

**THE INFLUENCE OF TECHNOLOGY ACCEPTANCE MODEL
ON BEHAVIORAL INTENTION TO USE INTERNET BANKING SYSTEM**

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requirements for the award of the degree of
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Dedicated to my beloved wife, Mother, Father, Mother in law and Father in law.

My sibling and all my friends for their support, encouragement and understanding.

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In the name of Allah, the Most Beneficent, the Most Merciful. All praise and thanks to Allah, lord of the universe and all that exists. Prayers and peace be upon His prophet Mohammad, the last messenger of all humankind.

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ABSTRACT

One of the most notable and momentary development recently has been the introduction of Internet banking as a means of transacting business. One of such approach is the application of technology acceptance model (TAM) that encourages customers to imbibe internet banking. However, considering the slow pace of adoption of Internet banking in CIMB customers despite the awareness of internet banking and its advantage. This study investigated the likely factors that determine and explain consumer behavioral intention to use in internet banking system. Adopting a quantitative approach through a survey method, a total of 400 questionnaires were distributed to Student and staff in Universiti Teknologi Malaysia and 375 properly completed questionnaires were returned giving a response rate of 94.5%. The theoretical frameworks of Technology Acceptance Model (TAM) has been utilized extensively as a predictor of user acceptance in this study, based on an individual's determination of perceived usefulness (PU), perceived ease of use (PEU) and perceive credibility (PC) of a specific technology. Overall, the outcome provides the paradigm that reveals positive significant factors that necessitated positive intention to use internet banking system. The implication therefore is that adopting internet banking system connotes a better means of accessing banking operation and ease transaction that devoid of time wastage & resources.

ABSTRAK

Salah satu perkembangan yang paling ketara dan seketika baru-baru ini telah memperkenalkan perbankan Internet sebagai satu cara urusan perniagaan. Salah satu daripada pendekatan itu adalah penggunaan model penerimaan teknologi (TAM) yang menggalakkan pelanggan untuk minum perbankan internet. Walau bagaimanapun, memandangkan kadar perlahan penggunaan perbankan Internet dalam pelanggan CIMB walaupun kesedaran tentang perbankan internet dan kelebihan. Kajian ini disiasat faktor-faktor yang menentukan dan menjelaskan niat tingkah laku pengguna untuk digunakan dalam sistem perbankan internet. Dengan mengambil pendekatan kuantitatif melalui kaedah tinjauan, sebanyak 400 soal selidik telah diedarkan kepada pelajar dan kakitangan Universiti Teknologi Malaysia dan 375 soal selidik yang lengkap telah dikembalikan memberi kadar respons sebanyak 94.5%. Rangka kerja teori Technology Acceptance Model (TAM) telah digunakan secara meluas sebagai peramal penerimaan pengguna dalam kajian ini, berdasarkan penentuan individu kegunaan dilihat (PU), mudah dilihat penggunaan (PEU) dan melihat kredibiliti (PC) daripada teknologi tertentu. Secara keseluruhannya, hasil yang menyediakan paradigma yang mendedahkan faktor penting yang positif yang memerlukan niat yang positif untuk menggunakan sistem perbankan internet. Implikasinya itu adalah yang mengamalkan sistem perbankan internet maksud suatu cara yang lebih baik daripada mengakses operasi perbankan dan transaksi mudah yang tidak mempunyai masa & pembaziran sumber.

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LIST OF ABBREVIATIONS

BAFIA	Banking and Financial Institution Act
May Bank	Malaysian Bank Berhad
HLB	Hong Leong Bank
RHB	Rashid Hussain Bank Berhad
M	Am Bank Berhad
BNM	Bank Negara Malaysia
TAM	Technology Acceptance Model
IDT	Innovation Diffusion Theory
BAI-BCG	Bank Administration Institute-The Boston Consulting Group
PEU	Perceived Ease of Use
PU	Perceived Usefulness
PU	Perceive Credibility
ICT	Information Communication Technology
WWW	World Wide Web
BI	Behavioral Intention
UAE	United Arab Emirates
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behaviour
MPCU	Model of Personal Computer Utilisation
MM	Motivational Model
SCT	Social Cognitive Theory
IDT	Diffusion of Innovation Model
IS	Information System
ATM	Automated Teller Machines
UTM	University Technology Malaysia
CIMB	Commerce Investment Merchant Bank
EFA	Exploratory Factor Analysis
IBT	Internet Banking Technology
CBINTO	Consumer Behavioral Intention to Use Internet Banking System
KMO	Kaiser, Meyer-Olkin

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CHAPTER 1

INTRODUCTION

1.0 Introduction

Internet banking is considered as an online banking revolution of the traditional banking services which offers customers the greatest usefulness to perform banking transactions through the Internet (Furst et al., 2002; Ratnasingam, Gefen, & Pavlou, 2005; Yakhlef, 2001; Yuen, 2010). Most of the banks, especially the large banks and mutual banks, have slowly increased their number of Internet banking services available to target customers over the past several decades (Ratnasingam et al., 2005; Rayport & Sviokla, 1994; Yuen, 2010). The most prevalent Internet banking services are viewing balances and transactions, fund transfers and payment of bills (Giordani, Floros, & Judge, 2009). Other Internet banking services such as statement aggregation have also gained a growing popularity (Yang, Whitefield, & Bhanot, 2005; Yuen, 2010).

Internet banking is either offered as a value added service of physical bank branches or a virtual bank where target customers can only perform banking transactions via the Internet (Furst et al., 2002). The operating costs of a virtual bank are much lower compared to traditional banks (Bankers Online, 2003). However, if the customers face problems in using Internet banking services, they cannot go to the

local branches and complain to the manager face-to-face. Instead, they have to contact representatives of the virtual bank (Furst et al., 2002; Yuen, 2010).

The practices of internet banking in Malaysia that allowed Malaysian banks to establish Internet banking services starting 1st June 2000 (Hamid et al., 2007). Banking and Financial Institution Act 1989 (BAFIA) and Islamic Banking Act 1983 allowed licensed banks to offer Internet banking services in Malaysia (Hamid et al., 2007). To date, there are 13 bank institutions in Malaysia offering Internet banking services (Hamid et al., 2007).

Detailed reviews on Internet banking services of top five banking institutions in Malaysia, Malaysian Banking Berhad (MayBank), Hong Leong Bank (HLB) Berhad, Rashid Hussain Bank Berhad (RHB), Am Bank (M) Berhad (Am Bank) and Public Bank Berhad (Public Bank) are displayed in Table 1.1. The results revealed that MayBank topped the other banks in Malaysia for being the most excellent Internet banking services providers in offering various types of informational, communicative and transactional Internet banking services. Banks that provide Internet banking services in Malaysia are still lagging from offering web shopping services.

Table 1.1 Internet banking services in Malaysia

Internet Banking Services and features	Availability				
	May Bank	HLB	RHB	Am bank	Public Bank
Informational Internet Banking Services					
1. Language choice	No	Yes	No	No	No
2. Internet banking demonstration	Yes	Yes	Yes	Yes	Yes
3. Comprehensive FAQ	Yes	Yes	Yes	Yes	Yes
4. Internet banking transaction time	Yes	Yes	Yes	Yes	Yes
Transactional Internet Banking Services					
5. Local fund transfer	Yes	Yes	Yes	Yes	Yes
6. International fund Transfer	Yes	No	Yes	No	No
7. Third party account transfer	Yes	Yes	Yes	Yes	Yes
8. Utility payment	Yes	Yes	Yes	Yes	Yes
9. Cheque request	Yes	Yes	Yes	Yes	Yes
10. Savings and current account management	Yes	Yes	Yes	Yes	Yes
11. Loan and mortgage Application	Yes	Yes	Yes	Yes	Yes
12. Loan and mortgage Repayment	Yes	Yes	Yes	Yes	Yes
13. Account balance Viewing	Yes	Yes	Yes	Yes	Yes
14. Request for bank statement	Yes	Yes	No	Yes	Yes
15. Fixed deposit	Yes	Yes	No	Yes	Yes
16. Stop cheque	Yes	Yes	Yes	Yes	Yes
17. Direct debit	No	No	Yes	Yes	No
18. Credit and debit card application	Yes	Yes	Yes	No	Yes
19. Credit and debit card payment	Yes	Yes	Yes	Yes	Yes
20. Historical records	Yes	No	No	Yes	Yes
21. Internet phone Banking	Yes	Yes	Yes	No	Yes
22. Internet shopping	Yes	No	Yes	No	No
23. Change user id and password	Yes	Yes	Yes	Yes	Yes
Communicative Internet Banking Services					
24. E-mail support	Yes	Yes	Yes	Yes	Yes
25. Internet business	Yes	Yes	Yes	Yes	Yes
26. Internet investment	Yes	Yes	Yes	Yes	Yes
27. Internet insurance	Yes	Yes	Yes	Yes	No
28. Internet application form	Yes	Yes	Yes	Yes	Yes
29. Internet Islamic Banking	Yes	Yes	Yes	Yes	Yes

Notes: *yes – service is available ** - service is not available

Source: Adapted from Hamid, Amin, Lada & Ahmad, 2007; Yuen, 2010

Although most Malaysian bank might intent to use information technology on internet banking to obtain strategic advantages, Clemons (1986); Khairul (1999) assert that achieving or sustaining technology advantages is difficult. Once customers accept one of form internet banking information technology, other banks are quickly to follow the technology acceptance. It appears that information technology in internet banking system enable system quickly become survival issue if banks not keeping up with the technology innovation (Khairul,1999). The new internet banking technologies were introduced was not easy for people to accept until they feel too secure about its use. It needs special step by step process to make the new technology able to be accepted by people.

