Exploring Mobile Commerce Adoption Maturity: An Empirical Investigation

Mazen Ali
University of Bahrain
mali@uob.edu.bh

Yousif AlHinai
University of Sultan Qaboos
yalhinai@squ.edu.om

Abstract

With the proliferation of mobile devices, studies on Mobile Commerce (MC) adoption have received increasing attention from researchers in Information Technology. While there are many studies in the literature that have investigated MC adoption by individuals, these studies mainly investigate the factors that lead to usage. However, they do not examine how individuals may progress or mature from basic use of mobile devices to more sophisticated usage. In this study, we develop MC Adoption Maturity Model to show how individuals may mature in MC adoption. This model is examined by collecting qualitative data from 10 individuals. The study enriches our understanding of technology adoption by individuals because it explains how existing users of a technology, such as mobile technology, advance in their MC usage.

Keywords

Mobile Commerce, Maturity, Bahrain, Qualitative research

Introduction

Mobile Commerce (MC) is defined as not only exchanging information using handheld devices via digital networks but it also includes buying and selling of products, services and applications (Balasubramanian et al., 2002). MC provides many benefits to both businesses and consumers. MC can help businesses expand their market reach and provide them with another platform to attract customers (Lu and Su, 2009; Nagi and Gunasekaran, 2007). For consumers, they can conveniently communicate with businesses and perform activities such as buying and selling through their mobile devices (Lee et al., 2007; Agrebi and Jallais, 2015).

Given the importance of MC, a lot of studies have been conducted in the last decade. Many researchers have examined the factors that enable or inhibit individuals to adopt MC (Hung et al., 2003; Pavlou, 2003; Lee and Chen, 2014). While these studies highlight the important variables that influence the adoption of MC, they do not show how an individual may move from a simple use of mobile device such as basic communication to a more sophisticated use such as stock brokerage. There is a lack of studies that explain or empirically investigate maturity of MC. To address this gap, we conducted an exploratory study to understand the maturity of MC. We develop a MC maturity model and examine this model by conducting interviews with individuals.

The findings show that there are some factors that influence the initial use of MC by individuals. Then the impact of these factors over time will results in the progression to more advanced usage. The next section briefly discusses some relevant literature and presents the proposed maturity research model. Then, the findings from the semi-structured interviews are presented and discussed. Finally we conclude the study by providing implications for research and practice and state the study limitations.

Mobile Commerce Adoption Literature

Most studies that have investigated the adoption of MC by individuals are based on Technology Acceptance Model (TAM). Many of these studies have examined variables such as perceived ease of use and perceived usefulness on the intention to use MC (for example Wu and Wang, 2005; Deng et al., 2010; Zheng et.al, 2012; Lee and Chen, 2014; Trivedi and Kumar, 2014).

Other studies have investigated factors that can influence consumers' intentions to adopt MC. For instance, some researchers have investigated the influence of trust on intention to use MC (Lu et al., 2003; Kao, 2009; Yeh and Li, 2009; Malik et al., 2013; Marrett et al., 2014). Other researchers have examined the influence of security on the adoption of MC (Ghosh and Swaminatha, 2001; Marett et al., 2014). These studies have shown that the more users perceive that the connection between the two parties (sender and receiver) is secure, the more likely they would use MC (Marett et al., 2014). Another group of studies have examined subjective norms as a determinant of MC adoption (Schepers and Wetzels, 2007; Mohammadi, 2015). According to Mohammadi (2015), individuals are more likely to influence others to use mobile devices when they are active users.

While these studies have made important contributions to our understanding of MC adoption, they do not explain how users may progress in their MC usage. For this purpose, we identify variables/factors from previous studies and explain how these factors may change because of the individual's initial use of the mobile device. To understand MC maturity, we define five variables and include their underlying theory.

