



Journal of Internet Banking and Commerce

An open access Internet journal (<http://www.arraydev.com/commerce/jibc/>)

*Journal of Internet Banking and Commerce, April 2015, vol. 20, no. 1
(<http://www.arraydev.com/commerce/jibc/>)*

Consumers' Intention to Use a Single Platform E-Payment System: A Study Among Malaysian Internet and Mobile Banking Users

LAI POEY CHIN, PhD Mgmt, MBA (Finance), BBA (BIT)

Researcher, College of Graduate Studies (UNITEN)

Postal Address: UNITEN, Putrajaya Campus, Jalan IKRAM-UNITEN, 43000 Kajang, Selangor

Author's Personal/Organizational Website: <http://www.uniten.edu.my>

Email: pcresearch8@gmail.com

Dr. Lai PC main research area is in E-payment Systems particularly involved the novelty of single platform E-payment System. Her other areas of interest are Customer Engagement Management, IT Infrastructure & Security Management and Consumers' Intention to use. Her projects and innovations have won numerous awards with latest on the list - voted 1 of Top 3 favourite at Next Bank Asia. She also facilitates MBA students.

ZAINAL ARFFIN AHMAD, Doctorate in Education EdD, MBA, BSc Mgmt (NIU)

Deputy Dean & Head Graduate Business School, College of Graduate Studies,

Postal Address: UNITEN, Putrajaya Campus, Jalan IKRAM-UNITEN, 43000 Kajang, Selangor

Author's Personal/Organizational Website: <http://www.uniten.edu.my/>

Email: azainal@uniten.edu.my

Professor Dr. Zainal Ariffin Ahmad is the recipient of the Anugerah Akademik Negara 2008 (National Academic Award for Teaching) and Outstanding Educators Award 2007 Universiti Sains Malaysia. Currently serves as Deputy Dean of the College of Graduate Studies and Head of the Graduate Business School, Universiti Tenaga Nasional (UNITEN) since 2011. Teaches, researches and supervises postgraduate candidates (PhD, DBA, MA/MSc, MBA, MEM) in organisational behaviour, human resource management, learning, and green technology. Member of the Academy of Management (AOM), Malaysian Institute of Management (MIM) and Malaysian Institute of Human Resource Management (MIHRM).

Abstract

This study seeks to explore Malaysian Internet and Mobile banking consumers’ in adopting a single platform E-payment system using TAM model. This research seeks to investigate whether convenience and design influence perceived ease of use and perceived usefulness. We also investigated the relationship between perceived ease of use, perceived usefulness and perceived risk with consumers’ intention to use one single platform that integrates card, internet and mobile. Respondents who used both the Internet and Mobile banking were selected to participate in the survey. AMOS version 22.0 was used to analyze the data. The empirical results suggest that convenience, design, perceived risk, perceived usefulness and perceived ease of use influence consumers’ intention to use single platform E-payment system. Therefore, convenience, design, perceived risk, perceived usefulness and perceived ease of use should be taken into consideration when designing E-payment system in order to increase the Internet and Mobile banking consumers’ intention to use.

Keywords: Banking; TAM; Single Platform E-payment; Internet and Mobile banking users; Consumers’ Intention to use

© Lai Poey Chin and Zainal Ariffin Ahmad, 2015

INTRODUCTION

Earlier studies have investigated E-payments separately and individually, for example payment cards (Rinaldi, 2001), smart cards (Humphrey, Kaloudis and Øwre, 2004), mobile e-wallet (Amoroso and Magnier-Watanabe, 2012). In fact, there is an increasing interest in this topic given the problems such as inconvenience, not interesting and unattractiveness of E-payment technology solutions faced by organizations to increase consumers’ intention to use E-payment systems (Lai, 2007; Geron, 2009, Wei, Shuo, Luo, Chen and Ling, 2011; Jovanovic and Organero, 2011). The lack of empirical investigations combining the determinants of the three E-payments (Card, Internet and Mobile) in one study encourages the study of the single platform E-payment system shown in Figure 1. As the future integrated E-payment instruments, single platform E-payment system is a novel system as previous researches only focused on the three systems separately (Card, Internet, Mobile).



