

Impact of Security and Privacy in Consumer adoption of Immediate Payment Services (IMPS) in M-Commerce (With special reference to Banking Industry)

^[1]Gaurav Sharma, ^[2]Kavita Sharma

^[1]Assistant Professor, Department of Computer Engineering and Applications, Institute of Engineering and Technology, GLA University, ^[2]Assistant Professor, Institute of Business Management
GLA University

Abstract - The continuous growth in banking technologies has made consumers more adaptive to better ways of using banking for their ease and comfort. How fast the customers may adopt (or reject) a new technology in banking and what are the factors/dimensions which are responsible for that adoption/rejection is what makes this study prudent. Hence, this research aims to investigate factors that influence the behavioral intention to use the newly launched Immediate Payment Services (IMPS) in the banking sector in India keeping security and privacy in concern. Technology Acceptance Model (TAM) is used to identify the adoption of IMPS as a technology by customers considering Security in mind. The findings verified and confirmed that Security & Privacy is one of the main factor which impact attitude towards the intention of adopting IMPS along with Easy accessibility, Convenience, Reliability, Usefulness and Time Saving.

Keywords: Immediate Payment Services, Banking, Adoption, Security, Privacy, Technology acceptance model, Mobile Users.

INTRODUCTION

Continually thinking about customer's ease and comfort in using a product or service has become a top most priority among most industries these days, and especially in the service sector. Banking is no exception to this. Innovating in technology for the comfort of customers is the key to success in all sectors. Banking technologies have also grown by leaps and bounds in last decade only. There was a time when internet banking was the most advanced channel in financial services. Then came mobile banking, which was also fast adopted, but with ever changing and dynamic customer needs and preferences the banking technologies are also going through a phase of continuous change. To cater to the needs of most demanding banking customers the technology incubators in banking have launched Immediate Payment Services (IMPS). If we look into the concept of Immediate Payment Services in the world, we cannot ignore the banks of countries of biggest banking networks. In May 2008 the Faster Payments Service was propelled in the UK – the biggest real time framework/system on the planet, working 24/7. The system has assumed a noteworthy role in impacting purchaser demeanor towards payments, making quick payments the standard. This is obvious from the huge development in immediate

payment exchanges experienced in the UK – the services has been becoming relentlessly since its launch 5 years ago, with an important year on year development prompting a general transaction number of more than 2.5 billion since 2008.

It is obvious then that the accomplishment of faster payments in the UK has been noted by different markets. Both the Reserve Bank of Australia and the US Federal Reserve authorities of Australia for the execution of quick payments. Banks in the ASEAN locale and Asia Pac are likewise demonstrating a yearning for payment handling innovation. Singapore specifically is a main impetus for continuous payment technology.

The Immediate Payment Services in the UK is an example of overcoming adversity for prompt payments. Against a troublesome financial environment, the service has gone from quality to-quality, drawing in customers and corporates, expanding transaction development consistently and empowering innovative solutions of Immediate payments. As customers over the globe turn out to be always digitally demanding, we hope to see more markets grasping Immediate Payments, utilizing the IMPS Services as the blueprint.

Within the mild of the current state of the present studies on IMPS and M-Payment, this study aims to investigate the factors that influence the behavioral intention to use the newly launched Immediate Payment Services (IMPS) in the banking sector in India. Our research also aims to recover out the impact on enhancing customers' E-satisfaction.