Variables	Definition	Theoretical background
(Perceived) Trust	A psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another (Kumar et al, 1995)	Social Exchange Theory
(Perceived) Ease of use	The degree to which a person believes that performing MC would be free of effort (Davis, 1989, p.320)	Theory of Reasoned Action, Technology Acceptance Model (Davis 1989; Moore and Benbasat, 1991)
Social influence (subjective norm)	The person's perception that people who are important to him think that he should or should not use MC (Fishbein and Ajzen, 1975)	Theory of Reasoned Action (Fishbein and Ajzen, 1975), Theory of planned Behavior (Ajzen and Madden, 1986)
(Perceived) Relative advantage/usefulness	The degree to which a person believes that using the mobile device provides him benefits compared to the cost.	Diffusion of Innovation (Rogers, 1985)

Table 1. Variables definition and their theoretical background

According to Becker et al. (2009), a maturity model is a progression for a particular object. This object could be a business process, capability or an entity. The lowest stage of maturity is the beginning level and the highest stage represents total maturity (Becker et al., 2005; De Bruin, 2005). The progression from the lowest level to the highest level is based on certain criteria (De Bruin et al., 2005; Mettler, 2011). Becker et al. (2009) and De Bruin et al. (2005) argue that when developing a maturity model, the domain should be taken into consideration. In this study, we define the levels of MC maturity based on the types of activities or tasks performed by the individual using his mobile device. In addition, it is also important to note that we investigate a set of variables (identified in Table 1) to explain how an individual may progress from one level to the next rather than simply defining maturity based on particular criteria. For example, when we consider the type of MC activity as a criterion for MC maturity, a user that uses his mobile device for buying would be at an more advanced level than a user that uses his device for communication. However, this does not provide an explanation as to how the user reached the advanced level.

Our MC Adoption Maturity Model shows that there are a set of variables (factors) that influence the adoption of MC. As shown in Table 1, these variables include trust, ease of use, social influence and

relative advantage. The model in Figure 1, illustrates how an individual progresses from one level of MC use to the next level. At the start of the progression, the user adopts a level of MC adoption that is compatible with his perceptions of social influence, ease of use, level of trust and advantages of his use (arrows from factors to the MC adoption maturity). This MC adoption level could further improve the individual's social influence, ease of use, trust and relative advantage (arrows from MC adoption maturity to factors), which would then result in the next level of MC adoption maturity (arrows from factors to MC maturity adoption). For example, these variables would result in Level 1 MC adoption maturity, which could be named as "Communication Level". At this stage, users simply use their mobile devices to send text messages and/or make video and voice calls. The user does not conduct any sophisticated transactions.

After a period of time, this communication level may positively influence (some/all of) the variables shown by the arrow from MC adoption maturity to the factors. This happens because the user benefits from the usage positively which in turn influence his perception of ease of use, level of trust, social influence and relative advantage. This level would then result in the progression to the next level, which is named as "Transaction Level". This level occurs when the user is involved in buying and/or selling. This adoption can further modify the other variables, which could further lead to more levels of MC adoption maturity.