Figure 1

Mohammad (2008) in his paper entitled “The Development of E-payments and Challenges in Malaysia” and Cheah (2011) from the Payment Systems Policy Department Bank Negara highlighted the importance of risk for E-payment especially the financial risk in the financial industry that needs further research. Perceived risk is associated with consumers’ feelings like anxiety, concern, discomfort, uncertainty, and cognitive dissonance that may be influenced the E-payment process. These problems present a challenge to organizations’ management providing E-payment solutions to encourage consumers’ intention to use technology-based E-payment services especially involving banking solutions.

This study focuses on the consumers-based research orientation such as consumers’ intention to use that is measureable with the adoption of Technology Acceptance Model (TAM) (Davis, Bagozzi and Warshaw, 1989) to enhance the potential of deploying an integrated single platform E-payment system with perceived risk. Therefore, this study seeks to investigate the convenience and design that influence perceived ease of use and perceived usefulness. Furthermore, this study investigate the relationship between perceived ease of use, perceived usefulness and perceived risk with consumers’ intention to use one single platform E-payment System that integrates Card, Internet and Mobile as the novelty system.

Technology Acceptance Model (TAM), Banking and Theoretical Hypothesis

Technology Acceptance Model (TAM) was introduced by Fred Davis in 1986 and specifically tailored for modeling users’ acceptance of information systems or technologies or new product acceptance. The goal of Davis (1989) TAM is to explain the general determinants of technology acceptance that lead to explaining users’ behaviour across a broad range of end-user computing technologies and user populations. In this study will based on Technology Acceptance Model that was formed by Venkatesh and Davis (1996) after the main finding of both perceived usefulness and perceived ease of use were found to have a direct influence on behaviour intention, thus eliminating the need for the attitude construct. The two significant beliefs exist in the TAM are the perceived usefulness and perceived ease of use. TAM also postulates that perceived ease of use stimuli perceived usefulness because the easier to use single platform E-payment system, the more useful users perceive the single platform E-payment system to be. There are empirical studies of the TAM include this correlation and the finding share a significant relationship between these two factors (Moon and Kim, 2001; Van der Heijden, 2003; Shih, 2004).

Banking leaders are adding to their goals as global market player by providing easy to use Internet and mobile banking. The good news with Internet and Mobile banking mean that consumers’ can access globally wherever there is Internet connection (Lai, 2010). Internet and Mobile banking are beneficial to banking consumers’ since the services can provide cost and time saving (Turban, Lee, King, and Chung, 2000; Lai, 2010). Banks are also embracing mobile banking to capitalize on the emerging opportunities and to supplement traditional off-line and phone banking (Kim, Steinfield, and Lai, 2009, Lai, 2010). Mobile banking usually refers to banking transactions that is similar to Internet banking and it provides a fast and convenient way of performing common banking transactions.

Mobile banking can be seen as a subset of electronic banking (E-banking) - a concept covering all the electronic modes of conducting banking engagements (Pousttchi and Schurig, 2004) and an extension of internet banking (Brown, Cajee, Davies, and Stroebel, 2003) with its own unique features. This research will study the single platform E-payment system as the unique features that provide convenience and novelty design to current Internet and Mobile banking consumers.

With the emergence of technology, additional variables are introduced to the TAM so to produce an extended TAM for predicting consumers' intention to use such as perceived risk (Pavlou, 2003). Perceived risk has been shown to reduce consumer's intention to engage Internet transactions (Jarvenpaa, Tractinsky, and Vitale, 2000) which will be the same for single platform that integrates card, internet and mobile transaction.

Perceived risk is defined as consumers' perceived risk and their own tolerance of risk taking that influence their financial transaction decision (Chan and Lu, 2004). Perceived risk suggests the idea that consumers' may be influenced during the E-payment process by the feelings like anxiety, concern, discomfort, uncertainty, and cognitive dissonance in this research. Mohammad (2008) in his paper entitled "The Development of E-payments and Challenges in Malaysia" and Cheah (2011) from Payment Systems Policy Department Bank Negara highlighted the importance of risk for E-payment especially the financial risk in the financial industry where E-PaySIM™ E-payment is also bound to follow Bank Negara guidelines. Therefore, perceived risk is added to the original TAM model for this study.