Technology acceptance model (TAM) on internet banking system proposes that perceived ease of use and perceived usefulness of technology are predictors of user attitude towards using the technology, subsequent behavioral intentions and actual usage. Perceived ease of use was also considered to influence perceived usefulness of technology. In TAM, perceived usefulness refers to the degree to which the user believes that using the technology will improve his or her work performance, while perceived ease of use refers to how effortless he or she perceives using the technology will be. Both are considered distinct factors influencing the user's attitude towards using the technology, though perceived ease of use is also hypothesized to influence perceived usefulness and attitude towards using the technology (A. Sanayei & A. Ansari, 2010).

Wu (2005) explored the adoption of customer relationship management systems by integrating aspects of Davis' (1989) technology acceptance model (TAM) with Roger's (Roger, 1995) innovation diffusion theory (IDT). Their model includes factors to measure both IDT and TAM. The IDT factors include innovation, task, individual, organization, and environment. To measure innovation, they used relative advantage, compatibility, complexity, observability, and trialability using an instrument developed by Moore and Benbasat (Moore & Benbasat, 1991; (A. Sanayei & A. Ansari, 2010). The concept of technology acceptance for this study is derived from the Technology Acceptance Model (TAM), which was developed by David in 1986. TAM was first developed in the discipline of social psychology and

specifically was meant to provide an explanation, prediction, and identification of the determinants of computer acceptance or explanation of why a particular system was unacceptable (Davis, Bagozzi, & Warshaw, 1989). It provides theoretical linkages among users' internal beliefs, attitudes, intention, and usage behavior, to determine how individuals accept or reject a new technology (Davis, 1989; Yanika, 2000)). This study focus on technology acceptance model (TAM) on internet banking system and its relationship to banking customer behavioral intention to use internet banking system. TAM in this study focus on perceived usefulness, perceive ease of use and perceived credibility (Venkatesh & Davis, 1996).

1.1 Research Background

Technology in Internet banking system has been conducted to computerize essential bank process since 1960s (Eriksson, Kerem, & Nilsson, 2005; Yuen, 2010). Internet banking technology is started by Security First Network Bank in the United States in 1995 (Gandy, 1995; Liao, Shao, Wang & Chen, 1999). One year later, it is introduced in Estonia (Eriksson et al., 2005) and South Africa (Singh, 2004), followed by Australia in 1997 (Sathye, 1999), Turkey in 1997 (Polatoglu & Ekin, 2001), Singapore in 1997 (Gerrard & Cunningham, 2003), China in 1997 (Laforet & Li, 2005), England in 1998 (White & Nteli, 2004), Hong Kong in 1999 (Wan, Luk, & Chow, 2005), Romania in 1999 (Gurau, 2002), Thailand in 1999 (Jaruwachirathanakul & Fink, 2005) and Malaysia in 2000 (Bank Negara Malaysia, 2009). Enhanced technology is deployed to enable the banking industry to offer their services via the Internet (Yuen, 2010).

Liao & Cheung, 2002, revealed that technology acceptance in Internet banking witnessed increment in the number of usage since 2000. As Internet access exceeded 1.596 billion people globally in the first quarter of 2009 (Internet World Stats, 2009; Yuen, 2010), an increasing number of banks worldwide have increased their business investments in Internet banking technology driven by the expectation that the Internet banking technology would provide better opportunities to establish a distinctive strategic position compared to other traditional forms of banking services

(Evans & Wurster, 1997; Yuen, 2010). Internet banking is particularly well-practiced in the developed countries such as Korea, Spain, and Austria, where more than 75 percent of all banks offer transactional services via the Internet (Maenpaa, 2006). The development of the Internet banking as a service and marketing channel has breached the geographical and industrial barriers, creating new products, services and market opportunities (Liao & Cheung, 2002; Yuen, 2010).

Technology in Internet banking is used to help banks deliver services and products better, faster, and cheaper compared to traditional bank services. Internet banking system enables target customers to look around essential bank products and services through their personal computers (Polatoglu & Ekin, 2001) thus allows target consumers to perform banking transactions over the Internet anywhere and anytime (Polatoglu & Ekin, 2001, Yuen, 2010). There are three basic types of Internet banking services, the informational, communicative and transactional Internet banking services (Bank Indonesia, 2004; Reserve Bank of India, 2007; Yuen, 2010).

Finally, the global acceptance of TAM as a result of the presence of basic infrastructural facilities, education autonomous, establishment of various research institutes, improved economic standard, increase awareness, positive attitudinal behaviour to international students in Malaysia orchestrated the research impetus. The choice of respondent for this study is borne out of the passion for the influx of the international students to Malaysia and their survival in term of banking transaction as they depends primarily on money transfer through internet banking system from their various countries for their sustenance. However, the effectiveness of internet banking from their respective countries is not in the scope of this study but their behavioural intent of using internet banking system at their destination (Malaysia). The lopsidedness in internet banking system usually in the third World Countries have proven to have negative influence on the intention to use therefore the premise of this study will substantiate the veracity of behavioural intention to use internet banking in CIMB Bank, Malaysia.

1.2 Statement of problem

The study of information technology acceptance in internet banking system within the context of developing countries, such as Malaysia, is even more scarce. Almost all studies on internet banking technology acceptance were conducted in developed countries, such as Australia (Arthur, 1989; Marr & Prendergast, 1990; Prendergast & Marr, 1994), Europe (Child & Loveridge, 1990; Preece, 1995), and the US (Bank Administration Institute-The Boston Consulting Group (BAI-BCG), 1995; Hannan & McDowell, (1984); Morone & Berg (1993), therefore, Malaysia and other Asian countries should abridge this dichotomy judging from their heavy spending on information technology (Leung & Johnson, 1996). Malaysian banks have spent a lot of resources on information technology, especially since 1991 (BNM, 1995). Although BNM (1995) has pointed out that most of these spending were on automated retail banking operation, little is known about what triggered this bank's decision to adopt information technology (Leung & Johnson, 1996).

Technology acceptance, defined as the extent to which an individual believes that utilizing a specific system will enhance job performance (Davis, 1989). Because our lives today are governed to a large extent by complex technologies creation and comprehension of circumstances that facilitate individual's embracing information technology continues to be an issue of high priority (Venkatesh & Davis, 2000; Bandura, 2002). In an era that is highly dependent on technology, many organizations are turning to virtual interface as either the principal or even the sole point of customer contact (Balasubramanian, Konana & Menon, 2003). The banking industry has been equally affected by the significant impact technology has made on service delivery (Durkin, 2004). It is no surprise then that technology revolutionized this industry (Moutinho & meidan, 1989), and this impact will continue to increase over the next decade (Durkin, 2004).

Technology changed the intrinsic nature of internet banking services and relationships (Siaw, & Yu, 2004); pushed financial institutions to search for new ways to deliver services to consumers (Lee, Kwon, & Schumann, 2005); and revolutionized the banking industry, thus causing a paradigm shift from the

traditional branch banking to e-banking system with its challenges, opportunities and the impact on service delivery (Souranta, Mattilla, & Munnukka, 2005). Further to this point, the advent of the Internet served to further propel the banking industry into the arena of virtual interactions, making a significant impact on service provision (Hirtle & Metli, 2004).

Technology acceptance model (TAM) has been customized to model an internet banking acceptance of technology. The main purpose of TAM is to; a) explicate the factors that determine computer acceptance in a manner that is general, b) explain behavior across a wide array of end users computing technologies and user populations (Chan & Lu, 2004), and c) retain its meanness while warranting theoretical justification (Davis, et al., 1989). The theoretical framework of TAM has been utilized extensively as a predictor of user acceptance, based on an individual's determination of perceived usefulness (PU), perceived ease of use (PEU) and perceive credibility (PC) of a specific technology (Adams, Nelson, & Todd, 1992). TAM encompasses participative or situational, as well as intrinsic features of involvement with an IT system (Jackson, et al. 1997).

According to Moorman, Zaltman & Deshpande, (1992); Shumaila et., (2009) perceived credibility refers to user keenness to rely on internet banking service provider by taking into consideration the bank's reliability. However, this study defines perceived credibility as the bank user trust in providing sensitive information while using technology in internet banking service.

TAM explores factors affecting computer acceptance in a manner that is general, and explains computer users within a wide array of populations who engage in a broad range of computer technologies; TAM is at the same time theoretically justified and parsimonious (Davis, Bagozzi, & Warshaw, 1989). TAM provides a platform for tracing the effects that external factors have on individuals' internal beliefs, attitudes, and intentions such as perceive ease of use (PEU), perceived usefulness (PU) and perceive credibility (PC) as it relates to technology acceptance.

Davis (1989) introduced and established the soundness of a new scale to measure the constructs of perceived usefulness (PU) and perceived ease of use (PEU). PU refers to an individual's belief that use of a particular technology leads to enhanced performance, whereas PEU is the belief that use of a determined technology will be effortless (Davis, et al., 1989). According to Wang (2003) TAM suggests three beliefs, which consist of perceived usefulness, perceived ease of use and the perceived credibility. To the extent that one technology is easier to use than another, it will probably be more accepted by users (Davis, 1989).

The extent to which a user believes a particular technology will be an enhancement to his or her task is defined as perceived usefulness (PU) (Venkatesh, 2000), and is based on the users' subjective perceptions. Perceived Ease of use determines the extent to which a person perceives use of a technology to be effortless. PU, PEU and PC are considered antecedents to TAM. These two variables play an important role in an individual's decision to adopt technology (Plouffe, Hulland, & Vandenbosch, 2001). This study focus on perceived usefulness (PU), perceived ease of use (PEU) and perceived credibility (PC).

Since Davis's (1989) development of TAM, numerous researchers have extended the model to examine World Wide Web (WWW) acceptance (Glassberg, 2002); users' perception of resources (Mathieson, Peacock, & Chin, 2001); effect of computer attitude and self-efficacy on actual use (Chau & Hu, 2001); single and multifunction technologies (Taylor & Todd, 1995); users' perception of resources (Szajna, 1996); computer playfulness (Moon & Kim, 2001); cognitive absorption (Agarwal & Karahana, 2000); and perceived enjoyment and product development (Koufaris, 2002).

