J. Appl. Environ. Biol. Sci., 6(1S)36-47, 2016

ISSN: 2090-4274
Journal of Applied Environmental and Biological Sciences
www.textroad.com

Modelling Continuance Intention in Mobile Commerce Usage Activities: An Early Insight

Azyanee Luqman[1], Razli Che Razak[2], Mohammad Ismail[2], Mohd Afifie Mohd Alwi[2]

[1]Faculty of Business Management
Universiti Teknologi MARA Kelantan, Bukit Ilmu, Machang, Kelantan, Malaysia
[2]Faculty of Entrepreneurship and Business
Universiti Malaysia Kelantan, Kota Bharu, Kelantan, Malaysia

Received: January2, 2016
Accepted: February 29, 2016

ABSTRACT

This article, which is based on a preliminary study, aims to examine Malaysian consumers' continuance intention in mobile commerce usage activities by extending the Expectation-Confirmation Model (ECM). Data was gathered from 45 consumers who had prior experience using mobile commerce and analyzed using Partial Least Squares structural equation modelling (PLS-SEM) technique. Findings revealed that only satisfaction was found to be significantly related to continuance intention, explaining 68.6% of the variance. Surprisingly, perceived usefulness and personal innovativeness were found to have no significant relationships with continuance intention. Finally, limitation and suggestions for future research are also elaborated.

KEYWORDS: Mobile Commerce Usage Activities, Continuance Intention, Satisfaction, Confirmation, Perceived Usefulness, Personal Innovativeness.

INTRODUCTION

The field of customer retention in the telecommunication industry has gained much attention of late. Many agree that the ultimate goal is to obtain as many loyal customers as possible. Nonetheless, the pervasiveness of electronic commerce makes the retention of existing customers even more challenging [40]. In [33] assert that with competition just ''one-click-away'' and unaccustomed customer empowerment, the churn rate of customers is expected to increase. Apart from that, the fact that e-commerce users are bound by geographical constraint further evoke the need for mobility and broad reach of conducting e-commerce transactions ubiquitously. Since then, the world has welcomed the technology of mobile commerce.

Mobile commerce, better known as m-commerce, is undeniably one of the fastest growing technologies after the birth of the Internet. Unlike its predecessor which is e-commerce, consumers all over the world are no longer restricted by geographical constraints in order to engage in mobile commerce usage activities. The fact that mobile commerce provides ubiquity. It means that consumers can conduct transactions anytime and anywhere over wireless telecommunications networks and further boost up the number of mobile phone subscribers throughout the world.

In addition, the worldwide mobile phone users were recorded as 3 billion in 2007, more than 4 billion in 2013 and is now expected to cross 5.1 billion by 2017 [35]. A report by the International Telecommunication Union states that the number of mobile subscribers reached 6.8 billion and there were as many as 2.1 billion mobile broadband subscriptions worldwide at the end of 2013 [18]. Undeniably, mobile technology acts as a key driver for speedy information communication technology (ICT) growth in many world regions. Hence, the escalation in wireless and mobile communications worldwide has significantly changed the way individuals communicate, access and share information [38].

Surprisingly, the prevalence of mobile commerce markets in the Asian region far surpassed its counterparts in the United States and Europe. China and India both accounts for 1.854 billion mobile subscribers out of 6.835 billion mobile subscriptions worldwide [30]. Moreover, it is reported that Asian countries such as Korea, Japan, Taiwan and Singapore appear to be more mature in terms of their mobile commerce market compared to those of many other countries [46].

The impact of mobile phone technologies is vast among which are accounting for greater than ever accessibility, frequency, speed of communication [3], creating new markets and opportunities as well as change the competitive landscape of business, existing community and market structures [37]. This phenomenon has made consumers becoming more and more sophisticated in their daily life and the demand for a better mobile commerce service would increase along with their mobile commerce usage. Nevertheless, the post-adoption behavioral intention studies which include satisfaction and continuance intention in mobile context gain less attention among researchers as opposed to the pre-adoption and the actual usage studies [8].

Corresponding Author: Azyanee Luqman, Faculty of Business Management, Universiti Teknologi MARA, Bukit Ilmu, Machang, Kelantan, Malaysia. E-mail: azyanee@gmail.com

In [45] point out that in spite of tremendous attention on consumers' behavioral intentions and actual usage of mobile commerce activities, which not much research has been done on customer satisfaction and continuance intention. The focus on post-adoption or post-purchase behavior has been somewhat deserted even though there are past studies that stress on the importance of understanding the continuance intention [8, 45]. In [8] stresses that understanding the continuance intention is equally important. Mobile commerce users are unpredictable in their actions, and they may not return to the activity once they leave [25]. Therefore, attracting users and maintaining their continuance usage is crucial for the success of mobile commerce [8]. As noted in the earlier part of this section, it is vital for the companies master the art of attracting and keeping the profitable customers by increasing their satisfaction level as well as gaining their continuance usage. Hence, this research is an attempt in that direction.