This study will use the underlining variables shown in Figure 1 to determine the consumers' intention to use the single platform E-payment system. For the purpose of the study, the following hypotheses were posited:

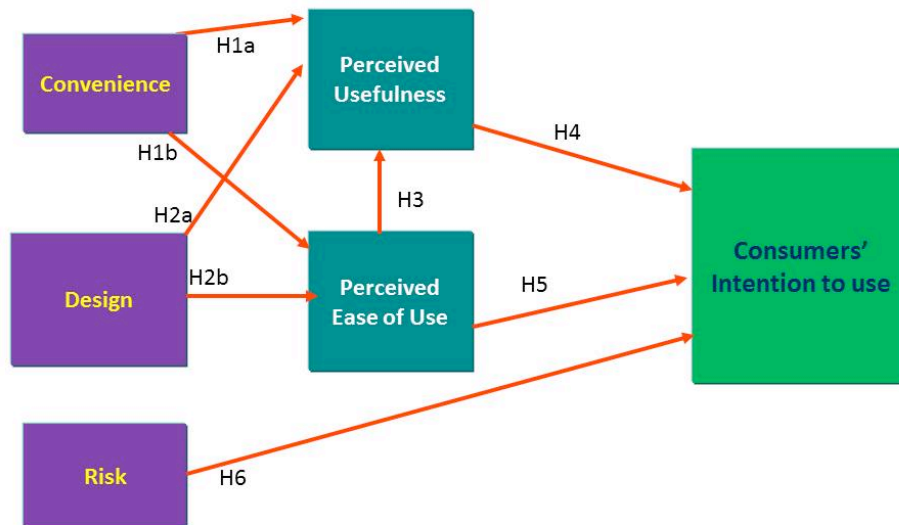


Figure 1: Theoretical Hypothesis

- H1a: Convenience is positively associated on perceived usefulness.
- H1b: Convenience is positively associated on perceived ease of use.
- H2a: Design is positively associated on perceived usefulness.
- H2b: Design is positively associated on perceived ease of use.
- H3: Perceived ease of use is positively associated perceived usefulness.
- H4: Perceived usefulness is positively associated with consumers' intention to use
- H5: Perceived ease of use is positively associated with consumers' intention to use
- H6: Perceived risk is negatively associated with consumers' intention to use.

METHODS

There are 12.4 million Internet banking and 1.73 million mobile banking users in Malaysia (March 2012, Bank Negara report). The target population in this study includes only respondents who have used either Internet or Mobile banking for last 12 months. Online survey questionnaire was used as data collection method.

A total of 638 respondents that fulfill the pre-set requirements were collected and used for this analysis. Based on Klien, (2011) using 10:1 and using non probability sampling, the minimum recommended sample size for this study is 440. The research managed to collect 638 data that being used here that provided a robust study for this research. In this study, the five-point scale Likert-type of measuring the consumers' intention to use Single platform e-payment system like 'strongly disagree' to 'strongly agree' will be used. When responding to the survey items, participants specify their levels of agreement to a subject given. The five points scale is selected to encourage respondents to make positive or negative choices (Cooper, Schindler, and Sun 2008) in order to produce more emphatic information (Oppenheim, 1992). The Cronbach's alphas for the variables are as follows: convenience (.94), design (.89), perceived usefulness (.96), perceived ease of use (.91) perceived risk (.88) and consumers' intention to use (.92).

RESULTS (RESPONDENT PROFILE)

In this study, analyses have been done for each variable separately to gather a summary of respondents' demographic profile in order to get the preliminary information and the feel of the data (Sekaran, 2003). Table 1 showed the respondents' demographic profiles of the survey. The highest respondents' of 38.1% are in the age range of 26-40 with male respondents of 54.1% and the marital status for single respondents at 54.1% mostly with at least college/university at 57.5% working at middle management level 33.4% in Banking/Finance/Manufacturing/ICT industry and 39.1% owning all three (3) items mobile phone, internet and card payment.

Table 1 Respondents profile

Variable	Frequency (n=638)	Percent (Total 100%)
Gender		
Male	345	54.1
Female	293	45.9
Marital Status		
Single	345	54.1

Married	293	45.9
Age		
< 25	216	33.9
26-40	243	38.1
41-55	137	21.5
> 55	42	6.6
Education		
Secondary/High school	190	29.8
College/university	367	57.5
Graduate school	81	12.7
Job position		
Top Management	27	4.2
Middle Management	213	33.4
Junior Management	69	10.8
Professional	66	10.3
Other	263	41.2
What industry you work in		
Education	230	36.1
Banking/Finance/Manufacturing/ICT	250	39.1
Retail/Hypermarket	45	7.1
Other	113	17.7

Measurement model

All the goodness of fit indices was good and satisfied the requirements with the validity assessment of the CFA model. Chi-Square was 522.93 at p=0.00 and df (degree of freedom) was 120. According to Tabachnick and Fidell (2007), the relative Chi-Square (χ^2/df) at 4.54 is below the 5.0 required for good fit. As stated by Hair et al. (2006). In absolute fit indices, the goodness of fit index (GFI) was 0.92, well higher than 0.90 (Hair et al. 2010). Comparative fit index (CFI) was 0.97, above the 0.90 required for good fit (Hu and Bentler 1999). Root mean square error of approximation (RMSEA) was .07, below the 0.08 required for good fit (Byrne 1998). For the overall measurement model, the results indicated good fit model.