Internet banking technologies application in developing countries especially in CIMB Bank Malaysia has not been sufficiently explored (Molla and Heeks, 2006), Considering the limited research in internet banking system information technology application in developing countries, one might ask whether the results from research conducted in developed countries are applicable to developing nations. Dewan & Kraemer (2000) argue that study related to information technology application in

internet banking system findings from developed countries are not directly transferable to developing countries (Dewan and Kraemer, 2000; Duncombe and Molla, 2006) and that differences in country-contexts can lead to different ICT use and impact patterns (Clarke, 2007).

1.3 Objectives of the Study

The main objectives of this study is to examine the impact of internet banking technology acceptance on behavioral intention to use internet banking system. In more detail, the objectives of this research are as follow:

- (a) To examine impact of perceived usefulness of internet banking technology on behavioral intention.
- (b) To evaluate the impact of Perceived ease to use internet banking technology on behavioral intention.
- (c) To investigate the impact of perceived credibility of internet banking technology on behavioral intention.

1.4 Research questions

- (Q1) Is there any impact of perceived usefulness of internet banking technology on behavioral intention to use internet banking system?
- (Q2) Is there any positive impact of Perceived ease to use internet banking technology on behavioral intention to use internet banking system?
- (Q3) Is there any impact of perceived credibility of internet banking technology acceptance on behavioral intention to use internet banking system?

1.5 Scope of the Study

This research focuses on internet banking technology acceptance and behavioral intention to use internet banking system in Malaysian banking industry, especially on CIM Bank in UTM Skudai Johor Bahru. The objective of this study focused on perceived usefulness (PU), perceived ease of use (PEU) and perceived credibility (PC) of technology acceptance as independent variables and behavioral intention (BI) to use internet banking system as dependent variable.

1.6 Structure of the Study

This proposal consists of five chapters. The first chapter introduced the background of study, research problems, and objectives, significance of the study, scope of the study and limitation of the study. Chapter 2 reviews related literature, Chapter 3 presents the conceptual framework and method adopted in collecting data for the study while chapter 4 deals extensively with data analysis, data stratification and interpretation, finally, chapter 5 comprises of detail summary of findings based on result of each hypotheses, research implication contribution to knowledge, research limitation, future research and conclusion.

1.7 Significance of the Study

Technology acceptance in Internet banking system is considered as one of efficient marketing channels that allows banks to extend their customer base, is of no use for banks to invest in technology in Internet banking if the technology are not accepted by their target customers (Bhattacharjee, Perols, & Sanford, 2008; Jih, 2002; Yuen, 2010). Consequently, it is important for banks to understand the important factors that lead to the acceptance of technology in Internet banking services. This would help banks to maximise return on their investments and maintain a competitive advantage (Eriksson et al., 2005; Polatoglu & Ekin, 2001).

Most studies on technology acceptance on internet banking system focused narrowly on the positive aspects of Internet banking services. For example, AbuShanab and Pearson (2007), Eriksson et al. (2005), Polatoglu and Ekin (2001), Um rani and Ghadially (2008) and Yazan (2008) focused on the effects of trust, relative advantage and attitude toward using Internet banking services. Other studies mainly concentrated on the influence of perceived security on Internet banking acceptance (Bandyopadhyay, 2009; Dauda & Santhapparaj, 2008; Khalil & Pearson, 2007). Literature such as Gerrard and Cunningham (2003) and Saythe (1999) did not test the validity and reliability of constructs. Sathye (1999) stated that 70 percent of customers were concerned about the security of using Internet banking services and Gerrard and Cunningham (2003) identified economic benefits of Internet banking acceptance without providing further statistical analysis to confirm the reliability and validity of the collected data. In this research study, therefore, the examination of the influence of TAM on behavioural intention to use internet banking system were carried out. Please refer to Chapter 2 (Section 2.8) of this thesis for further details.

Most of Internet banking studies focused on specific countries such as Australia (Lichtenstein & Williamson, 2006; Sathye, 1999; Yeow, Yuen, Tong, & Lim, 2008), Malaysia (Dauda & Santhapparaj, 2007; Yeow & Yuen, 2008; Yuen, 2010) Singapore (Gerrard & Cunningham, 2002; Liao & Cheung, 2002), Finland (Pikkarainen, Pikkarainen, Karjaluoto, & Pahlila, 2004) and Taiwan (Jih, 2002).

This study contributes to Internet banking literature by developing a Technology acceptance model (TAM). The expected finding of this research is to add to the knowledge base on technology acceptance in Internet banking on behavioral intention to use internet banking system. From the perspective of bankers, it is desirable to shift customers from bank branches to Internet banking as the automation of banking services can save operational costs and value added online insurance and mortgage services can create greater business opportunities (Ravi et al., 2001; Yeun, 2010).

Table 1.2 Chronological summary of Significant Factors Affecting Internet Banking Acceptance and various researchers from 2000- 2012

N	Significant Factors	Literature
1*	Customer Behavioral Intention to Use Internet Banking	Davis, 1989; Black et al., 2001; Karjaluoto et al., 2002; Shih & Mohezar et al., 2007; Dinev Fang, 2004; Khalil & Pearson, 2007; et al., 2009; Zolait et al.,2009. Alsajjan, B. et al 2010.
2*	Perceived Usefulness	Schunk, 2000; Lim, 2001; Eastin, 2002; Wang et al.,2003; Chan and Lu, 2004; Ndubisi, 2005; Martinez,2006;Dinev et al., 2009.
3*	Perceived Ease of Use	2000; So & Compeau & Higgins,1995; Mols, 1998; Bernstel, 2001; Jun & Cai, 2001; Speece, 2000; Conditions Bhattacharjee, et al., 2002; Coner, 2003; Howcroft Ribbink et al., 2001; Srijumpa Floh & Treiblmaier, 2006; Kholoud, 2007; & Durkin, 2003; Tatnall, 2008. Breck, L 2009. Chai, C. S. et al 2010. Ahn, Salim& J. et al., 2011.
4*	Perceived Credibility	1999; Jones et Gefen & Silver, 1999; Greaves et al., 1999; Sathye, 2000; Black et al., 2001; Bryant al., 2000; Reichheld & Schefter, Mukherjee & Nath, 2003; Floh & Treiblmaier, & Colledge, 2002; 2009; Goles et al., 2006; Khalil & Pearson, 2007; Bandyopadhyay, 2009; Shumaila et al., 2009. Featherman, M. S. et al.,2010. Kubiszewski, I. et al.,2011.
5	Performance Expectancy	Huang, 2000; Kotler, 2000; Lederer et al. 2000;Venkatesh & Morris, 2000; McKenzie,2001; Ma`ruf et al., 2002; Miles, 2002; 2004;AlSukkar, & Cunningham, 2003; Hughes & Hughes, Gerrard et al., 2005; Karahanna et al., 2005; 2005; Lassar et al., 2005; Lee al., 2005; Li, 2005; Rotchanakitumnuai, 2005; Yang et Laforet & Pearson, 2007; Kholoud, 2007; Laukkanen ,2006; AbuShanab & Gumussoy, 2008; Gounaris & Koritos, 2008; Calisir & Karjaluoto et al., 2009. Curtis, L. et al.,2010. Chen, J. L 2011.
6	Anxiety	Cody et al., 1999; Venkatesh & Morris, 2000; Durndell & Chou, 2003; Barbiete & Weiss, 2004; Dauda & Haag,2002; Santhaparraj, 2007; Joiner et al., 2007. Nagel, K.et al.,2008. Samuel, M. O. et al.,2009. Bashir, U.,et al., 2010. Sowmya, K. R. et al 2011.
7	Social Influence	Basu et al., 2002; Kamel & Hassan, 2003; AbuShanab& Pearson, Hernandez & Mazzon, 2007; Herington & Weaven, 2007; 2007; Kholoud, 2007; Rugimbana,2007; Solomon, 2007; Kashier et al., 2009; Khan & Mahapatra, 2009; Yang et al., 2009. Tarde, G. 2010. Lorenz, J. et al.,2011. Bond, R. M. et al.,2012.
8	Effort Expectancy	Evans & King, 1999; Joseph et al., 1999; Hechinger 2001; Jun & Cai,2001; Mateos et al., 2001; Howcroft et al., 2002;Ma`ruf et al., 2002; Ramayah et al., 2003; Wang et al., 2003; AlSukkar, 2005; Ndubisi, 2005; Yang et al., 2005; Floh & Treiblmaier, 2006; Guriting & Ndubisi, 2006; Miranda et al., 2006; Wu et al., 2006; AbuShanab & Pearson, 2007; Chen & Barnes, 2007; Hernandez & Mazzon, 2007; Kholoud, 2007; Gounaris & Koritos, 2008; Yazan, 2008; Karjaluoto et al., 2009. Wang, H. Y. et al.,2010. Im, I., Hong, S. et al.,2011.