It is important to note here that it is not always the case that users' perception of the factors is positive. It could also be negative or neutral. However, it is expected that in best cases when all or most factors are positive, the user would be more willing to opt for more advanced use of his/her mobile device. Furthermore, in reality, some of the levels can be further divided into sub-levels. For example, the Transaction Level can take place as buying, selling or both. Being a buyer only, using MC can be quite distinct than being a seller only or being both a buyer and seller. Each of these levels or sub-levels would involve implications related to the user, the technology used, and the relevant adoption factors. Yet, the model below is intended to propose an overall depiction of the progressive adoption of MC.
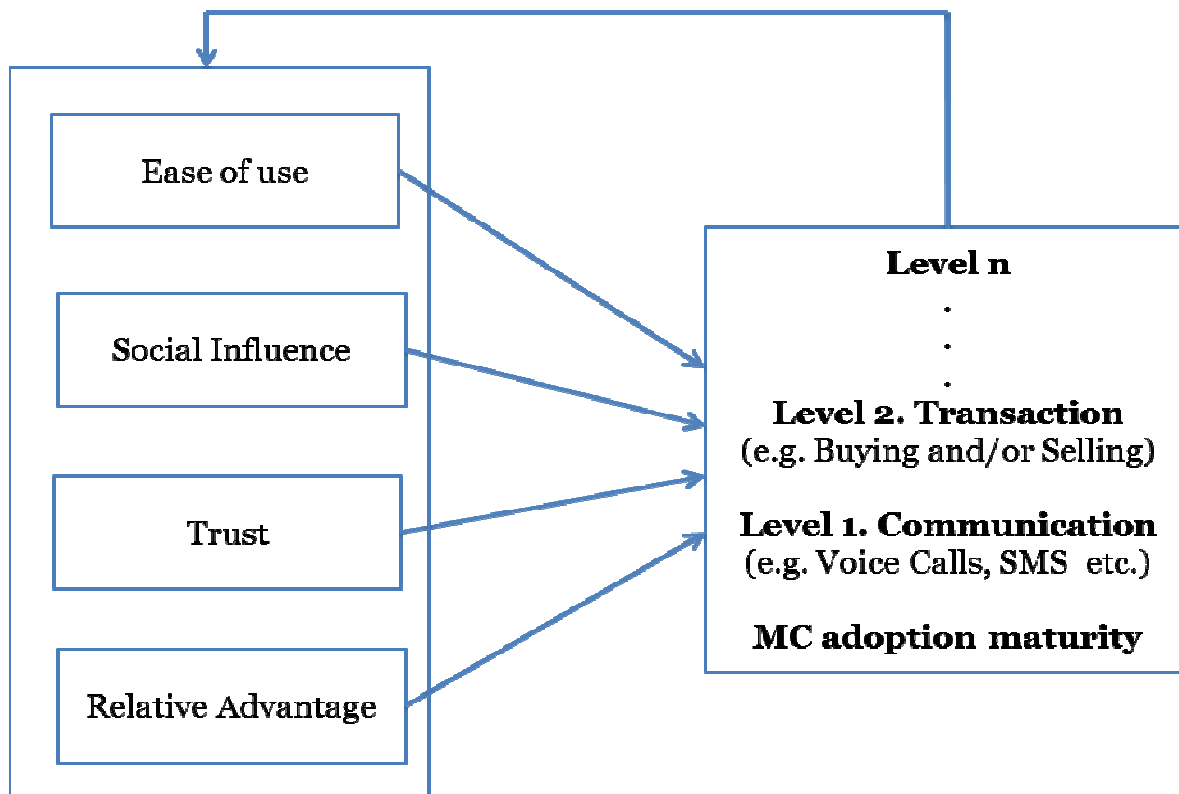
Figure 1: Mobile Commerce (MC) Adoption Maturity Model

Research Method

In this study, we employed a multiple case study approach because of its ability to investigate a complex phenomenon in its real life context (Yin, 2003). This method allows investigating the maturity of MC by understanding its complexity and capturing the richness of individuals' behavior (Gable, 1994). Multiple case studies approach was chosen to improve the generalizability of findings. Data was collected through semi-structured interviews with 10 individuals, which formed 10 cases. The interview protocol was based on the concepts of the MC adoption model. A replication strategy was followed to improve the validity of the collected data because similar results were obtained from multiple cases. The addition of cases was terminated when we reached the saturation point. The interviews were audio recorded and then transcribed. Data was then analyzed by finding common themes through pattern matching logic (Yin, 2003) using Nvivo software (Nvivo, 2015). This allows for certain patterns to be identified from the empirical data, which in turn were consistent with the concepts of MC maturity model.

As shown in Table 2, the interviews were conducted with 10 respondents, aged from 21 to 27 years old, who are users of mobile phones and situated in Bahrain. The choice of such young group of mobile phone users for our cases conforms with the emphasis of the literature that young mobile phone users are the main drivers of MC services markets around the world (Aoki and Downes, 2003). Furthermore, we aimed to include respondents that were at the transaction phase, which allowed us to assess their MC maturity.