Structural model

Based on the results of measurement model, the structural model was examined with the theoretical links as shown in Figure 2 with all of the goodness of fit indices that indicated an acceptable model.

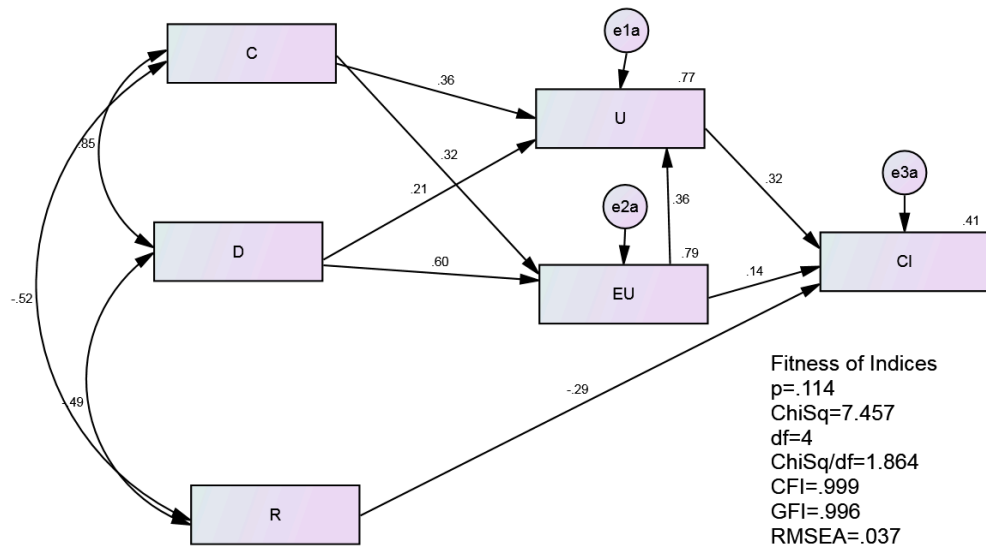


Figure 2 Structural Model

The overall structural model shows all paths of standardized regression weights as shown in Table 2 are statistically significant at the $p \leq 0.001$ and $p \leq 0.01$ level of significance.

Table 2 Standardized regression weights of structural model

Hypothesis	Standardized Regression Weights	S.E.	C.R.	P	Results
Hypothesis 1a	EU <--- C	0.03	9.12	***	Significant $p \leq 0.001$
Hypothesis 2a	EU <--- D	0.03	17.35	***	Significant $p \leq 0.001$
Hypothesis 1b	U <--- C	0.04	9.33	***	Significant $p \leq 0.001$
Hypothesis 2b	U <--- D	0.04	4.67	***	Significant $p \leq 0.001$
Hypothesis 3	U <--- EU	0.05	8.71	***	Significant $p \leq 0.001$
Hypothesis 4	CI <--- U	0.06	5.80	***	Significant $p \leq 0.001$
Hypothesis 5	CI <--- EU	0.07	2.58	0.01	Significant $p \leq 0.01$
Hypothesis 6	CI <--- R	0.04	-8.47	***	Significant $p \leq 0.001$

Hypothesis 1a Convenience has relationship on Perceived Ease of use.

This hypothesis suggests that Convenience as an exogenous factor provides a significant contribution to perceived ease of use as an endogenous factor. Therefore, hypothesis 1a is supported by the data. In this case, efficiency has a significant relationship with perceived ease of use.

Hypothesis 2a Design has relationship on perceived ease of use.

The results showed that design has strong direct relationship with perceived usefulness with path coefficient=0.57, C.R=10.23 and $p=0.00$ ($p < 0.001$) is the highest among the entire hypothesis. In this case, the higher the design support the greater the perceived usefulness of the system.