Based on the above problem statement, this study attempts to investigate the following objectives:

i) To examine the relationship between consumers' satisfaction and consumers' continuance intention.
ii) To inspect the relationship among consumers' extent of confirmation, consumers' satisfaction, consumers' perceived usefulness and consumers' personal innovativeness.
iii) To determine the relationship among consumers' perceived usefulness, consumers' satisfaction and consumers' continuance intention.
iv) To determine the relationship among consumers' personal innovativeness, consumers' satisfaction and consumers' continuance intention.

LITERATURE REVIEW

Overview of Mobile Commerce

Many prominent authors and researchers in the previous studies consider mobile commerce as an extension of e-commerce, which is to a certain extent that similar to electronic commerce [10, 34]. The only difference is that mobile commerce transactions are wirelessly conducted with the use of mobile devices. However, in [11] argue that there is much more in mobile commerce than merely an extension of electronic commerce. They claim that mobile commerce has different interactions with users, usage pattern and value chain thus offering business models that are not available for electronic commerce. Apart from that, in [13] simply define mobile commerce as any transaction with monetary value that is conducted via a mobile network. On the other hand, in [42] provide a clear distinction between mobile commerce and electronic commerce by viewing mobile commerce as mobile business and expanding its scope beyond monetary transactions. This is supported by [31] and together they define mobile commerce as conducting monetary or non-monetary transaction which involves the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks with the help of an electronic mobile device.

From a practitioner's point of view, in [29] define mobile commerce as the one or two-way exchange of value facilitated by a mobile consumer electronic device (e.g. mobile handset) which is enabled by wireless technologies and communication networks. This study adopts the definition by [31, 42] as aforementioned.

In [28] categorized mobile commerce usage activities as content delivery, transactions, location-based services, emergency purposes and entertainment purposes. Apart from that, a study by [9] divides mobile commerce activities into content delivery, transactions, location-based services and entertainment. Content delivery deals with using a mobile device to search for and find information on the Internet, whereas transactions involve using a mobile device to transfer money between consumers and businesses, while location-based services involve activities such as receiving time-sensitive discount tickets and receiving personal advertisements [28]. Finally, entertainment involves using a mobile device for entertainment purposes such as playing games or listening to music [9].

Expectation-Confirmation Model

Expectation-Confirmation Model (ECM) was proposed and empirically examined by [4] in a study on online banking among American users. In [4] postulates that consumers' intention to continue their information system usage is based on three factors which are the users' satisfaction with the information system, the extent of their confirmation and their post-adoption behavior which is assessed by perceived usefulness [8]. As mobile commerce is a type of information system, many past researchers employ ECM in their continuance intention studies.

ECM has been used comprehensively to comprehend consumers' satisfaction and their post-purchasing behavior by various researchers. Unlike other technology adoption models, ECM has the ability which permits an evaluation of users' pre-adoption and post-adoption perceptions and their satisfaction with their current information system usage [8]. Nevertheless, many past studies agree that there is one thing lacking in ECM which is it excludes some commonly identified determinants [8, 16, 17, 44]. Figure 1 illustrates the original ECM.

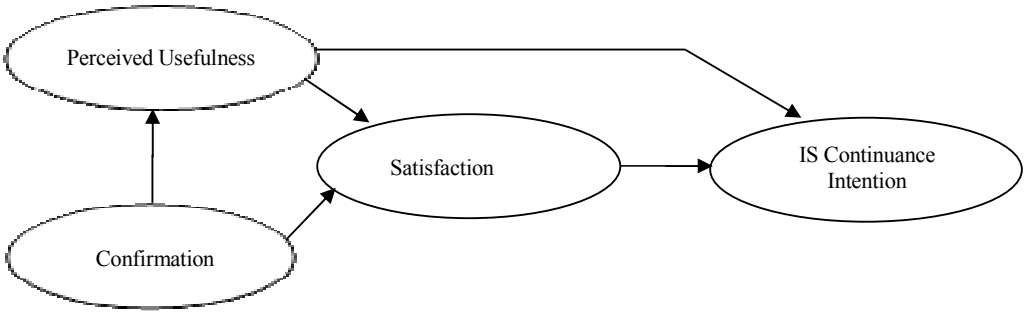

Figure 1: ECM model of information system continuance

Consumers' Continuance Intention

Consumers' continuance intention is the main dependent variable for any information system continuance intention studies. According to [4], continuance intention conveys the meaning of the users' intention to continue using the information system. Continuance intention is a post-acceptance constructs that is posited in the original ECM by [4]. As it is a construct measured after the actual usage has taken place, some studies operationalized continuance usage intention as the act of loyalty intention. Many past studies in mobile commerce found significant relationships between perceived usefulness and continuance intention as well as satisfaction and continuance intention [5, 8, 15, 16, 23, 41].