*adopted by researcher, 2013

REFERENCES

- AbuShanab, E., and Pearson, J. M. (2007). Internet banking in Jordan: The unified theory of acceptance and use of technology (UTAUT) perspective. *Journal of Systems and Information Technology*, 9(1), 78-97.
- AC Nielsen Australia. (2008). Online banking continues despite security concerns [Online]. Available: <http://www.acnielsen.com.au/news.asp?newsID=301> [2008, April 1].
- AC Nielsen. (2008). The retail banking evolution: Battle of the banks heats up as smaller players take on the 'big four' [Online]. Available: <http://au.nielsen.com/site/documents/RetailBankingReleaseJune30.pdf> [2009, May 15].
- Adams, d.a., nelson, r.r., & todd, p.a. (1992). Perceived usefulness, ease of use, and usage information. [electronic version]. *Mis quarterly*, 16(2), 227-248.
- Adebowale, O. F., Adediwura, A. A., & Bada, T. A. (2008). Correlates of computer attitude among secondary school students in Lagos State, Nigeria. *Int. J. Comput. Info. Commun. Technol. Res*, 3(2), 20-30.
- Adebowale, O.F, Adediwura, A. A., Bada, T. A. (2009). Correlates of computer attitude among secondary school students in Lagos State, Nigeria. *International Journal of Computing and ICT Research*, 3(2), 20 - 30.
- Agarwal, R., & Karahanna, E. (2000). Time flies when you're having fun: cognitive absorption and beliefs about information technology usage 1. *MIS quarterly*, 24(4), 665-694.

- Agarwal, R., and Prasad, J. (1998). A conceptual and operational definition of personal innovativeness in the domain of information technology. *Information Systems. Research*, 9(2), 204-301.
- Ahn, J., Khandelwal, A. K., & Wei, S. J. (2011). The role of intermediaries in facilitating trade. *Journal of International Economics*, 84(1), 73-85.
- Aiken, L. S., West, S. G., & Pitts, S. C. (2003). Multiple linear regression. *Handbook of psychology*.
- Ajzen, I. (1991). The theory of planned behaviour. *Organisational Behaviour and Human Decision Processes*, 50(2), 197-211.
- Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology*, 52(1), 27-58.
- Ajzen, I., and Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice-Hall.
- Ajzen, I., and Madden, T. (1986). Prediction of goal-directed behaviour: Attitudes, intentions, and perceived behavioural control. *Journal of Experimental Social Psychology*, 22(1), 453-474.
- Ajzen, I., Timko, C., and White, J. B. (1982). Self-monitoring and the attitude - behaviour relation. *Journal of Personality and Social Psychology*, 42(3), 426-435.
- Aladwani, A. M. (2001). Change management strategies for successful ERP implementation. *Business Process management journal*, 7(3), 266-275.
- Alawadhi, S., and Morris, A. (2008). The use of the UTAUT model in the adoption of e-government services in Kuwait. Paper presented at the Proceedings of the 41st Hawaii International Conferencon System Sciences. 7-10 Jan. 2008, 219-219, Waikoloa, HI.

- Al-Gahtani, S. (2001). The applicability of TAM outside North America: an empirical test in the United Kingdom. *Information Resources Management Journal (IRMJ)*, 14(3), 37-46.
- Allen, M., Titsworth, S., and Hunt, S. K. (2008). *Quantitative research in communication*. Thousand Oaks, CA: Sage.
- Alsajjan, B., & Dennis, C. (2010). Internet banking acceptance model: Cross-market examination. *Journal of Business Research*, 63(9), 957-963.
- AlSukkar, A. (2005). The application of information system in the Jordanian banking sector: A study of the acceptance of the Internet. Unpublished doctoral thesis, University of Wollongong, New South Wales, Australia.
- Anderson, E. W., and Sullivan, A. W. (1993). The antecedents and consequences of customer satisfaction for firms. *Marketing Science*, 12(2), 125-143.
- Angie, N. K., and Chow, W. S. (2006). A study of trust in e-shopping before and after first-hand experience is gained. *Journal of Computer Information Systems*, 46(4), 125-130.
- Aral, S., Brynjolfsson, E., and Van Alstyne, M. (2007). Productivity effects of information diffusion in networks. Paper presented at the Proceedings of the 28th Annual International Conference on Information Systems. December 10-12 (1-25., Montreal, CA.
- Arjen. Boin, "'t Hart, P., Stern, E. and Sundelius, B.(2005)." The politics of crisis management: Public leadership under pressure.
- Armitage, P., Berry, G., & Matthews, J. N. S. (2008). *Statistical methods in medical research*. Wiley. com.

- Arthur anderson and co. (1989)qdt in prendergast, g.p.& marr, n.e.(1994).the future of self-service technologies in retail banking, the service industries journal,14(1),january, 94-114.
- Balanchandran and Balachandher Krishnan Guru (2002).E-Banking Developments in Malaysia: prospects and problems, Journal of International Banking Law,Vol.15NO.10, PP. 250-256.
- Balasubramanian, S., Konana, P., & Menon, N. M. (2003). Customer satisfaction in virtual environments: A study of online investing. Management Science, 49(7), 871-889.
- Bandura A. (1977). Self-efficacy: Towardaunifying theory of behavioral change, Psycho/. Rev. 84, 191-215.
- Bandura, A. (2002). Social cognitive theory in cultural context. Applied Psychology, 51(2), 269-290.
- Bandyopadhyay, S. (2009). Dual factor authentication.
- Bank Administration Institute and Boston Consulting Group. 1995. "Putting It Together: Convergence Strategies for Banking, Insurance, and Investments."
- Bank Indonesia. (2004). Risk management application to bank services through Internet (Internet banking) (No.6/ 18 /DPNP). Jakarta: Bank Indonesia.
- Bank Negara Malaysia. (2009). Monthly statistical bulletin. Kuala Lumpur: Bank Negara Malaysia.Bankers Online. (2003). Technology and e-Banking [Online].
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of personality and social psychology, 51(6), 1173.

- Baronti, P., Pillai, P., Chook, V. W., Chessa, S., Gotta, A., & Hu, Y. F. (2007). Wireless sensor networks: A survey on the state of the art and the 802.15.4 and ZigBee standards. *Computer communications*, 30(7), 1655-1695.
- Basel Committee Report on Banking Supervision. (1998). Risk management for electronic banking and electronic money activities. Switzerland: bank of International settlements.
- Bashir, U., & Ramay, M. I. (2010). Impact of stress on employees job performance a study on banking sector of Pakistan. *International Journal of Marketing Studies*, 2(1), P122.
- Bayona Jimnez, C.R.(2011). An analysis on Renaults Consumer Satisfaction trough its Post-Sale service on the Colombian industry.
- Bhattacharya, A.(2011).Preminent Analysis Of Customer Relationship Management (CRM).*Int.J.RMT*,(1) -1:45-51.
- Bhattacharjee, A. (2001a). Understanding information systems continuance: An expectationconfirmation model. *MIS Quarterly*, 25(3), 351-363.
- Bhattacharjee, A. (2001b). An empirical analysis of the antecedents of electronic commerce service continuance. *Decision Support Systems*, 32(2), 201-214.
- Bhattacharjee, A., Perols, J., and Sanford, C. (2008). Information technology continuance: A theoretic extension and empirical test. *Journal of Computer Information Systems*, 49(1), 17-26.
- Bian, X., & Moutinho, L. (2011). Counterfeits and branded products: effects of counterfeit ownership. *Journal of Product & Brand Management*, 20(5), 379-393.
- Biggs, J. B., and Moore, P. J. (1993). *Process of learning* (3rd ed.). London: Prentice Hall.

- Black, N. J., Lockett, A., Winklhofer, H., and Ennew, C. (2001). The adoption of Internet financial services: A qualitative study. *International Journal of Retail & Distribution Management*, 29(8), 390- 398.
- Bond, R. M., Fariss, C. J., Jones, J. J., Kramer, A. D., Marlow, C., Settle, J. E., & Fowler, J. H. (2012). A 61-million-person experiment in social influence and political mobilization. *Nature*, 489(7415), 295-298.
- Breck, L., Zoob, J., Salow, G., Bishop, F., Schwarz, W., Glazer, E., ... & Chow, C. (2009). U.S. Patent No. 7,627,531. Washington, DC: U.S. Patent and Trademark Office.
- Burdenski, T. (2000). Evaluating univariate, bivariate, and multivariate normality using graphical and statistical procedures. *Multiple Linear Regression Viewpoints*, 26(2), 15-28.
- Burr, D. C., Morrone, M. C., & Ross, J. (1994). Selective suppression of the magnocellular visual pathway during saccadic eye movements. *Nature*, 371(6497), 511-513.
- Capgemini, European Financial Management and Marketing Association, Hewlett-Packard, Microsoft and Novamétrie. (2004). A new wave of Internet banking? White paper. European Financial Marketing and Management Association (EFMA) Newsletter, 191, 33-47.
- Carmines, E. G., & Zeller, R. A. (Eds.). (1979). Reliability and validity assessment Vol. 17. Sage.
- Chai, C. S., Koh, J. H. L., & Tsai, C. C. (2010). Facilitating Preservice Teachers' Development of Technological, Pedagogical, and Content Knowledge (TPACK). *Educational Technology & Society*, 13(4), 63-73.

- Chan, S.C., & Lu, M. (2004). Understanding Internet banking adoption and use behavior: A Hong Kong perspective. [Electronic version]. *Journal of Global Information*, 12(3), 21-44.
- Chang, M. K., & Cheung, W. (2001). Determinants of the intention to use Internet/WWW at work: a confirmatory study. *Information & Management*, 39(1), 1-14.
- Chau, P. Y. K. (1996). An empirical investigation on factors affecting the acceptance of CASE by systems developers. *Information & Management*, 30(6), 269-280.
- Chau, P. Y. K., and Lai, V. A. K. (2003). An empirical investigation of the determinants of user acceptance of online banking. *Journal of Organisational Computing and Electronic Commerce*, 13(2), 123-145.
- Chau, P. Y., & Hu, P. J. H. (2001). Information Technology Acceptance by Individual Professionals: A Model Comparison Approach*. *Decision Sciences*, 32(4), 699-719.
- Chen, I., Zhu, F. X., Wymer, W., & (2002). IT-based services and service quality in consumer banking. *International Journal of Service Industry Management*, 13(1), 69-90.
- Chen, J. L. (2011). The effects of education compatibility and technological expectancy on e-learning acceptance. *Computers & Education*, 57(2), 1501-1511.
- Child, J., & Loveridge, R. (1990). *Information technology in European services: towards a microelectronic future*. Oxford: Blackwell.
- Clark, N. (2007). Technology supply chain or innovation capacity?: Contrasting experiences of promoting small scale irrigation technology in South Asia. *Technology*, 2007, 014.