Hypothesis 1b Convenience has direct relationship on Perceived usefulness

This hypothesis suggests that efficiency as an exogenous factor provides a significant

contribution to perceived usefulness as an endogenous factor. Therefore, hypothesis 1b is supported by the data. In this case, convenience has a significant relationship with perceived usefulness.

Hypothesis 2b Design has direct relationship on Perceived usefulness.

This hypothesis suggests that design as an exogenous factor provides a significant contribution to perceived usefulness as an endogenous factor. Therefore, hypothesis 2b is supported by the data. In this case, design has a significant relationship with perceived usefulness.

Hypothesis 3 Perceived ease of use has relationship on perceived usefulness.

The results of SEM showed that the standardized regression weight of the structural path between perceived ease of use and perceived usefulness is positive and significant, in which path coefficient=0.36, C.R.=8.71 and $p=0.00$ ($p<0.001$). In this case, the higher the perceived ease of use support the greater the perceived usefulness of the system.

Hypothesis 4 Perceived usefulness is positively associated with consumers' intention to use.

The hypothesis showed that perceived usefulness has a significant relationship with consumers' intention to use of the system with explanatory power R^2 of 77.

Hypothesis 5 Perceived ease of use is positively associated with consumers' intention to use.

The hypothesis showed that perceived ease of use has a significant relationship with consumers' intention to use of the system with explanatory power R^2 of 79.

Hypothesis 6 Perceived risk is negatively associated with consumers' intention to use.

The results of SEM showed that the standardized regression weight of the structural path between perceived ease of use and perceived usefulness is positive and significant, in which path coefficient= -0.29, C.R.= -8.47 and $p=0.00$ ($p<0.001$). In this case, the higher the perceived risk support the lower the consumers' intention to use of the system.

DISCUSSIONS AND CONCLUSION

Convenience has positive relationship with perceived usefulness and perceived ease of use and also has positive direct relationship with the perceived usefulness and perceived ease of use. There isn't much different for convenience significant relationship with perceived usefulness ($\beta = .36$) compared to perceived ease of use ($\beta = .32$) which mean convenience will contribute more towards perceived usefulness than perceived ease of use with only .04 path coefficient different. The results are in line with Lin and Hsieh (2006) that illustrated convenience constitute consumers' expectation of E-payment service attribute in a banking industry. Therefore, convenience is an important factor to delivering both usefulness and ease of use for single platform E-payment system.

Design has positive relationship with perceived usefulness and perceived ease of use and also has positive direct relationship with the perceived usefulness and perceived ease of use. Design has a stronger significant relationship with perceived ease of use ($\beta = .60$) which is the highest in the structural model compared to perceived usefulness ($\beta = .21$). Thus, this implies that the design is a strong determinant on perceived ease of use for the case of Single Platform E-payment System. Nevertheless, design depends on both the perceived usefulness and the perceived ease of use as in previous studies (Davis, 1989; Ahn, Ryu, and Han, 2004; Lin and Hsieh, 2006). Therefore, design should be considered imperative in determining perceived usefulness and perceived ease of use.

The result of structural equation modeling (SEM) established that there is a negative and significant relationship between perceived risk and consumers' intention to use based on the hypothesis 6 supported by the research data in which standardized regression estimate $\beta = -.29$, CR = -8.47 and $p=.00$ ($p \leq .001$). It can be suggested that the lower the risk of using single platform E-payment system, the higher the consumers' intention to use the single platform E-payment system. Hypothesis 6 concluded and validated existing studies (Jarvenpaa et al., 2000; Pavlou, 2003) in regard to perceived risk were negatively associated with consumers' intention to use. Thus, hypothesis 6 for single platform E-payment system is confirmed. This result further implied that perceived risk was as important element of consumers' intention to use the single platform E-payment system, as were the perceived usefulness and perceived ease of use.

Perceived risk has been the major concern but the standard regression weight of 29% is considered medium. Thus, the management of the organizations providing single platform E-payment system need to look into providing secured solutions to reduce the risk as well. In order to reduce the perceptions of risk, single platform E-payment system suppliers can organize talk to educate consumers on how to safeguard their E-payment transactions with the additional security and privacy features. This research emphasized in providing consumers with security solutions to perform their single platform E-payment transaction. Furthermore, by reducing the perceived risk, it will increase the consumers' trust and confidence that lead to the intention to use in single platform E-payment system.