REVIEW OF LITERATURE

A. Customer Satisfaction

Customer satisfaction means to satisfy the persons by the fulfillment of their perceptions and reaction towards the judgment (Oliver 1997). There is a fundamental component which decides customer satisfaction is the client's own demeanor toward the nature of the product or services. A few cell phone devices characterize that endeavored to investigate older individuals of customer satisfaction (Gerpott Rams & Schindler 2001; Kim Park & Jeong 2004). The basic understanding is utilizing more psychological components, for example, an accomplice satisfying their guarantees. This will focus more on this psychological point of view because of the way that most positive idea of satisfaction highlight a mental or emotional only (Bhattacharjee 2001). It is contended that satisfaction is a noteworthy result of marketing activity and that benefits are created through the fulfillment of customer needs and needs (Churchill & Surprenant 1982). Satisfaction is all about fulfilling desires of the customers. A content customer is considered to remain a loyal customer of a company and buys more products or services. Whenever he is satisfied with their product, a customer does not find another place or company to buy the same product because he sets his perception toward them (Peyton Et al. 2003). Money can also result in satisfaction (e.g. money related advantages) or psychological/emotional variables (e.g. guarantee satisfaction or simplicity of retailers relationship). Subsequently, the purchaser's trust is influenced specifically by his satisfaction (Geyskens et al. 1999; Singh and Sirdeshmukh, 2000)

B. M-Commerce

M-Commerce (Mobile Business) is the buying and offering of products/services through remote handheld devices, for instance, mobile phones and other gadgets. It is also known as e-exchange and engages customers to use internet without hoping to find a spot to interface with. The use of handheld gadgets, for example, phones and tablets to lead business exchanges of internet shopping and mobile business exchanges are developing.

The term incorporates the purchase and sale of a wide variety of goods and services, internet banking, bill payments, data conveyance and more on. Mobile banking empowers clients get to their financial balances through cell phones to check their balance or the scope of services that can be attempted while cellular phones are liable to evolve as worldwide payment devices (Wilcox 2009). M-Commerce services which thusly will prompt to mass portable appropriations (Wong and Hiew, 2005). Another critical flair for versatile trade is the nearness of appropriate working payment frameworks that decrease exchange costs in the customer outline and which promote the effective utilization of services (Bank for International Settlement, 2003). The helpfulness of mobile device is firmly driven to the m-commerce, which incorporates universality, personalization, restriction auspiciousness and system dependability (Wong et al. 2005). Essentially, as the innovation being more helpful, it will emphatically impact purchaser trust to the embrace m-commerce. The primary difference is the frameworks and geographic environment of getting to the web (Tarasewich 2003). As a matter of first importance, changing the environment of remote web get to, the mobile application really turns out to be more helpful. Customers can get to the frameworks whenever, wherever of the mobile application. Mobile commerce (m-commerce) now offers awesome adaptability for the tourism business both to suppliers and explorers. Clients can surf the web, check email, read news, pay exchanges and quote stock costs utilizing these handheld gadgets (Eriksson 2002). From the supplier's point of view, the promotional message can be changed considerably more quickly than using customary media. M-commerce is presently turning into the standard in taking care of travel yields viably.

C. Perceived Usefulness of Banking in M-Commerce

Perceived usefulness determined that behavior influenced to the technology and attitude toward the technology (Davis, Bagozzi and Warshaw 1989). 'Perceived Usefulness' is considered as the possibility that use of this technology will help people to do efficient work.

Perceived usefulness is a positive attitude towards using banking (McKechnie, Winklhofer and Ennew 2006; Al Sukkar and Hassan 2005). New innovations/technologies have been recognised by many studies i.e. mobile phone. since they figure out which individuals are more ready to adopt most recent electronic channels. Usefulness direct influence attitudes towards m-commerce which is the deciding factor of mobile banking studied among 435 college students of Turkey (Amin, Baba and Muhammad

2007) The research conducted in Malaysia on current consumers of mobile banking. Their adoption of such services that shown the significant usefulness of m-commerce. A positive attitude on consumer's perception of credibility have shown that perceived ease of use of adoption the mobile service (Luarn and Lin 2005; Wang et al. 2006)

D. Immediate Payment Services

Immediate Payment Services (IMPS) is an instant cash exchange arrangement of India. It is done with the help of electronic fund transfer system in which the funds can transfer to other banks also. Funds transfer through IMPS should likewise be possible through mobile phones. The significant favorable advantage of IMPS is that this service can be availed all days in a week and bank occasions moreover. It is overseen by National Payments Corporation of India (NPCI) and is based upon the national financial switch network. IMPS were publicly launched on November 22, 2010.

If a customer use the service of IMPS, he/she can avail different benefits like Quick Service, 24X7 facility (Even on Holidays), security and cost effective, service can be availed with the help of Mobile/Internet and ATM Channels, and the confirmation of debit and credit via SMS.