- Clarke, G., Cull, R., Peria, M. S., and Sanchez, S. M. (2003). Foreign bank entry: Experience, implications for developing economies, and agenda for further research. *The World Bank Research Observe*, 18(1), 25-60.
- Clemons, E. K. (1986). Information systems for sustainable competitive advantage. *Information & Management*, 11(3), 131-136.
- Comscore Financial Services Solutions Group. (2009). Number of U.S. online banking customers continues to grow despite challenging financial environment [Online]. Available: <http://finance.yahoo.com/news/Number-of-US-Online-Banking-prnews-14987245.html?.v=1|2009>, August 19].
- Comscore Media Metrix. (2009). Comscore reveals top 15 online banking properties in Europe [Online]. Available: <http://www.comscore.com/press/release.asp?press=2777> [2009, August 19].
- Cooper, J., and Weaver, K. D. (2003). *Gender and computers: Understanding the digital divide* (1st ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Creative Research Systems. (2005). The survey system's tutorial [Online]. Available: <http://www.surveysystem.com> [2009, February 20].
- Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative*.
- Curtis, L., Edwards, C., Fraser, K. L., Gudelsky, S., Holmquist, J., Thornton, K., & Sweetser, K. D. (2010). Adoption of social media for public relations by nonprofit organizations. *Public Relations Review*, 36(1), 90-92.
- Daniel, E. (1999). Provision of electronic banking in the UK and Republic of Ireland. *International Journal of Bank Marketing*, 17(2), 72-82.
- Danowitz, A., Nassef, Y., and Goodman, S. (1995). Cyberspace across the Sahara: Computing in North Africa. *Communications of the ACM*, 38(12), 23-28.

- Dauda, Y., and Santhapparaj, A. S. (2007). The impact of e-commerce security, and national environment on consumer adoption of Internet banking in Malaysia and Singapore. *Journal of Internet Banking and Commerce*, 12(2), August 2007.
- David, Norton (1995), *Managing Benefits from information technology*, *Information Management & Computer Security*, Vol 3 No.5 PP. 29-35.
- Davis, F. D., and Venkatesh, V. (2000). A Theoretical extension of the technology acceptance model: four longitudinal field studies. *Management Science*, 45(2), 186-204.
- Davis, F.D, Bagozzi, R.P, Warshaw, P.R (1993), User acceptance of computer technology: A comparison of two theoretical models, *management science*, Vol. 35.No.8.PP.982-1003.
- Davis, F.D., Bagozzi, R.P., & Warshaw, P.R. (1989). User acceptance of computer technology: A comparison of two theoretical models [Electronic version]. *Management Science*, 35(8), 982-1003.
- Dewan, S., & Kraemer, K. L. (2000). Information technology and productivity: evidence from country-level data. *Management Science*, 46(4), 548-562.
- Dillon, A., and Morris, M. G. (1996). User Acceptance of information technology: Theories and models. *Annual Review of Information Science and Technology*, 31(1), 3-32.
- Dinev, T., and Hart, P. (2006). Internet privacy concerns and social awareness as determinants of intention to transact. *International Journal of Electronic Commerce*, 10(2), 7-29.
- Duncombe, R., & Molla, A. (2006). E-commerce development in developing countries: Profiling change-agents for SMEs. *The International Journal of Entrepreneurship and Innovation*, 7(3), 185-196.

- Durkin, M. (2004). In search of the Internet-banking customer: Exploring the use of decision styles. [Electronic version]. *The International Journal of Bank Marketing*, 22(6/7), 484-500.
- Encarta MSN.(2007). Internet banking [Online].
http://encarta.msn.com/dictionary_701706860/Internet_banking.html [2007, October 5].
- Eriksson, K., Kerem, K., and Nilsson, D. (2005). Customer acceptance of Internet banking in Estonia. *International Journal of Bank Marketing*, 23(2), 200-216.
- Evans, P. B., and Wurster, T. S. (1997). Strategy and the new economics of information. *Harvard Business Review*, September-October, 71-82.
- Fagan, M., Neill, S., and Wooldridge, B. (2004). An empirical investigation into the relationship between computer self- efficacy, anxiety, experience, support and usage. *Journal of Computer Information Systems*, 44(2), 95-104.
- Featherman, M. S., Miyazaki, A. D., & Sprott, D. E. (2010). Reducing online privacy risk to facilitate e-service adoption: the influence of perceived ease of use and corporate credibility. *Journal of Services Marketing*, 24(3), 219-229.
- Fishbein, M., and Ajzen, I. (1975). *Belief, attitudes, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Flanigan, M. (2008). Innovative banking solutions [Online]. Available:
- Fox, S. (2006). Online banking jumps 47% in 2 years. Pew Internet and American life project [Online]. Available: http://www.pewInternet.org/pdfs/PIP_Online_Banking_2005.pdf [2009, August1].
- Fox, W., and Bayat, M. S. (2008). *A guide to managing research* (1st ed.). United States: Juta and Company Limited.

- Friedman, M. (1991). Consumer boycotts: A conceptual framework and research agenda. *Journal of Social Issues*, 47, 149-168
- Furst, K., Lang, W. L., and Nolle, D. E. (2002). Internet banking. *Journal of Financial Services Research*, 22(1/2), 95-117.
- Gall, M. D., Borg, W. R., and Gall, J. P. (2003). *Educational research: An introduction (7th ed.)*. White Plains, New York: Longman.
- Gandy, T. (1995). Banking in e-space. *The banker*, 145(December), 74-75.
- Gefen, D. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1), 51-99.
- Gentry, L., and Calantone, R. (2002). A comparison of the three models to explain shop-bot use on the web. *Psychology & Marketing*, 19(11), 945-956.
- Gerrard, P., and Cunningham, J. B. (2003). The diffusion of Internet banking among Singapore consumers. *The International Journal of Bank Marketing*, 21(1), 16-28.
- Ghnia, A., Iles, P., and Li, H. R. (2004). Examining HRM aspects of knowledge transfer in the Libyan oil industry. Paper presented at the British Academy of Management (BAM) Annual Conference, St. Andrews, 30 August - 1 September.
- Ghosh, A. K. (1997). Securing e-commerce: A systematic approach. *Journal of Internet Banking and Commerce*, 4(4), November 1997.
- Giordani, G., Floros, C., and Judge, G. (2009). Internet banking services and fees: The case of Greece. *International Journal of Electronic Finance*, 3(2), 177-198.

- Glanz, K., Rimer, F. M., and Lewis, B. K. (2002). Health behaviour and health education: Theory, research, and practice (3rd ed.). San Francisco: Jossey-Bass.
- Goi, C. L. (2005). E-banking in Malaysia: opportunity and challenges. *Journal of Internet Banking and Commerce*, 10(3), December 2005.
- Goi, C. L. (2006). Factors influence development of e-banking in Malaysia. *Journal of Internet Banking and Commerce*, 11(2), August 2006.
- Gounaris, S., and Koritos, C. (2008). Investigating the drivers of Internet banking adoption decision: A comparison of three alternative frameworks. *International of Bank Marketing*, 26(5), 282- 304.
- Greenland, S. (1989). Randomization, Statistics, and causal inference. *Epidemiology* 1 421-429.
- Gupta, D. (1999) 'Internet banking: where does India stand?', *Journal of Contemporary Management*, December, Vol. 2, No. 1
- Gurau, C. (2002). Online banking in transition economies: The implementation and development of online banking systems in Romania. *International Journal of Bank Marketing*, 20(6), 285-296.
- Hair Jr, J. F., Anderson, R. E., Tatham, R. L., & William, C. (1995). *Black (1995), Multivariate data analysis with readings*. New Jersey: Prentice Hall.
- Hair, J. F., Jr., Anderson, R. E., Tatham, R. L., and Black, W. C. (1998). *Multivariate data analysis with reading (5th ed.)*. Englewood Cliffs, NJ: Prentice Hall.
- Hamid, M. R., Amin, H., Lada, S., and Ahmad, N. (2007). A comparative analysis of Internet banking in Malaysia and Thailand. *Journal of Internet Business*, 4(1), 1-19.

- Han, N., Shon, S. H., Joo, J. Ok., & Kim, J. M. (2006). Spectrum sensing method for increasing the spectrum efficiency in wireless sensor network. In *Ubiquitous Systems*. Springer Berlin Heidelberg. pp. 478-488
- Hannan, T. H., & McDowell, J. M. (1984). The determinants of technology adoption: The case of the banking firm. *The RAND Journal of Economics*, 328-335.
- Harrison, P. & Han, S. C., (1997). Myofascial pain syndrome and trigger-point management. *Regional Anesthesia and Pain Medicine*, 22(1), 89-101.
- Herington, C., and Weaven, S. (2007). Can banks improve customer relationships with highquality online services? *Managing Service Quality*, 17(4), 404-427.
- Hernandez, J. M. C., and Mazzon, J. A. (2007) Adoption of Internet banking: Proposition and implementation of an integrated methodology approach. *International Journal of Bank Marketing*, 25(2), 72-88.
- Hill, T., & Lewicki, P. (2006). *Statistics: methods and applications: a comprehensive reference for science, industry, and data mining*. StatSoft, Inc..
- Hirtle, B., & Metli, C. (2004). The evolution of U.S bank branch networks: Growth, consolidation, and strategy. [Electronic version]. *Current Issues in Economics and Finance*. 10(8), 1-7.
- Homburg, C., and Giering, A. (2001). Personal characteristics as moderators of the relationship between customer satisfaction and loyalty. *Psychology and Marketing*, 18(1), 43-66.
- Horton, R. P., Buck, T., Waterson, P. E., and Clegg, C. W. (2001). Explaining Intranet use with the technology acceptance model. *Journal of Information Technology*, 16 (2), 237-249.
- Hsu, M. H., and Chiu, C. M. (2006). Internet self efficacy and electronic service acceptance. *Decision Support Systems*, 38(3), 369-381.

http://www.bankersonline.com/technology/gurus_tech08103d.html[2008,October 5].