The rigor in this study was established by following guidelines recommended by Sarker and Lee (2002) and Yin (2003):
- We improved the reliability of this study by clearly conceptualizing variables prior to conducting the empirical work. The variables and measures were defined prior to conducting the empirical investigation. In addition, an interview protocol was developed and used in all interviews to improve the reliability of the study.
- External validity was improved by following specific procedure for coding and analysis. The data was transcribed and entered into Nvivo. Then the program facilitated the creation of codes for the concepts of our MC Maturity Model.

Participants	Gender	Age	Education	Job	Level of MC Maturity (Transaction)	No. of Years using Transaction
A	Male	24	Bachelors	Fresh graduate	Paying Bills, M-Banking & Buying Tickets.	1 & ½ Years
B	Male	23	Bachelors	Master student	Paying University Fees, E-bay, Paying Bills & Cinema Tickets	3 Years
C	Male	26	Diploma	Employed	Shopping, M-Banking & Paying Bills	1 & ½ Years
D	Female	22	Bachelors	Entrepreneur	Paying Bills & Shopping	3 Years
E	Male	25	Bachelors	Employed	M-Banking	1 + Years
F	Male	26	High School	Supervisor	Paying bills & Buying Cinema Tickets	2 Years
G	Male	21	Bachelors	Student	Paying Bills, Shopping & Cinema Tickets	2 Years
H	Male	26	Bachelors	Employee	Paying bills, Buying Cinema Tickets & Shopping	2 Years
I	Male	27	Bachelors	Employee	M-Banking	1 Year

J	Female	27	Bachelors	Manager	Shopping & Paying Bills	5 Years

Table 2. Profile of Participants

Findings

In this section, we first discuss the influence of the factors on the communication level of MC maturity. Then, we present the findings to show that after using the mobile device for communication with a positive experience, there is a great chance that such experience will influence the factors again resulting in progression to the transaction level of MC maturity. Then, we show how this transaction level of MC maturity influences these factors.

Achieving Communication level

Trust

Even though most of the respondents (Participants A-E, G-I) thought that using mobile phones for communication was a necessity, they still believed that there needs to be some level of trust to use mobile devices. These participants argued that there should be a minimum assurance that the phone is secure and free from surveillance in order to start using the phone. For examples, this quote below expresses this view:

> *"I wouldn't say it's a matter of trust. I mean it does play a part but it wasn't a major factor influencing me it was more a matter of convenience since mobile phones are more about convenience."* Participant H

Ease of use

The data analysis indicates that the participants are more inclined to use their mobile devices for texting, writing emails and browsing the Internet because they perceived them as easy to use. All the respondents continued using their mobile devices for communication activities because they were user friendly. For example, the respondent below explains this view:

> *"I'll take the example of an email, before you had to log in to big computer screens, but then you just had to use your mobile phones. So ease did really matter."* Participant F

Social Influence

The data indicates that individuals were influenced by their peers to use mobile devices for communication. All the respondents have indicated that they started using mobile phones for interacting because their friend or someone important in their social circle used these devices for the same purpose. The following quotations explain this view:

> *"Back in school, when I saw my friends using the mobile phones, that encouraged and kind of pressurized me to get a mobile."* Participant A

> *"I would say I was encouraged [by family and friends]. When you see everybody having a mobile phone, that does affect you. You get into a situation where even if you don't have one, you will make sure that you do have one."* Participant B

Relative advantage

The data indicates that participants used mobile phones because the devices were more convenient for communication purposes. All the participants argued that these mobile devices provides with them with a lot of benefits such as convenience, ease of communication and portability. This also had an influence on these participants' use of the mobile device.