SERVICES UNDER IMPS

The various services under IMPS are explained in the figure.1

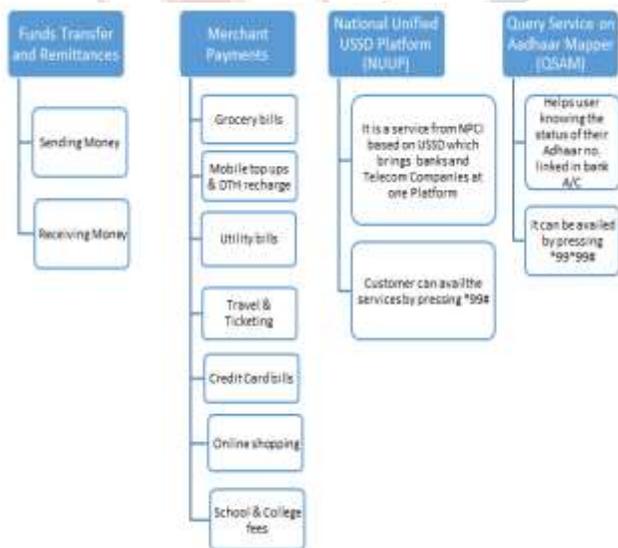


Figure.1 Various Services under IMPS

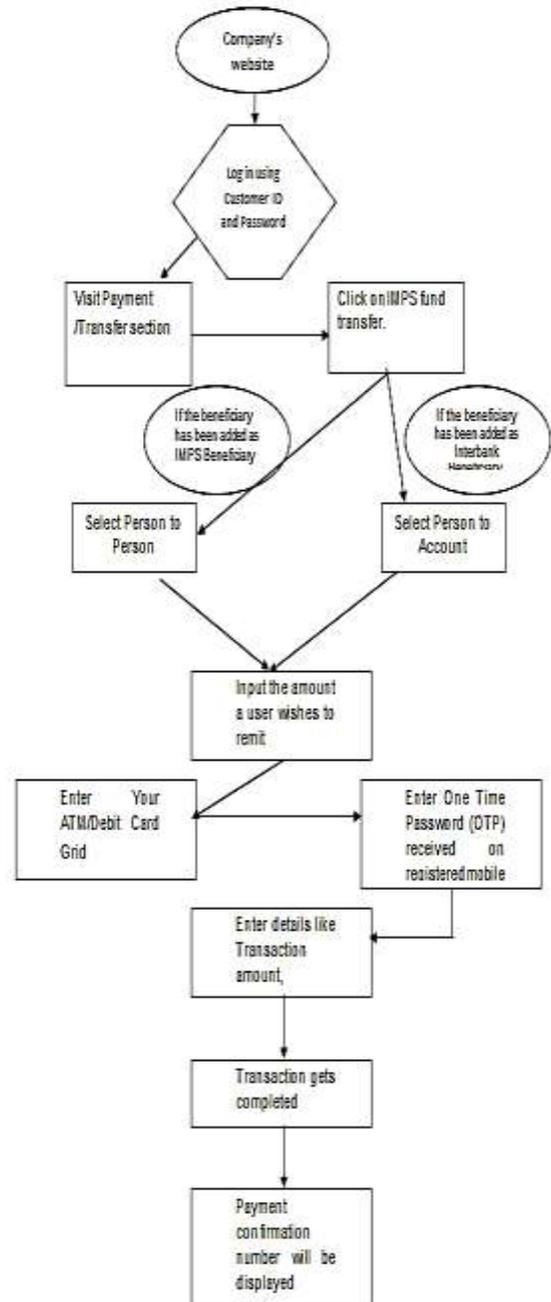


Figure-2: Process of IMPS

As discussed in the Figure.2, the process of IMPS through various bank's website, Funds transfer can be done through various channels also. To initiate the transactions from IMPS, Any type of Phone, whether mobile phone or Smart phone with the help of Bank App/ SMS /

WAP/USSD (NUUP, Respective Bank’s Internet facility), ATM can be used.