<http://www.expresscomputeronline.com/20090427/itinbanking02.shtml>[2009, August 12].

http://www.yodlee.com/2008_09_30.shtml [2009, August 19].

Igbaria, M., Guimaraes, T., and Davis, G. B. (1995). Testing the determinants of microcomputer usage via a structural equation model. *Journal of Management Information Systems*, 11(4), 87-114.

Im, I., Hong, S., & Kang, M. S. (2011). An international comparison of technology adoption: Testing the UTAUT model. *Information & Management*,48(1), 1-8.

Internet World Stats. (2009). Internet usage stats and telecommunications market report [Online]. Available: www.Internetworldstats.com/pacific.htm ([2009, June 27].

Jackson, C.M., Chow, S., & Leitch, R.A. (1997). Toward an understanding of the Behavioral intention to use an information system. [Electronic version]. *Decision Sciences*, 28(2), 357-390.

Jaruwachirathanakul, B., and Fink, D. (2005). Internet banking adoption strategies for a developing country: The case of Thailand. *Internet Research*, 15(3), 295-311.

Jensen, E. (2008). *Enriching the brain: How to maximise every learner's potential* (1st ed.).United States: John Wiley and Sons.

Jiang, J. J., Shu, M. K., Klein, G., and Lin, B. (2000). E-commerce user behaviour model: An empirical study. *Human Systems Management*, 19(4), 265–276.

Jih, W. J. (2002). Effects of electronic commerce implementation in Taiwan. *Journal of Computer Information Systems*, 42(3), 68-76.

- Jones J. W. (1989) Personality and epistemology: Cognitive social learning theory as a philosophy of science. *Zygon*, 24(1), 23-38.
- Jones, D., Lloyd- Adams, R., Carnethon, M., De Simone, G., Ferguson, T. B., Flegal, K., ... & Hong, Y. (2009). Heart disease and stroke statistics—2006 update a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. *Circulation*, 119(3), 480-486.
- Jun, M., and Cai, S. (2001). The key determinants of Internet banking service quality: A content analysis. *International Journal of Bank Marketing*, 19 (7), 276-291.
- Kamarulzaman, A. , Hezlin, H. and Mariati N.(2011).University research , Development &commercialization management: A Malaysia best practice case study. *World review of business research*, Vol.1.No.2. PP.179-192.
- Kamel, S., and Hassan, A. (2003). Assessing the introduction of electronic banking in Egypt using the technology acceptance model. *Annals of Cases on Information Technology*, 5(1), 1-25.
- Kang, Y. S., and Lee, H. S. (2006). Exploring the role of computer self-efficacy and computer anxiety in the formation of e-satisfaction. Republic of Korea: Korea Advanced Institute of Science and Technology (KAIST).
- Karahanna, E., Straub, D. W., and Chervany, N. L. (1999). Information technology adoption across time: A cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS Quarterly*, 23(2), 183-213.
- Karjaluoto, H., Jarvenpaa, L., and Kauppi, V. (2009). Antecedents of online banking satisfaction and loyalty: Empirical evidence from Finland. *International Journal of ElectronicFinance*, 3(3), 253-269.

- Kashier, D. E., Ashour, A. S., and Yacoult, O. M. (2009). Factors affecting continued usage of Internet banking among Egyptian customers. *Communications of the IBIMA*, 9(29), 252-263.
- Kasipillai, J., and Mithani, D., (2000), "Banking and Environment in Malaysia: Issues, Policy and Perception", *BORNEO REVIEW*, Journal of the Institute for Development Studies (Sabah), Vol X, No 2.
- Kennedy, J. (2009). Half of Irish population now using online banking [Online]. Available: <http://mobi.siliconrepublic.com/news/article/12693/half-of-irish-population-now-using-onlinebanking> [2009, August 19].
- Khairul, Z. M., & Hashim, K. (1999). Cation exchange membranes by radiation-induced graft copolymerization of styrene onto PFA copolymer films. I. Preparation and characterization of the graft copolymer. *Journal of applied polymer science*, 73(11), 2095-2102.
- Khalil M. N., and Pearson, J. N. (2007). The influence of trust on Internet banking acceptance. *Journal of Internet Banking and Commerce*, 12(2), August 2007.
- Khan, M. S., and Mahapatra, S. S. (2009). Service quality evaluation in Internet banking: An empirical study in India. *International Journal of Indian Culture and Business Management*, 2(1), 30-46.
- Kim, S. S., and Malhotra, N. K (2005). A logitudial model of continued IS use: An integrative view of four mechanisms underlying post-adoption phenomena. *Management Science*, 51(5), 741- 755.
- King, W. R., and He, J. (2006). A meta-analysis of the technology acceptance model. *Information & Management*, 43(6), 740-755.
- Kleinbaum, D. G. (2007). *Applied regression analysis and multivariable methods*. CengageBrain. com.

- Kline, R.B. (2005), *Principles and Practice of Structural Equation Modeling* (2nd Edition ed.). New York: The Guilford Press.
- Kolekofski, K. E., and Heminger, A. R. (2003). Beliefs and attitudes affecting intentions to share information in an organisational setting. *Information & Management*, 40(6), 521-532.
- Kolodinsky, J. M., Hogarth, J. M., and Hilgert, M. A. (2004). The adoption of electronic banking technologies by US consumers. *The International Journal of Bank Marketing*, 22(4/5), 238-245.
- Koufaris, M. (2002). Applying the technology acceptance model and flow theory to online consumer behaviour. *Information Systems Research*, 13(2), 205-223.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educ Psychol Meas.*
- Kubiszewski, I., Noordewier, T., & Costanza, R. (2011). Perceived credibility of Internet encyclopedias. *Computers & Education*, 56(3), 659-667.
- Kulkarni, M. (2007). "Predicting contraceptive behavior in India using attitude theories." *Journal of Applied Social Psychology*, 37(11), pp. 2475-2495.
- Laforet, S., and Li, X. (2005). Consumers' attitudes towards online and mobile banking in China. *International Journal of Bank Marketing*, 23(5), 362-380.
- Lau, T. Y., Kim, S. W., & Atkin, D. (2002). An examination of factors contributing to South Korea's global leadership in broadband adoption. *Telematics and Informatics*, 22(4), 349-359.
- Laukkanen, T. (2006). Customer-perceived value of e-financial services: A means-end approach. *International Journal of Electronic Finance*, 1(1), 5-17.

- Lawrence, D. (1996). *Enhancing self-esteem in the classroom* (2nd ed.). London: PCP Ltd.
- Lee, E-J., Kwon, K.N., & Schumann, D.W. (2005). Segmenting the non-adopter category in the diffusion of Internet banking. [Electronic version]. *The International Journal of Bank Marketing*, 23(94/5), 414-438.
- Lee Y., Kozar, K. A. and Larsen, K .R. T. (2003). The technology acceptance model: Past, present and future. *Communications of the Association of Information Systems*, 12(50), 752-780.
- Leggatt, H. (2007). Young consumers shun online banking [Online]. Available:http://www.bizreport.com/2007/03/young_consumers_shun_online_banking.html [2009, April, 3].
- Leung, S. F., & Johnson, P. J. (1996). Prognosticators determining survival subsequent to distant metastasis from nasopharyngeal carcinoma. *Cancer*, 77(12), 2423-2431.
- Liao, S. H. (2003). Knowledge management technologies and applications—literature review from 1995 to 2002. *Expert systems with applications*, 25(2), 155-164.
- Liao, S., Shao, Y., Wang, H., and Chen, A. (1999). The adoption of virtual banking: An empirical study. *International Journal of Information Management*, 19(1), 63-74.
- Liao, Z., and Cheung, M. T. (2002). Service quality in Internet e-banking: A user-based core framework. Paper presented at IEEE International Conference on e-Technology, e-Commerce and e-Service (IEEE'05), 628-631.
- Lichtenstein, S., and Williamson, K. (2006). Understanding consumer adoption of Internet banking: An interpretive study in the Australian banking context. *Journal of Electronic Commerce Research*, 7(2), 50-66.

- Liker, J.K., and Sindi, A.A. (1997). "User acceptance of expert systems: A test of the theory of reasoned action." *Journal of Engineering and Technology Management*, 14, pp 147-173.
- Liu, C. C. (2008). The relationship between digital capital of Internet banking and business performance. *International Journal of Electronic Finance*, 2(1), 18-30.
- Llewellyn, D. T. (1997). Banking in the 21st century: The transformation of an industry. *Bulletin Economic and Finance*, 49(11), 5-27.
- Loiacono, E. T., Watson, R. T., and Goodhue, D. L. (2007). Webqual: An instrument for consumer evaluation of web sites. *International Journal of Electronic Commerce*, 11(3), 51-87.
- Lorenz, J., Rauhut, H., Schweitzer, F., & Helbing, D. (2011). How social influence can undermine the wisdom of crowd effect. *Proceedings of the National Academy of Sciences*, 108(22), 9020-9025.
- Lu, J., Yu, C. S., Liu, C., and Yao, J. E. (2003). Technology acceptance model for wireless Internet. *Internet Research: Electronic Networking Application and Policy*, 13(3), 206-222.
- Maenpaa, K. (2006). Clustering the consumers on the basis of their perceptions of the Internet banking services. *Internet Research*, 16(3), 304-322.
- Malhotra, P., & Singh, B. (2006). The impact of internet banking on bank's performance: the Indian experience'. *South Asian Journal of Management*, 13(4), 25-54.
- Manoi, S. (2007). Theory of reasoned action & theory of planned behaviour in alcohol and drug education [Online]. Available: www.thefreelibrary.com [2009, October21].