Consumers' Satisfaction

Satisfaction is defined as the users' affect with feelings about prior information system use [4]. In [16] further explain in their study that satisfaction is the positive emotional state resulting from a consumer's use of mobile advertising. ECM posits that user satisfaction is determined by two constructs such as expectation of the information system and confirmation of expectation following actual use. The expectation provides the baseline level, against which confirmation is assessed by users to determine their evaluative response or satisfaction [4].

Consumers' Confirmation

In [4] defines confirmation as the users' perception of the congruence between expectation of information system use and its actual performance. Confirmation is positively related to satisfaction with information system use because it implies realization of the expected benefits of information system use while disconfirmation (perceived performance lagging expectation) denotes failure to achieve expectation [4]. In [4] also notes that consumers' confirmation after using online banking has a positive relationship with satisfaction and perceived usefulness. Additionally, according to [8], the extent of confirmation will reinforce and positively affect the level of user satisfaction and perceived usefulness of mobile commerce service.

Perceived Usefulness

Perceived usefulness is defined by [4] as the users' perception of the expected benefits of information system. Perceived usefulness represents the post-expectation aspect in the original ECM. In [4] believes that perceived usefulness is an adequate expectation in the information system continuance context because it is the only belief that is demonstrated to consistently influence user intention across temporal stages of information system use. A study by [27] revealed that perceived usefulness significantly influences continuance intention. On the contrary, [19] found that perceived usefulness does not influence continuance intention.

Personal Innovativeness

In [1] initially consider innovativeness as a determinant of information technology acceptance. They define personal innovativeness as the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a social system. Interestingly, in [27] found that perceived user personal innovativeness serves as primary determinants of mobile commerce continuance intention among American university students. Personal innovativeness has been studied extensively in information technology adoption and it is one of the salient individual characteristics examined in technology adoption research [23].

METHODOLOGY

Respondents of this study were students who engaged in any of mobile commerce usage activities as being categorized by [9]. Questionnaires were administered to full time and part time students from two public higher institutions in Malaysia. As this is a preliminary research, it used a convenience sample approach. These respondents comprise undergraduate and graduate students registered at both universities. All respondents had

prior experience with mobile commerce. A total of 70 sets of questionnaires were disseminated at the universities. Unfinished surveys were removed from the data set, which making only 45 usable samples which gives a valid response rate of 64%.

Five constructs were measured in this research; perceived usefulness, personal innovativeness, confirmation, satisfaction and mobile commerce continuance intention. The instruments were adopted from different sources to suit the study. Items for continuance intention, satisfaction and confirmation were adapted from [4] and [8] whereas items for perceived usefulness were adapted from [8]. On the other hand, items for personal innovativeness were adapted from [1]. All items were measured on a seven-point Likert-like scale ranging from 1 (strongly disagree) to 7 (strongly agree).

The processing of the data began after all of the required data had been gathered accordingly. Prior to the analysis, central editing was conducted to ensure only complete data were included. The dataset was coded and analyzed using Statistical Package for the Social Sciences (SPSS) version 19.0. Frequency distribution analysis was used to generate a demographic sample profile. Subsequently, partial least squares (PLS) method using Smart PLS version 2.0. M3 was performed in order to substantiate the hypotheses.

Research Framework and Hypotheses

Figure 2 depicts the research framework that employs the ECM as the baseline model. In the ECM model, the following five main hypotheses are proposed:

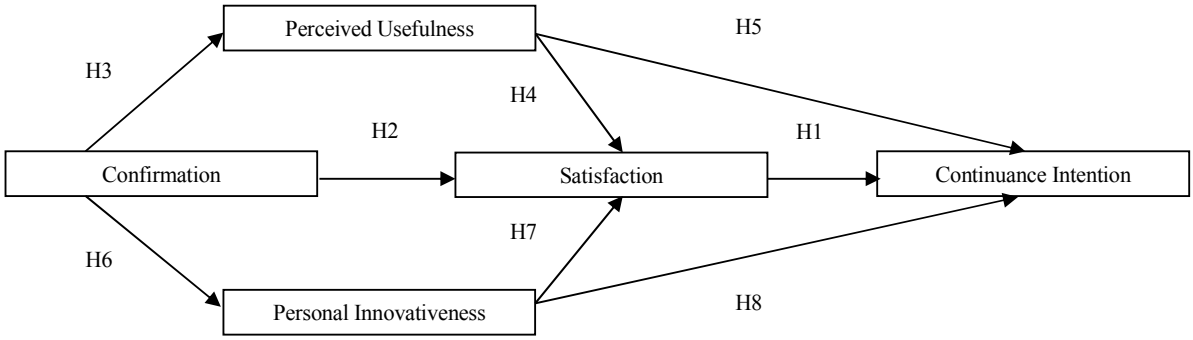

Figure 2: Research framework

H1: Consumers' satisfaction with mobile commerce positively affects their continuance intention.
H2: Consumers' extent of confirmation positively affects their satisfaction with mobile commerce.
H3: Consumers' extent of confirmation positively affects their perceived usefulness of mobile commerce.
H4: Consumers' perceived usefulness of mobile commerce positively affects their satisfaction with mobile commerce.
H5: Consumers' perceived usefulness of mobile commerce positively affects their continuance intention.

The characteristics of the individuals adopting or considering the adoption of information technology innovation also play an important role in their intention to adopt innovation [39]. Moreover, consumers' level of innovativeness would determine whether or not they would continue using the technology. On top of that, in [27] concludes that personal innovativeness and perceived usefulness significantly influence continuance intention. Hence, an individual characteristic such as personal innovativeness is added in the study. Based on the discussion, the research posits that:

H6: Consumers' extent of confirmation positively affects their personal innovativeness of mobile commerce.
H7: Consumers' personal innovativeness of mobile commerce positively affects their satisfaction with mobile commerce.
H8: Consumers' personal innovativeness of mobile commerce positively affects their continuance intention.

RESULTS

Sample Profile

Resulting from descriptive analysis, the demographic of the respondents was presented in Table 1. The majority of the age group (71.1%) is in the category of 21–25 years old. Females (73.3%) outnumber the males (26.7%). In terms of ethnicity, the majority of the respondents are Malay (97.8%). About 66.7% of the total

respondents are Bachelor degree students, followed by PhD and Master degree students with 17.8% and 13.3% respectively.

Table 1: Demographic of the respondents

No	Profile	Description	Frequency	Percentage (%)
1	Gender	Male	12	26.7
		Female	33	73.3
2	Ethnic group	Malay	44	97.8
		Others	1	2.2
3	Age category	21 – 25 years old	32	71.1
		26 – 30 years old	3	6.7
		31 – 35 years old	3	6.7
		36 – 40 years old	3	6.7
		Over 40 years old	4	8.9
4	Study programme	Diploma	1	2.2
		Bachelor degree	30	66.7
		Master degree	6	13.3
		PhD	8	17.8

Table 2: Mobile commerce usage

No	Profile	Description	Frequency	Percentage (%)
1	Mobile phone service provider	Celcom	29	64.4
		DiGi	7	15.6
		Maxis	8	17.8
		Others	1	2.2
2	Prepaid	Yes	33	73.3
		No	12	26.7
3	Postpaid	Yes	14	31.1
		No	31	68.9
4	Both prepaid and postpaid	No	43	95.6
		Yes	2	4.4
5	Mobile entertainment	Yes	16	35.6
		No	29	64.4
6	Mobile information	Yes	25	55.6
		No	20	44.4
7	Mobile coupons	Yes	3	6.7
		No	42	93.3
8	Mobile messaging	Yes	37	82.2
		No	8	17.8
9	Mobile banking	Yes	16	35.6
		No	29	64.4
10	Mobile payment	Yes	9	20.0
		No	36	80.0
11	Mobile Internet	Yes	35	77.8
		No	10	22.2
12	Others	Yes	1	2.2
		No	44	97.8
13	Mobile commerce average usage	Not at all	1	2.2
		Less than once a week	7	15.6
		About once a week	4	8.9
		2 or 3 times a week	4	8.9
		4 to 6 times a week	2	4.4
		About once a day	4	8.9
		More than once a day	23	51.1
14	Mobile commerce hours of usage in a week	Less than 1 hour	4	8.9
		1 to 5 hours	12	26.7
		6 to10 hours	6	13.3
		11 to 15 hours	7	15.6
		16 to 20 hours	3	6.7
		21 to 25 hours	3	6.7
		More than 25 hours	10	22.2
15	Mobile commerce frequency of usage	Extremely infrequent	1	2.2
		Quite infrequent	8	17.8
		Slightly infrequent	4	8.9
		Slightly frequent	9	20.0
		Quite frequent	16	35.6
		Extremely frequent	7	15.6