The user can follow this process in which the sender have to enter the details of the receiver such as:

- MMID & Mobile no. or Aadhaar number Or Account number & IFS Code
- Sum of money to be transferred.
- Payment reference number
- Sender’s M-PIN
- SMS Confirmation to both receiver and sender.

Rationale of the Study

The study focused to examine the degree of consumer adoption of IMPS. It contains general concept of customer satisfaction, IMPS and the security and privacy issues in using the above said technology. This study helps us to improve usage of the services offered by the banking through M-commerce and immediate payment services to the customers.

Research Methodology

Based on the available research and the previous data, The new Technology Acceptance Model of IMPS has been developed. We have adopted a secondary approach in this Research Paper, so as to generate a new foundation of the TAM recommended by Davis et al, 1989. The very nature of the Research for the paper is descriptive.

Theoretical Background

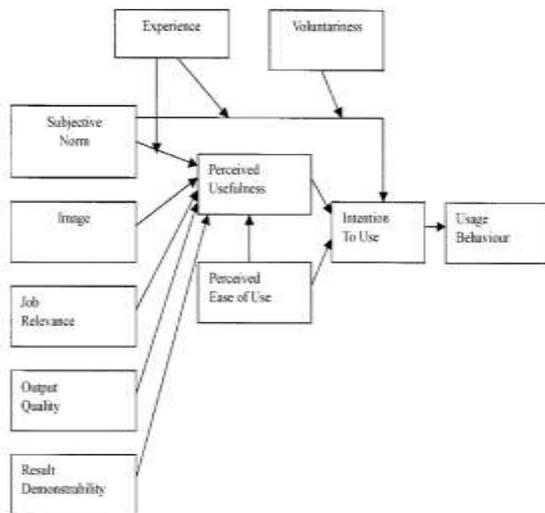


Figure: 3

In this Paper (as shown in figure 3), authors have determined that the impact of some factors on intention to

use Information system or technology, is different at various stages in the process of information technology implementation. They have also analysed the drawback of the technology that information system is considered as an independent issue in any organisation. Various researches related to innovation and change management in the organisations revealed that the implementation of technologies is related to the dynamics of the organisation, which have a significant impact on the results.

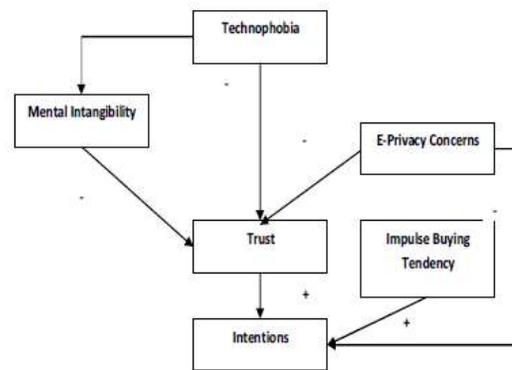


Figure 4.

According to the model, there are different variables (as shown in the figure 4). Author found out that these variables are the domain variables that immediately effect purchasers' perspectives on purpose to use, and undertake mobile commerce. According to them, future researchers can work on different other issues like content material richness and actual-time reach, content credibility, and social impact, the innovative prerequisite.

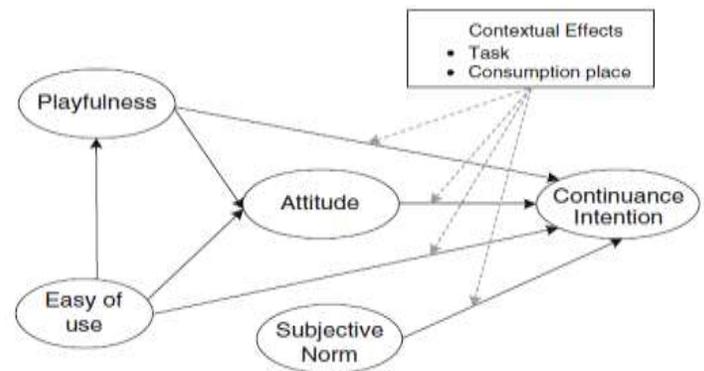


Figure 5.