- Mathieson, K. (1991). Predicting user intentions: Comparing the technology acceptance model with theory planned behaviour. *Information Systems Research*, 2(3), 192-222.
- Mathieson, K., Peacock, E., and Chin, W. W. (2001). Extending the technology acceptance model: The influence of perceive user resources. *The Database for Advances in Information Systems*, 32 (3), 86-112.
- McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties of detecting interactions and moderator effects. *Psychological bulletin*, 114(2), 376.
- McElroy, J. C., James, C., Hendrickson, A. R., Townsend, A. M., and Samuel, M. D. (2007). Dispositional factors in Internet use: Personality versus cognitive style. *MIS Quarterly*, 31(4), 809- 820.
- Methlie, L. B. (1998). *A business model for electronic commerce* (1st ed.). Bergen, Norway:Norwegian School of Economics and Business Administration.
- Miles, M. B., and Huberman, A. M. (1994). *Qualitative data analysis* (2nd ed.). Newbury Park, CA: Sage.
- Mohezar, S., Ainin S., and Noor, I. J. (2007). An overview of mobile banking adoptions among, urban community. *International Journal of Mobile Communications*, 5(2), 157-168.
- Molla, A. and R. Heeks (2006): *Exploring E-Commerce Benefits for Businesses in a Developing Country*. Working Paper , pp. 1–22.
- Molla, A., and Licker, P. (2001). E-commerce systems success: An attempt to extend and respecify the Delone and McLean model of information systems success. *Journal of Electronic Commerce Research*, 2(4), 1-11.
- Moon, J., & Kim, Y. (2001). Extending the TAM for a World-Wide-Web context. *Information and Management*, 38(4), 217-230.

- Moore, G. C., and Benbasat, I. (1991). "Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation." *Information Systems Research* (3): pp 192-222.
- Moorman, C., Zaltman, G., and Deshpande, R (1992) Relationship between providers and user of market research. The dynamics of trust within and between organization. *Journal of Marketing Research*, 24 (August), 314-328)
- Moutinho, L., & Meidan, A. (1989). Bank customers' perceptions, innovations and new technology. *International Journal of Bank Marketing*, 7(2), 22-27.
- Mukherjee, A., and Nath, P. (2003). A model of trust in online relationship banking, *International Journal of Banking Marketing*, 21(1), 5-15.
- Nagel, K., Wizowski, L., Duckworth, J., Cassano, J., Hahn, S. A., & Neal, M. (2008). Using plain language skills to create an educational brochure about sperm banking for adolescent and young adult males with cancer. *Journal of Pediatric Oncology Nursing*, 25(4), 220-226.
- Ndubisi, N. O., and Jantan, M. (2003). Evaluating IS usage in Malaysian small and mediumsized firms using the technology acceptance model. *Logistics Information Management*, 16(6), 440- 450.
- NetValue. (2001). Singapore net users now more open to online banking [Online]. Available: <http://www.Internetnews.com/business/article.php/802541> [2009, August 19].
- Nunnally, J. C. (1978). *Psychometric Theory*. New York, NY: McGraw-Hill.
- Ok, S. J., and Shon, J. H (2006). The determinant of Internet banking usage behaviour in Korea: A comparison of two theoretical models. Paper presented at the COLLECTeR '06 conference, December 9, Adelaide.

- Ong, H. B., and Cheng, M. Y. (2003). Success factors in e-channels: The Malaysian banking scenario. *International Journal of Bank Marketing*, 21 (6/7), 369-377.
- Ong, P. Y. (2003). Survey says: Internet the most preferred means to e-bank [Online]. Available: <http://bworldonline.com/OnlineExclusives/ebank/inside.php?id=010> [2009, August 19].
- Ongkasuwan, M., and Tantichattanon, W. (2002). A comparative study of Internet banking in Thailand. Paper presented at the Proceedings of the First National Conference on Electronic Business, Bangkok, Thailand, October, 2002, 24-25.
- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., and Pahlila, S. (2004). Consumer acceptance of online banking: An extension of the technology acceptance model. *Internet Research*, 14(3), 224-235.
- Plouffe, C. R., Hulland, J. S., & Vandenbosch, M. (2001). Research report: richness versus parsimony in modeling technology adoption decisions—understanding merchant adoption of a smart card-based payment system. *Information systems research*, 12(2), 208-222.
- Polatoglu, V. N., and Ekin, S. (2001). An empirical investigation of the Turkish consumers' acceptance of Internet banking services. *International Journal of Bank Marketing*, 19(4), 156-165.
- Preece, M. A. (1995). Body mass index reference curves for the UK, 1990. *Archives of disease in childhood*, 73(1), 25-29.
- Prendergast, G., & Marr, N. (1994). Towards a branchless banking society?. *International Journal of Retail & Distribution Management*, 22(2), 18-26.
- Promptanapakdee, S. (2009). The adoption and use of personal Internet banking services in Thailand. *The Electronic Journal on Information Systems in Developing Countries*, 37(6), 1-31.

- Ramayah, T., Jantan, M., Mohd Noor, M. N., Razak, R. C., and Koay, P. L. (2003). Receptiveness of Internet banking by Malaysian consumers: The case of Penang. *Asian Academy of Management Journal*, 8(2), 1-29
- Rao, G. R. & Prathima, K. (2003), "Online banking in India", *Mondaq Business Briefing*, 11 April 2003.
- Ratnasingam, P., Gefen, D., and Pavlou, P. A. (2005). The role of facilitating conditions and institutional trust in electronic marketplaces. *Journal of Electronic Commerce in Organisations*, 3(3), 69-82.
- Ravi, N., Paul, S., and Monica, P. (2001). Bankers' perspectives on Internet banking. *E-Service Journal*, 1(1), 21-36.
- Rayport, J. E., and Sviokla, J. J. (1994). Managing in the market space. *Harvard Business Review*, 72(November-December), 141-150.
- Reichheld, F. F. (1993). Loyalty-based management. *Harvard Business Review*, 71(2), 64-73.
- Reichheld, F. F. (1996). Learning from customer defections. *Harvard Business Review*, 74 (March-April), 56-69.
- Rensel, A. D., Abbas, J. M., and Rao, H. R. (2006). Private transactions in public places: An exploration of the impact of the computer environment on public transactional web site use. *Journal of the Association for Information Systems*, 7(1), 19-51.
- Rivest Shamir Adleman [RSA] Security. (2008). An overview of online banking in Singapore [Online]. Available: http://www.rsa.com/solutions/compliance/sb/9673_IBTRM_SB_0908.pdf [2009, August 19].

- Roca, J. C., Chiu, C. M., and Martinez, F. J. (2006). Understanding e-learning continuance intention: An extension of the technology acceptance model. *International Journal of Human- Computer Studies*, 64(8), 683-696.
- Rogers, E. M. (1962). *Diffusion of innovation*. New York: Free Press
- Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: The Free Press.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: The Free Press.
- Rotchanakitumnuai, S., and Speece, M. (2003). Barriers to Internet banking adoption: A qualitative study among corporate customers in Thailand. *International Journal of Bank Marketing*, 21(6/7), 312-323.
- Rugimbana, R. (2007). Youth based segmentation in the Malaysian retail banking sector: The relationship between values and personal e-banking service preferences. *International Journal of Bank Marketing*, 25(1), 6-21
- Sachoff, M. (2008). Canadians lead in online banking usage [Online]. Available:<http://www.webpronews.com/topnews/2008/07/10/canadians-lead-in-online-banking-usage> [2009, August 19].
- Samuel, M. O., Osinowo, H. O., & Chipunza, C. (2009). The relationship between bank distress, job satisfaction, perceived stress and psychological well-being of employees and depositors in Nigeria's banking sector. *African Journal of Business Management*, 3(11), 624-632
- Sanayei, A., Ansari, A., & Ranjbarian, B. (2010). A Hybrid Technology Acceptance Approach for Using the E-CRM Information System in Clothing Industry. *International Journal of Information Science and Management (IJISM)*, 15-25.

- Sathye, M. (1999). Adoption of Internet banking by Australian consumers: An empirical investigation. *International Journal of Bank Marketing*, 17(7), 324-334.
- Schepers, J., and Wetzels, M. (2007). A meta-analysis of the technology acceptance model: Investigating subjective norm and moderation effects. *Information and Management*, 44(1), 90-103.
- Sekaran U. (2003), *Research Methods for Business- A skill building Approach*, John Wiley & Sons. US.
- Sekaran, U. (2006). *Research methods for business: A skill building approach*. Wiley. com.
- Sheridan, S. M., Swanger-Gagne, M., Welch, G. W., Kwon, K., & Garbacz, S. A. (2009). Fidelity measurement in consultation: Psychometric issues and preliminary examination. *School Psychology Review*, 38(4), 476.
- Shih, Y. Y., and Fang, K. (2004). The use of a decomposed theory of planned behaviour to study Internet banking in Taiwan. *Internet Research: Electronic Networking Applications and Policy*, 14(3), 213-223.
- Shih, Y. Y., and Fang, K. (2006). Effects of network quality attribute on customer adoption intentions of Internet banking. *Total Quality Management*, 17(1), 61-77.
- Shumaila, Y., Pallister, J., and Foxall, G. (2009). Multi-dimensional role of trust in Internet banking adoption. *The Service Industries Journal*, 29 (5), 591- 605.
- Siam, A. (2006). Role of electronic banking services on the profits of Jordanian banks. *American Journal of Applied Science*, 3(9), 15-24.