"It would have been nice to have more features, but for me, if it became necessary to communicate using it, I would've had used it no matter the advantage versus cost." Participant H

Communication level of MC influence on factors

Communication level increases the level of trust

All the participants had positive experiences in using their mobile devices for communication purposes, which increased their level of trust. This increased their confidence in using such devices. The following quotes express this view:

"When I started using the mobile phones for communication, My trust was affected and it gradually increased. That led to me use my mobile for buying." Participant B

"I would say that using the mobile phones for communication did increase my trust. Whenever I sent a message, it got delivered to the right person, there were no such errors or bugs in the process. And as I used them more, I started trusting them more. This did help in my decision of moving to the transaction. And once in the transaction level, my trust grew even more. After the first transaction, when it went well, I knew I could go ahead and place my trust in others" Participant G

Communication level improves ease of use of the device

The continuous use of mobile devices for communication purposes made these participants more competent in using their mobile devices for buying and selling. As they became more used to these devices, the respondents found it easier to use them for more advanced activities. The following quote expresses this view:

"Most definitely, when all the applications came onto the surface, it made using the mobile phones for communication much more easier. Same thing goes for the applications. Since communication became all about the smart phones, I would say that definitely had a positive effect on using the mobile phones for buying and selling things." Participant A

Communication level increases the level of social influence

The use of mobile devices for communication had a positive effect on social influences. The more these respondents started using the mobile devices for communication, the more they started encouraging their peers to use them. The participants argued that they wanted their friends to use the same means of communication such as WhatsApp. The following quote expresses this view:

"... And then in time, same as my friends, I started influencing my friends to use the apps." Participant A

"I wouldn't really say that I influenced other people. But I was pretty much influenced by the people who were using the mobile phones for communications and transactions." Participant E

Communication level increases individual's perception of the relative advantage of MC

The data indicates that after using mobile phones for communication, the perceptions of the benefits of the mobile devices improved. Participants started getting a number of benefits such as ease of communication, convenience, collaboration, and reduction in communication cost.

"Communication increased my performance in terms of communicating with the people. I could chat with them in real time and reply to them quickly. I definitely saw this as an extreme benefit and this did encourage me to buy and sell using the mobile phones." Participant D

Achieving Transaction level

Trust

The data indicates that there has to be a high level of trust in order to achieve a transaction level of MC maturity. The participants argued that only when they trusted that their data, such as credit card details, personal information and order information, are secure, they would use MC.. These users would only purchase products or services from vendors that were well known and reputable such amazon.com.

> *"Transactions had to be secure [trustworthy] and it was only when I believed in the that I moved towards it."* Participant F

> *"I had to trust the application in order to use it. Otherwise, I wouldn't have had bought anything through mobile devices."* Participant A

Ease of use

All participants have indicated that ease of use is a precondition for use of mobile devices for buying products or services. Most of the respondents compared using MC with other methods such as using a Personal Computer to emphasize the importance of ease of use in making transaction.

> *"The only reason why we are doing MC [buying cinema tickets] now is because it's easy. If it was not, I would be using the old-fashioned way. So ease of use does play an important role in transactions."* Participant C

> *"If it seems difficult to perform, I would definitely just leave it and decide to see if there is a much better way rather than MC."* Participant I

Social Influence

The data analysis shows that 5 out of 10 participants indicated that they were influenced by their friends to perform transactions. These five participants (A, B, F, G and J) believed that they were encouraged to use mobile devices for buying or paying bills because of their friends. They were motivated to make transactions because their social group shared their (positive) experiences with them.

> *"A friend of mine got me started on the payment of my mobile bills through my mobile."* Participant B

> *"I saw people using mobile to pay their bills and how easy it was, I started using it as well."* Participant F

The rest of the respondents (C-E, H-I) argued that there were a two directional influence between them and their social group. These participants argued that sometimes they would influence others and other times their friends or family members would influence them to conduct transactions using their mobile devices.