Here in the model (as shown in figure 5), the authors have taken the issue of effect of continuous use of mobile services which is also a major factor for using IMPS. In this research, author has found that if the contextual factors are not counted, the attitude of the user of mobile services puts great impact on user's intention to playfulness. Authors have also suggested the future researchers to use contextual factors or to find out how demographic and cultural factors of consumers can affect their acceptance of mobile services.

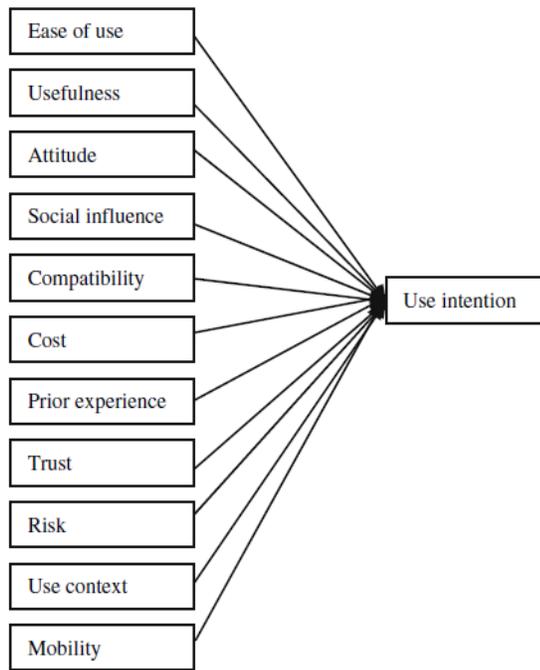


Figure 6

On contrary to the above mentioned researches, this research (model shown in figure 6), found that relative elements have a very important role in adopting mobile services and according to the research and both these factors should be integrated into already assumed models of adoption so that it can help in increasing their predictions. The authors also suggested that the concept developers should consider the useful situations also where for the customers; the other payment modes are not feasible like lack of cash, no connectivity, etc.

Figures	Authors	Title	Objectives	Outcomes
3	Paul Legris, John	Why do people use informatio	-To provide a critical analysis of	There can be many other variables

	Ingham, Pierre Collett e.	n technology ? A critical review of the technology acceptance model.	the research methods -To highlight the convergence or divergence in results. -To bring out the added value of TAM in explaining system use.	which can influence the consumers' perspectives on intention to use mobile commerce like Involving students, Type of applications, Self-reported use, etc
4	Lila Rajabion	Critical Factors for Adoption of Mobile Commerce Services	-To propose a new demand model for m-commerce, -To examine the dynamic factors for adopting m-commerce from new age consumer's perspective s.	Technologic al implementat ion is related to organisation al dynamics, which will have a strong impact on the outcomes.
5	Ting-Peng Liang, Yi-Hsuan Yeh	Effect of use contexts on the continuous use of mobile services: the case of mobile games	-To investigate whether contextual factors like time and Consumpti on place significantl y impact a user's intention to use mobile games. -To evaluate whether the augmented technology adoption	The attitude of the user of mobile services puts great impact on user's intention to playfulness, if the contextual factors are avoided

			model can provide a better predictive power for the intention to use mobile games.	
6	Niina Mallat, Matti Rossi, Virpi Kristiina Tuunainen, Anssi Oorni	An empirical investigation of mobile ticketing service adoption in public transportation.	-To explain the use intention of mobile commerce by looking at mobile ticketing in public transportation.	Ease of use and usefulness had a statistically significant effect on the adoption decision. Attitude towards technology, trust, and risk all had positive association with adoption decision

Table 1. Description of various models used

Proposed Model

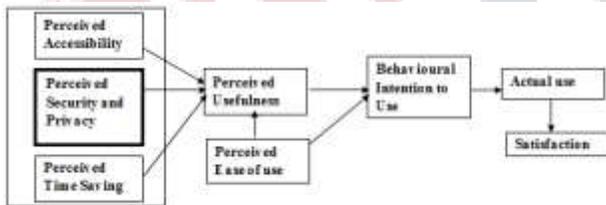


Figure 7. Proposed Research Model (Technology Acceptance Model)

The technology acceptance model (TAM) is mostly used model used to explain the adoption behavior of technology by the customers (Davis 1989; Bagozzi & Warshaw 1989). Technology acceptance model (TAM) suggests that the behavior of adoption is adoption behavior is dogged by the purpose to use a particular system, which is determined by the perceived usefulness and the perceived ease of use of the system. One of the main advantages of using TAM is that it provides a framework by the means of which the effect of outside variables on technology can be analysed.

