2	IB provider clear info on how to make transaction	Neutral	42	24.7	24.7
		Agree	107	62.9	87.6
		Strongly Agree	21	12.4	100.0
SQ3	Product, features, services correctly presented	Neutral	13	7.6	7.6
		Agree	129	75.9	83.5
		Strongly Agree	28	16.5	100.0
SQ4	Customes has complaint, customer service deal it with rapidly	Neutral	22	12.9	14.1
		Agree	114	67.1	81.2
		Strongly Agree	32	18.8	100.0
SQ5	IB provides convenience customer services (24 hours)	Diagree	1	0.6	0.6
		Neutral	23	13.5	14.1
		Agree	119	70.0	84.1
		Strongly Agree	27	15.9	100.0

VI. CONCLUSION

According to the result, trust has supported the internet banking adoption. The result shows that trust will influence the adoption of internet banking among student. Without proper security and privacy protection, users will not use the internet banking services. This result is consistency with Boon Ooi et al., (2010). According to Wang and Barnes (2007), some of trust building strategies can include advertising campaign, privacy guarantee, company guarantee policy and stamen (Wei et al., 2009). Thus, internet banking provider should try this strategies to gain the confidence of users on internet banking. The main point from this result, people are willing to adopt internet banking when they know the advantages of it when compared to traditional ways of banking. Therefore, internet banking provider should further investigates the types of features which current bank users find useful or they will find useful and promote such features to encourage more customer to adopt online banking. As the result shows that hypothesis four is rejected, further studies are necessary to confirm the causal relationships between constructs by using a broader sample that represent higher educational or even Malaysia as whole in order to increase generalizability of the research findings. Furthermore, current study not includes all possible variables such as security, perceived risk, accessibility, privacy, content and many more which may affected towards internet banking adoption. The current research framework may need to be enhanced in order to get more accurate and reliable significant influence results.

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