> *"I wasn't really influenced when it came to communication, but my friends definitely were from me. And for transactions, I was influenced, and I did influence other people too. So yes! If a thing is beneficial, sharing it would not cost."* Participant B

> *"I would definitely recommend everyone to use the mobile phones for communication and buying and selling as well. The more I have used it, the more I have trusted it and the more convenient I have found it is. And that is why, I would and do recommend this to people."* Participant G

Relative advantage

The participants believe that these devices provide them with a lot of benefits such convenience to shop for goods, purchase tickets, pay their bills and so on. All the participants believe that using mobile phones save them time and effort as tasks can be carried out anywhere and at any time.

> *"One of the reasons which encouraged me to keep using MC was because it saved me a lot of time and efforts. Affording credit cards and smartphones was not expensive anymore and in fact, it provided me with double the advantages compared to costs."* Participant B

> *"Yes, it was an important factor. I could pay my bills without standing in the queue, I could transfer money etc. I saved costs on my time and my fuel."* Participant C

Transaction level of MC influence on factors

Transaction level positively influences the level of Trust

The data indicates that all respondents that made a purchase using their mobile devices have improved their level of trust. Since their first experience was positive, they got more confident in using MC. The following quotes support this view:

> *"When I found that it actually worked, it increased my confidence in mobile transactions and I started to trust it."* Participant A

> *When I did start using the mobile phones for transactions, I had to feel secure. And after completing transactions did also make me feel secure as well. That's why I still use it."* Participant C

Transaction level leads to an increase in social influence

The empirical evidence indicates that because these respondents had positive experiences in conducting transaction MC, they started encouraging their social group to use these technologies. These respondents would share their experiences and show others how to conduct these transactions. This effect of "I Try-I tell" lead to a growing social influence which is particularity important in eastern collective cultures such as the Arabs.

> *"I would say yes, I mean, I wasn't really influenced when it came to communication, but my friends definitely were from me. And for transactions, I was influenced, and I did influence other people too. So yeah, if a thing is beneficial, sharing it would not cost."* Participant B

Transaction level leads to higher perception of relative advantage of MC

The respondents argue that after they carried out the transactions, they were able to realize the actual benefits of using MC (e.g. saving more money) and this motivated them to perform other tasks. They explain that purchasing online has given them more opportunities to save time and money because of the accessibility and convenience that MC gives them.

> *"We used it [MC] to pay our bills and once we saw how productive it is, we started doing other things as well to get other benefits"* Participant B

Transaction level increase users' perception of ease of use

The respondents have suggested that because they had gained experience from the initial MC transactions, the subsequent transactional activities became easier than before. This helped them to continue using MC.

"Now transactions must have been easy in order for us to use them. This was a factor, and after a few transactions, I found that the process was relatively easy. This encouraged me." Participant C

"Once I went through the process and found that it was easy, I started using the mobile phones for buying and selling things more and more." Participant G

Discussion and Conclusions

The data analysis illustrates that there are certain factors that influence how individuals move from communication level of MC maturity to transaction level of MC maturity. When individuals first start using their mobile devices for communication purposes, their initial use influences their perception on trust, ease of use, social influence and relative advantage of mobile devices. This positive influence results in progressing to a transaction level of MC maturity. Then the successful use of MC for transactions could positively influence these factors and could result in more advanced MC and so on.

This research provides new insights on the concept of MC maturity. We developed a model that explains how users can progress in their maturity by taking into consideration the factors that influence their progression. In other words, we have not only defined MC maturity level but also empirically investigated how the factors could influence the progression of MC. Previous studies have examined these factors in isolation; they did not show how initial use of mobile devices can result in a more advanced use of this technology. Therefore, this study contributes to the existing literature by explaining the relationship between these factors and MC levels.

In this study, we defined two stages of maturity namely communication level, which is used for basic purposes such as texting, chatting, voice calls and browsing; and transaction level, which is related to buying products or services. We did not investigate other possible levels. Although, we considered communication level as both basic and MC communication, future studies could investigate communication as two levels. These studies could define a new level called MC communications which are related to MC activities, such as searching for products and services, and explore whether or not a user progresses to this level before reaching the transaction level.