The explanatory power R^2 scores of perceived usefulness by perceived ease of use, convenience and design variables are .77. The explanatory power R^2 scores of perceived ease of use by efficiency and design variables are .79. The explanatory power R^2 scores of Consumers' intention to use by perceived usefulness, perceived ease of use and perceived risk variables are .41. According to Cohen (1998), the explanatory power R^2 scores was decoded as small ($\geq .01$), medium ($\geq .09$), or large ($\geq .25$). Thus, the results showed that the single platform E-payment system has very high perception of usefulness and ease of use and moderate consumers' intention to use by the consumers' respondents. Thus, the consumers' intention to use is consider good with 41% to use the single platform E-payment system in this study.

Banks are on the lookout to reduce their high cost of operation (OECD, 2006, Lai, 2010). Besides core banking services, banks generate good revenue from transaction payment (e.g., Cards Payment). Nevertheless, at times banks also lose money due to fraud transactions (Mohammad, 2008; Cheah, 2011). Another challenge is to keep the

customers satisfied and loyal through innovation (e.g., to have all banking solution in one (1) single platform). Therefore, this research provides an insight of consumers' perspective in regard to Card, Internet and Mobile Payment as well as the potential of having an innovation solution in one single platform for banking purpose.

One limitation of using online survey is reaching target audiences who have Internet access only. The data also represents Malaysian context and might not be relevant in other countries. The data was collected at one point of time and may change over time due to greater experience and advancement of E-payment technologies. Therefore, future study should be expanded to non-internet users using traditional survey method where information can assist management to target non Internet banking users. This study can be replicated in other developed or developing countries as well as a longitudinal study to examine the single platform e-payment system and consumers' intention to use at various points of time.

In conclusion, the empirical results from the study suggest that perceived risk can lead to reduce the usage of consumers' intention to use single platform E-payment system. Therefore, perceived risk should be taken into consideration when designing E-payment system in order to increase the consumers' intention to use. It is noted that the constructs of the single platform E-payment system should include convenience and good design while providing security to reduce the risk that support the ease of use and usefulness of the single platform E-payment that can lead to consumers' intention to use single platform E-payment system.

ACKNOWLEDGMENTS

Special thanks to the Malaysia Ministry of Higher Education (MOHE), UNITEN, GlobalCLAS Technology and all those who have contributed for the success of this research Project.

REFERENCES

- Ahn, T., Ryu, S., & Han, I. (2004). The impact of the online and offline features on the user acceptance of internet shopping malls. *Electronic Commerce Research and Applications*, 3 (4), 405-420.
- Amoroso, D. L., & Magnier-Watanabe, R. (2012). Building a Research Model for Mobile Wallet Consumer Adoption: The Case of Mobile Suica in Japan, *Journal of Theoretical and Applied Electronic Commerce Research*, 7 (1), 94-110.
- Anckar, B., & D'Incau, D. (2002). Value Creation in Mobile Commerce: Findings from a Consumer Survey. *The Journal of Information Technology Theory and Application*, 4 (1), 43-64.
- Brown, I., Cajee, Z., Davies, D., & Stroebel, S. (2003). Cell phone banking: Predictors of adoption in South Africa — An exploratory study, *International Journal of Information Management*, 23 (5), 381 – 394.
- Byrne, B. M. (1998). *Structural Equation Modeling with LISREL, PRELIS, and SIMPLIS: Basic Concepts, Applications, and Programming*. New Jersey: Lawrence Erlbaum Associates.
- Chan, S. C., & Lu T. M. (2004). Understanding Internet Banking Adoption and Use behaviour: A Hong Kong perspective. *Journal of Global Information Management*, 12, 3 12-43.
- Cheah, K. L. (2011). *Payment Systems in Malaysia*, Payment Systems Policy Department, Bank Negara Malaysia.
- Cohen, P.N. (1998). Black concentration effects on black-white and gender inequality: Multilevel analysis for US metropolitan areas. *Social Forces*, 77(1), 207–229.
- Cooper, D. R., and Schindler, P. S., (2008). *Business research methods* (10th ed.). New York: McGraw-Hill.
- Davis, F.D. (1986). A technology acceptance model for empirically testing new end-user information systems: Theory and results. Massachusetts, United States: Sloan School of Management, Massachusetts Institute of Technology.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- Davis, F. D., Bagozzi, R., P., & Warshaw, P., R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35, 982-1003.
- Humphrey, D. B., Aris K., & Grete Ø., (2004). The future of cash: falling legal use and implications for government policy. *Journal of International Financial Markets, Institutions and Money*, 14 (3), p. 221-23
- Geron, G. (2009). *Business Aspects of the Internet of Things: Mobile Marketing*, Seminar of advanced topics, Zurich: Florian Michahelles
- Hair, J., Black, W., Babin, B. Y. A., Anderson, R., & Tatham, R. (2010). *Multivariate Data Analysis* (7th ed.). New Jersey: Pearson Prentice Hall.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1-55
- Jarvenpaa, S. L., Tractinsky, N., & Vitale, M. (2000). Consumer trust in an internet store. *Information Technology and Management*, 1(1/2), 45-71.
- Jovanovic, M., & Organero, M. (2011). Analysis of the Latest Trends in Mobile Commerce using the NFC Technology, *Multidisciplinary Journals in Science and Technology*, *Journal of Selected Areas in Telecommunications (JSAT)*, May Edition. 1-12