- Siaw, I., & Yu, A. (2004). An Analysis of the Impact of the Internet on Competition in the Banking Industry, using Porter's Five Forces Model. [Electronic version]. *International Journal of Management*, 21(4), 514 -524.
- Singh, A. (2004). Trends in South African Internet banking, ASLIB proceedings. *New Information Perspectives*, 56(3), 187-196.
- Snellman and Vithkari. (2003).customer Complaining Behaviour in Technology based services encounters, *International Journal of service Industry Mangement*, Vol.14 No.2 PP.217-231.
- Sowmya, K. R., & Panchanatham, N. (2011). Job burnout: An outcome of organizational politics in banking sector. *J. Psychol. Bus*, 2(1), 49-58.
- Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, pp.15-28.
- Sparks, P, Hedderly, D., and Shepherd, R. (1992). An investigation into the relationship between perceived control, attitude variability, and the consumption of two common foods. *European Journal of Social Psychology*, 22(1), 55-71.
- Spathis, C., & Ananiadis, J. (2005). Assessing the benefits of using an enterprise system in accounting information and management. *Journal of Enterprise Information Management*, 18(2), 195-210.
- Srivastava, R. K. (2007). Customer's perception on usage of Internet banking. *Innovative Marketing*, 4(1), 66-72.
- Starkey, Williams & Stone (2002).The state of Customer Management Performance in Malaysia, *Marketing Intellignce &Planning* 20/6 pg 378-385.

- Stoel, L., and H.Y. Kyu. (2003). "Modeling the effect of experience on student acceptance of Web-based courseware". *Internet Research: Electronic Networking Applications and Policy*, 13(5), 364-374.
- Straub, E. (2009). Understanding technology adoption: Theory and future directions for informal learning. *Review of Educational Research*, 79(2), 625-649.
- Sudarraj, R. P., and Wu, J. (2005). Using information-systems constructs to study online and telephone banking technologies. *Electronic Commerce Research and Applications*, 4(4), 427-443.
- Suh, B., & Han, I. (2002). Effect of trust on customer acceptance of Internet banking. *Electronic Commerce research and applications*, 1(3), 247-263.
- Sun, H., and Xiao, X. (2006). User acceptance of virtual technologies [Online]. Available: <http://web.syr.edu/~hesun/papers/encyclopedia.pdf> [2009, October 3].
- Sun, H., and Zhang, P. (2004). A methodological analysis of user technology acceptance. Paper presented at the Proceeding of the 37th Hawaii International Conference of System Science, Big Island, HI.
- Suoranta, M., Mattilla, M., & Munnukka, J. (2005). Technology-based services: A study on the drivers and inhibitors of mobile banking. [Electronic Version]. *International Journal of Management and Decision Making*, 6(1) 33.
- Szajna, B. (1996). Empirical evaluation of the revised technology acceptance model. *Management science*, 42(1), 85-92.
- Tarde, G. (2010). *Gabriel Tarde on communication and social influence: Selected papers*. University of Chicago Press.
- Taylor, S., and Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6(2), 144-176.

- Teo, T. (2008). Pre-service teachers' attitudes towards computer use: A Singapore survey. *Australasian Journal of Educational Technology* 24(4), 413-424.
- The China Post. (2008). 53 percent of Internet users bank online: Survey [Online]. Available:<http://www.chinapost.com.tw/taiwan/2008/01/30/141169/53-percent.htm>[2009, August 19].
- The Hindu Business Line. (2006). Average Indian household pays 42 bills online a year: Study [Online]. Available: <http://www.hinduonline.com/>[2009, August 19].
- Thompson, R. L., Higgins, C. A., and Howell, J. M. (1991). Personal computing: Toward a conceptual model of utilisation. *MIS Quarterly*, 15(1), 124-143.
- Umrani, F., and Ghadially, R. (2008). Gender and decision-making in technology adoption among youth. *Psychology and Developing Societies*, 20(2), 209-227
- Venkatesh, v. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*. Publisher JSTOR, (425-478).
- Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003). User acceptance of information technology: toward a Unified View. *MIS Quarterly*, 27(3), 425-478.
- Vijayan, V. P., and Shanmugam, B. (2003). Service quality evaluation of Internet banking in Malaysia. *Journal of Internet Banking and Commerce*, 8(1), June 2003.
- Vijayan, V. P., Perumal, V., and Shanmugam, B. (2004). Waves of multimedia banking development. *Journal of Internet Banking and Commerce*, 9(3), December 2004.

- Wan, W. W. N., Luk, C. L., and Chow, C. W. C. (2005). Customers' adoption of banking channels in Hong Kong. *International Journal of Bank Marketing*, 23(2), 255-272.
- Wang Y.S, Wang Y.M, Lin H.H, Tang I.T (2003), Determinants of user Acceptance of Internet Banking: An empirical study. *International Journal of Service Industry Management*, Vol.14 No.5, 2003 pp 501-519.
- Wang, C., Li, L., Chi, S., Zhu, Z., Ren, Z., Li, Y., ... & Xu, Z. A. (2008). Thorium-doping-induced superconductivity up to 56 K in $Gd_{1-x}Th_xFeAsO$. *EPL (Europhysics Letters)*, 83(6), 67006.
- Wang, H. Y., & Wang, S. H. (2010). User acceptance of mobile internet based on the Unified Theory of Acceptance and Use of Technology: investigating the determinants and gender differences. *Social Behavior and Personality: an international journal*, 38(3), 415-426.
- Webster's, I. I. *new Riverside dictionary*.(1984). New York: Berkley, 712.
- Weiner, B. (1984). Principles for a theory of student motivation and their application within an attributional framework. In Ames, R. and Ames, C. (Eds.), *Research on motivation in education (Vol. 1)*. New York: Academic Press.
- Wheldall, K., and Glynn, T. (1988). Contingencies in context: A behavioural interactionist perspective in education. *Educational Psychology*, 8(1/2), 5-18.
- White H., and Nteli, F. (2004). Internet banking in the UK: Why are there not more customers? *Journal of Financial Services Marketing*, 9(1), 49-56.
- Wilkinson, A. (1999, April). Empowerment: Issues and debates. *Management Today*, 57-59.
- World Wide Worx. (2004). Online banking in South Africa 2004 [Online]. Available: <http://www.worldwideworx.com/archives/13>[2009, August 19].

- Wu, I. L. (2003). Understanding senior management's behaviour in promoting the strategic role of it in process reengineering: Use of the theory of reasoned action. *Information & Management*, 41(1), 1-11.
- Wu, I. L., & Wu, K. W. (2005). A hybrid technology acceptance approach for exploring e-CRM adoption in organizations. *Behavior & Information Technology*, 24(4), pp 303-316.
- Wu, N., & Zhang, J. (2003, June). Factor analysis based anomaly detection. In *Information Assurance Workshop, 2003*. IEEE Systems, Man and Cybernetics Society (pp. 108-115). IEEE.
- Wu, W. H., Tai, Y. M., Chien, M. S., and Hu, L. K. (2006). An empirical investigation of Internet banking adoption from bank personnel perspective. Paper presented at the Proceedings of Joint Conference of Information Sciences [JCIS], Taiwan.
- Yakhlef, A. (2001). Does the Internet compete with or complement brick-and-mortar bank branches? *International Journal of Retail & Distribution Management*, 29(6), 272-281.
- Yang, J. Q., Whitefield, M., and Bhanot, R. (2005). E-banking in rural area - recent trend and development: A case study. *Communications of the IIMA*, 5(4), 63-72.
- Yang, M. H., Chandlrees, N., Lin, B., and Chao, H. Y. (2009). The effect of perceived ethical performance of shopping websites on consumer trust. *Journal of Computer Information Systems*, 50(1), 15-24
- Yang, Y. (2009). *Research procedures: Economic research methods lecture notes* (1st ed.). California State University: Sacramento Department of Economics.

- Yazan, K. A. M. (2008). Quantitative evaluation of the Internet banking service encounter's quality: comparative study between Jordan and the UK retail banks. *Journal of Internet Banking and Commerce*, 13(2), August 2008.
- Yeap, B. H., and Cheah, K. G. (2005). Do foreign banks lead in Internet banking services? *Journal of Internet Banking and Commerce*, 10(2), Summer 2005.
- Yeow, P. H. P., and Yuen, Y. Y. (2008). A technology acceptance study of online banking service in Malaysia. Paper presented at the WEBIST 2008 - International Conference on Web Information Systems and Technologies, Funchal, Madeira, Portugal, 4-7 May 2008.
- Yeow, P. H. P., Yuen, Y. Y., Tong, D. Y. K., and Lim, N. (2008). User acceptance of online banking service in Australia. *Communications of the IBIMA* 1(22), June 2008.
- Yoon, C., Han, H., Kim, S., Jung, H., Yeom, H. Y., Park, J., & Lee, Y. (2009), September). A RESTful approach to the management of cloud infrastructure. In *Cloud Computing, 2009. CLOUD'09. IEEE International Conference on* (pp. 139-142). IEEE.
- Yuen, Y. Y. (2007). An ergonomic study of mobile phone usage in Malaysia. Unpublished Master's thesis, Multimedia University, Malaysia.
- Yuen, Y.Y., Yeow, P. H. P., Lim, N., and Saylani, N. (2010). Internet banking adoption: Comparing developed and developing countries. *Journal of Computer Information Systems*, 51 (1), 52-61.
- ZDNet. (2005). Security worries holding back online banking [Online]. Available:<http://news.zdnet.co.uk/Internet/security/0,39020375,39216740,00.htm> [2009, August 19].

Zolait, A.H.S., Mattila, M., and Ainin, S. (2009). The effect of user's informational-based readiness on innovation acceptance. *International Journal of Bank Marketing*, 27(1), 76-100.

Zuckerman, M. (1979). *Sensation seeking: Beyond the optimal level of arousal* (1st ed.). Erlbaum, Hillsdale, NJ.