While in this study, we developed and tested a MC adoption Maturity Model; there are a number of limitations that need to be discussed. Firstly, this is an exploratory study where participants were all from the same country, Bahrain, and most were in the transaction level (specifically buying; buying tickets for cinema, paying bills and buying basic goods online). We did not include participants from other countries and or participants that were in lower or advanced stage of maturity. As such, it is difficult to generalize the findings of this study. In addition, the study lacks reflection on selling activities in the transaction level as all participants were using MC for buying mainly. Secondly, there are many others factors such as system quality, service quality, facilitating conditions and prior experience that can be included and tested in addition to the factors in the proposed model. Thirdly, we have only empirically investigated the progression from one basic level of MC to another advanced level. We did not investigate a situation of regression, i.e., when a user regresses to lower level due to his negative perception. For example, if users have negative experiences in the transaction phase, they may decide to use their mobile devices for communication purposes only. Future studies can investigate this regression between levels of MC maturity.

Acknowledgements

REFERENCES

Agrebi, S., and Jallais, J. 2015. "Explain the intention to use smartphone for mobile shopping," *Journal of Retailing and Consumer Services* (22:1), pp. 16-23.

Ajzen, I. 1991. "The theory of planned behavior," *Organizational behavior and human decision processes* (50:2), pp. 179-211.

Ajzen, I., and Fishbein, M. 1980. *Understanding attitudes and predicting social behavior*, Englewood Cliffs, NJ: Prentice-Hall.

Aoki, K., and Downes, E. J. 2003. "An analysis of young people's use of and attitudes toward cell phones," *Telematics and Informatics* (20:4), pp. 349-364.

Arksey, H. and Knight, P. 1999. *Interviewing for Social Scientists: An Introductory Resource with Examples*, Sage.

Balasubramanian, S., Peterson, R. A., and Jarvenpaa, S. L. 2002. "Exploring the implications of m-commerce for markets and marketing," *Journal of the academy of Marketing Science* (30:4), pp. 348-361.

Becker, J., Knackstedt, R., and Pöppelbuß, J. 2009. "Developing Maturity Models for IT Management," *Business & Information Systems Engineering* (1:3), pp. 213–222.

Davis, F.D. 1989. "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology," *MIS Quarterly* (13:3), pp. 319-340.

Davis, F.D. 1993. "User acceptance of information technology: system characteristics, user perceptions and behavioral impacts," *International journal of man-machine studies* (38:3), pp. 475-487.

Deng, Z., Lu, Y., Wang, B., Zhang, J., and Wei, K. K. 2010. "An empirical analysis of factors influencing users' adoption and use of mobile services in China," *International Journal of Mobile Communications* (8:5), pp. 561-585.

De Bruin, T., Freeze, R., Kaulkarni, U., and Rosemann, M. 2005. "Understanding the Main Phases of Developing a Maturity Assessment Model," in *Proceedings of the 16th Australasian Conference on Information Systems (ACIS)*, Sydney, Australia.

Fishbein, M., and Ajzen, I. 1975. *Belief, attitude, intention, and behavior: an introduction to theory and research*, Reading, UK: Addison-Wesley Pub. Co.

Gable, G.G. 1994. "Integrating Case Study and Survey Research Methods: An Example in Information Systems," *European Journal of Information Systems* (l3:2), pp. 112-126.

Ghosh, A. K., and Swaminatha, T. M. 2001. "Software security and privacy risks in mobile e-commerce," *Communications of the ACM* (44:2), pp. 51-57.

Hong, S. J., and Tam, K.Y. 2006. "Understanding the Adoption of Multipurpose Information Appliances: The Case of Mobile Data Services," *Information Systems Research* (17:2), pp. 162-179.

Hung, S.Y., Ku, C. Y., and Chang. C. M. 2003. "Critical factors of WAP services adoption; an empirical study," *Electronic Commerce Research & Applications* (2:1), pp. 42–60.