- Kim, D.J., Steinfield, C., & Lai., Y. J. (2008). Revisiting the Role of Web Assurance Seals in Business-to-Consumer Electronic Commerce. *Decision Support Systems*, 44 (4), 1000-1015
- Krejcie, R., and Morgan, D. W., (1970). Determining Sample size for Research Activities. *Educational and Psychological Measure*, 30, 607-610.
- Kline, R. B., (2011). *Principles and practice of structural equation modelling* (3rd ed.). New York: Guilford Press.
- Koufaris, M. (2002). Applying the technology acceptance model and flow theory to online consumer behavior, *Information Systems Research*, 13(2), 205-223.
- Lai P. C. (2007). The Chip Technology Management Implication in the Era of Globalization: Malaysian Consumers' Perspective. *Asia Pacific Business Review*, 3(1), 91-96
- Lai P. C. (2010). E-business and E-banking. Japan Society for Software Science and Technology, Itech research group.
- Laukkanen, T., & Lauronen, J. (2005). Consumer value creation in mobile banking services. *International Journal of Mobile Communications*, 3 (4), 325 – 338.
- Laukkanen, T., & Mika, P. (2007). Mobile banking innovators and early adopters: How they differ from other online users?. *Journal of Financial Services Marketing*, 13 (2), 86–94.
- Lin, J., & Hsieh, P. (2006). The role of technology readiness in customers' perception and adoption of self-service technologies. *International Journal of Service Industry Management*, 17, 497-517.
- Malaysia, Bank Negara Financial Stability and Payment systems report 2007-2011.
- Mohammad, A. (2008), *The Development of E-payments and challenges in Malaysia* www.seacen.org/GUI/pdf/publications/research_proj/.../Chap5.pdf Accessed 27 Feb 2013
- Moon, J. W., and Kim, Y. G. (2001). Extending the TAM for a World-Wide-Web context. *Information & Management*, 38, 217-230.
- Oppenheim, A.N., (1992). *Questionnaire design, interviewing and attitude measurement*. 2nd ed. London and New York: Continuum International Publishing.
- Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model, *International Journal of Electronic Commerce*, 7(3), 69-103.
- Pousttchi, K., & Schurig, M. (2004). Assessment of today's mobile banking applications from the view of customer requirements Proceedings of the 37th Hawaii International Conference on System Sciences, Big Island, Hawaii, 5 – 8 January.
- Rinaldi, L. (2001). Payment Cards and Money Demand in Belgium. Center for Economic Studies, Leuven Universities' Discussion Paper Series 01.16.
- Sekaran, U. (2003), *Research Methods for Business: A Skill-Building Approach*. 4th ed. U. S. A.: John Wiley and Sons, Inc.
- Shih, H.P. 2004. Extended technology acceptance model of Internet utilization behavior, *Information and Management*, 41(6), 719-729.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics*. Boston: Pearson Education Inc.
- Turban, E., Lee, J., King, D., and Chung, H.M. (2000). *Electronic Commerce: A Managerial Perspective*. Prentice-Hall, Upper Saddle River, NJ.
- Van der Heijden, H. 2003. Factors influencing the usage of websites: The case of a generic portal in the Netherlands, *Information & Management*, 40(6), 541-549.
- Venkatesh, V. and Davis, F. D., (2000). A Theoretical Extension of the Technology

Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 46 (2), 186-204.

Wei, D., Shuo Z., Luo, G., Chen, Z., & Ling X. (2011). Analyze on Mobile Payment Based on RFID, *Procedia Environmental Sciences*, 10, 950 – 955