DISCUSSION

Most of the customers are acquainted with the utilization of the IMPS through mobile phones. They find it not very difficult to utilize and need no formal preparing for use (Gunther (1997). The technical innovation of internet has created the internet banking system so authenticated that serves customers to do transactions of banking as long as they can access to the web. We can relate reliability with the security in execution which has been ensured to the customers and this fuses: the precision of the records, documents and mistakes don't happen, giving banking benefit legitimately, to give service in an opportune way and in time. The quick development of IMPS is being driven by various positive variables - the interest for applications from an inexorably mobile customer. Because of it is less time consuming that have given mobile payment advanced capabilities and substantial computing power.

The most important aspect is the security and privacy while using the IMPS technology and the acceptance of this technology by the customers. There is a huge sign of the high esteem set on the utilization of the IMPS on mobile/web (Huysman 2004). The utilization of the pin and security code for the payments through IMPS improves the security and protection. It includes the trust as a principle variable in the use of Mobile banking/Internet Banking. These days evidences like "trust" assume a fundamental part being used. For instance, clients feel better to deal with close and personal contact utilizing IMPS framework. The capacity to utilize a site and its quality for instance excitement, comfort that will impact both, the utilisation level of customers and satisfaction through utilizing buyer advantage as a part of using IMPS technologies that help to save cash, time and dodging interpersonal cooperation. Finally, The customer feels satisfied when he/she gets used to of the services (Pagani 2004). Individual experiences demonstrate that the present technology of IMPS is easy to use or more investigations of the reception of IMPS demonstrate that it is the ease of use, value and speed of the service itself matters a great deal since client are satisfied more than before.

CONCLUSION AND RECOMMENDATIONS

As suggested by the existing Literature, there should a way out to come out from the conventional TAM Model, which our paper is successfully fulfilling. Our Paper is focusing on the issues like Perceived Easy Accessibility,

Perceived Reliability, Perceived Security & Privacy, Perceived Satisfaction, Perceived Convenience, Perceived Usefulness, Perceived Time Saving of customers using IMPS under various bank services.

As our model is suggesting that for the ultimate satisfaction of the customers, if there is a perceived ease of use of IMPS services, it is directly related to the usefulness and the behavior of customers to use the service, which eventually convert into actual use of the service and serve as the basis for satisfaction also.

As discussed above various models by the different authors, this has been confirmed that the consumers who are more aware of Immediate Payment Services tend to move towards M-Commerce in a trustworthy manner, thus leading to adoption of M-Commerce in a convenient way. Many of the latest findings mentioned above have suggested a need to evaluate the constructs such as trust, security and privacy also by the various banks so as to make their IMPS services through M-commerce more viable.