Kao, D. 2009. "The Impact of Transaction Trust on Consumers' Intentions to Adopt M Commerce: A Cross-Cultural Investigation," *Cyber Psychology and Behaviour* (12:2), pp. 225-229.

Kumar, N., Scheer, L.K., and Steenkamp, J. 1995. "The effects of supplier fairness on vulnerable resellers," *Journal of Marketing Research* (32:1), pp. 54.

Lee, H., and Chen, T. 2014. "Perceived Quality as a key antecedent in continuance intention on Mobile Commerce," *International Journal of Electronic Commerce Studies* (5:2), pp. 123-142.

Lee, K.S., Lee, H.S., and Kim, S.Y. 2007. "Factors Influencing the Adoption Behavior of Mobile Banking: A South Korean Perspective," *Journal of Internet banking and Commerce* (12:2), pp. 1-9.

Louzi, B., and Iss, B. 2012. "Factors Influencing Customer Acceptance of M Commerce Services in Jordan," *Journal of Communication and Computer* (9:2), pp. 1424-1436.

Lu, H.P., and Su, P.Y.J. 2009. "Factors affecting purchase intention on mobile shopping web sites," *Internet Research* (19:4), pp. 442-458.

Luo, X., Li, H., Zhang, J., and Shim, J. 2010. "Examining multi-dimensional trust and multi-facet risk in initial acceptance of emerging technologies: An empirical study of mobile banking services," *Decision Support Systems* (49:2), pp. 222–234.

Malik, A., Kumara, R., and Srivastava, V. 2013. "Determinants of Consumer Acceptance of M Commerce," *South Asian Journal of Management* (20:2), pp. 102-126.

Marett, K., Pearson, A. W., Pearson, R. A. and Bergie. 2014. "Using mobile devices in a high risk context: The role of risk and trust in an exploratory study in Afghanistan," *Technology in Society* (41:5), pp. 54-64.

Mettler, T. 2011. "Maturity assessment models: a design science research approach," International *Journal of Society Systems Science* (3:1), pp. 81–98.

Mohammadi, H. 2015. "A study of mobile banking loyalty in Iran," *Computers in Human Behavior*, (44:March), pp. 35-47.

Moore, G. C., and Benbasat, I. 1991. "Development of an instrument to measure the perceptions of adopting an information technology innovation," *Information systems research*, (2:3), pp. 192-222.

Ngai, E.W.T., and Gunasekaran, A. 2007. "A review for Mobile Commerce research and applications," *Decision Support Systems* (43:1), pp. 3-15.

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), pp. 101–134.

Qualitative Data Analysis Software, Mixed Methods Research, Nvivo. 2015. [ONLINE] Available at: http://www.qsrinternational.com/products_nvivo.aspx

Rogers, E.M. 1995. *Diffusion of Innovation*, New York: The Free Press.

Sarker, S. and Lee, A. S. 2002. "Using a case study to test the role of three key social enablers in ERP implementation," *Information & Management* (1:2002), pp. 1-17.

Schepers, J., and Wetzels, M. 2007. "A meta-analysis of the technology acceptance model: Investigating subjective norm and moderation effects," *Information & Management* (44:1), pp. 90-103.

Shao Yeh, Y., and Li, Y. M 2009. "Building Trust in M Commerce: Contribution from Quality and Satisfaction," *Online Information Review* (33:6), pp. 1066-1086.

Trivedi, J. P., and Kumar, S. 2014. "Determinants of Mobile Commerce Acceptance amongst Gen Y," Journal of Marketing Management (2:2), pp. 145-163.

Wu, J. H., and Wang, S. C. 2005. "What drives mobile commerce?: An empirical evaluation of the revised technology acceptance model," *Information & management* (42:5), pp. 719-729.

Yin, R. K. 2003. *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.

Zheng, H., Li, Y., and Jiang, D. 2012. "Empirical Study and Model of User's Acceptance for Mobile Commerce in China," *International Journal of Computer Science Issues* (9:2), pp. 278-283.