REFERENCES

- Al-Ajam, A. S., & Nor, K. M. (2013). Influencing factors on behavioral intention to adopt Internet banking service. *World Applied Sciences Journal*, 22(11), 1652-1656.
- Amin, H., Baba, R., & Muhammad, M. Z. (2007). An analysis of mobile banking acceptance by Malaysian customers. *Sunway academic journal*, 4, 1-12.
- Asfour, H. K., & Haddad, S. I. (2014). The Impact of Mobile Banking on Enhancing Customers' E-Satisfaction: An Empirical Study on Commercial Banks in Jordan. *International Business Research*, 7(10), 145.
- Bhattacharjee, A. (2001). Understanding information systems continuance: an expectation-confirmation model. *MIS quarterly*, 351-370.
- Churchill Jr, G. A., & Surprenant, C. (1982). An investigation into the determinants of customer satisfaction. *Journal of marketing research*, 491-504.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, 35(8), 982-1003.
- Eriksson, C., Kalling, T., Åkesson, M., & Fredberg, T. (2008). Business models for M-services: Exploring the E-newspaper case from a consumer view. *Journal of Electronic Commerce in Organizations (JECO)*, 6(2), 29-57.
- Geyskens, I., Steenkamp, J. B. E., & Kumar, N. (1999). A meta-analysis of satisfaction in marketing channel relationships. *Journal of marketing Research*, 223-238.
- Kim, C., Mirusmonov, M., & Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior*, 26(3), 310-322.
- Kim, M. K., Park, M. C., & Jeong, D. H. (2004). The effects of customer satisfaction and switching barrier on customer loyalty in Korean mobile telecommunication services. *Telecommunications policy*, 28(2), 145-159.
- Wafa, S. A., Hassan, R. A., Lane, P. P. M., & Belkhamza, Z. (2014). Perceived usefulness and perceived ease of use of e-commerce adoption among entrepreneurs in sabah. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 3(9), 94-103.
- Liang, T. P., & Yeh, Y. H. (2011). Effect of use contexts on the continuous use of mobile services: the case of mobile games. *Personal and Ubiquitous Computing*, 15(2), 187-196.
- Li, L. (2010). A critical review of technology acceptance literature. Retrieved April, 19, 2011.
- Mallat, N., Rossi, M., Tuunainen, V. K., & Öörni, A. (2008). An empirical investigation of mobile ticketing service adoption in public transportation. *Personal and Ubiquitous Computing*, 12(1), 57-65.
- Mou, J., & Cohen, J. (2013). Trust and risk in consumer acceptance of e-services: A meta-analysis and a test of competing models.
- Legris, P., Ingham, J., & Collette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & management*, 40(3), 191-204.
- Luarn, P., & Lin, H. H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computers in human behavior*, 21(6), 873-891.

McKechnie, S., Winklhofer, H., & Ennew, C. (2006). Applying the technology acceptance model to the online retailing of financial services. *International Journal of Retail & Distribution Management*, 34(4/5), 388-410.

Oliver, R. L., Rust, R. T., & Varki, S. (1997). Customer delight: foundations, findings, and managerial insight. *Journal of retailing*, 73(3), 311-336.

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), 101-134.

Park, S. Y. (2009). An analysis of the technology acceptance model in understanding university students' behavioral intention to use e-learning. *Educational technology & society*, 12(3), 150-162.

Park, S. Y., Nam, M. W., & Cha, S. B. (2012). University students' behavioral intention to use mobile learning: Evaluating the technology acceptance model. *British Journal of Educational Technology*, 43(4), 592-605.

Rajabion, L. Critical Factors for Adoption of Mobile Commerce Services.

Rathore, H. S. (2016). Adoption of digital wallet by consumers. *BVIMSR's Journal of Management Research*, 8(1), 69.

Tarasewich, P. (2003). Designing mobile commerce applications. *Communications of the ACM*, 46(12), 57-60.

Thulani, D., Tofara, C., & Langton, R. (1970). Adoption and use of internet banking in Zimbabwe: An exploratory study. *The Journal of Internet Banking and Commerce*, 14(1), 1-13.

Wilcox, K., Kim, H. M., & Sen, S. (2009). Why do consumers buy counterfeit luxury brands?. *Journal of marketing research*, 46(2), 247-259.

Wong, C. C., & Hiew, P. L. (2005, April). Diffusion of mobile entertainment in Malaysia: Drivers and barriers. In *WEC (5)* (pp. 263-266).

Wong, C. C., & Hiew, P. L. (2005, July). Mobile entertainment: Review and redefine. In *Mobile Business, 2005. ICMB 2005. International Conference on* (pp. 187-192). IEEE.

Wong, C. C., & Hiew, P. L. (2005, August). Correlations between factors affecting the diffusion of mobile entertainment in Malaysia. In *Proceedings of the 7th international conference on Electronic commerce* (pp. 615-621). ACM.