Table 2 tabulates the mobile commerce usage among the respondents. The majority of the respondents (64.4%) use Celcom as the mobile phone service provider with most of them (73.3%) are prepaid users. Of all mobile commerce usage activities, mobile messaging (82.2%) is the most popular activity among the respondents, followed by mobile Internet (77.8%), mobile information (55.6%), mobile entertainment and mobile banking (35.6%), mobile payment (20.6%) and mobile coupons (6.7%). About 51.1% and 26.7 % of the respondents claim to have average mobile commerce usage of more than once in a day and approximately 1 to 5 hours of usage in a week respectively. Finally, most of the respondents (35.6%) affirm that they are quite frequent in using mobile commerce in their daily life.

In order to analyze the hypotheses, Smart PLS version 2.0.M3 which is a variance based structural equation modelling (SEM) software was employed. According to [43], the arguments for selecting this method are as below:

i) PLS makes fewer demands regarding sample size than the other methods.
ii) PLS does not require normal-distributed input data.
iii) PLS is especially useful for prediction.
iv) PLS is better suited for theory development than for theory testing.

The two-step analytical procedure proposed by [2] was adopted to analyze data whereby the measurement model was initially assessed before proceeding to the structural model. Correspondingly, following the recommendation of [6], the bootstrapping routine of 200 subsamples was employed to determine the significant level of loadings, weights, and path coefficients. Figure 3 displays the research model of the study.

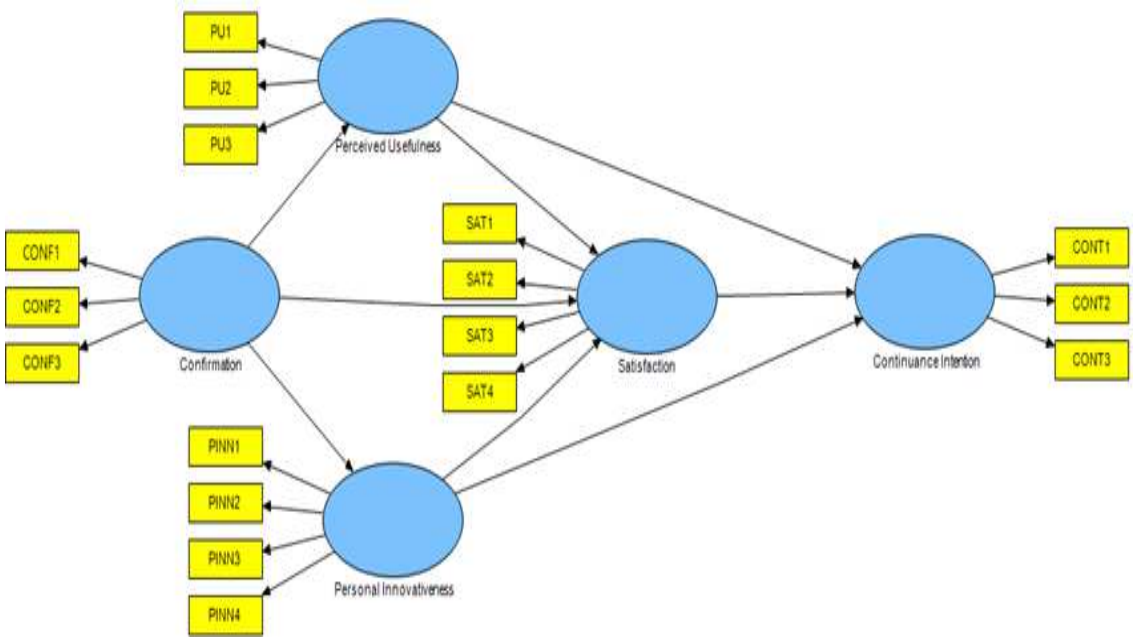

Figure 3: The research model

Measurement Model

Construct validity of a proposed measurement theory needs to be assessed before proceeding further analysis. In [14] states that construct validity is the extent to which a set of measured variables actually represents the theoretical latent construct those variables are designed to measure. Construct validity is made up of two important components namely convergent validity and discriminant validity. Both of the components need to be analyzed. Convergent validity is the extent to which indicators of a specific construct converge or share a high proportion of variance in common and it comprises three approaches which are factor loadings, variance extracted and reliability [14]. According to [14], factor loadings and the AVE of more than 0.50 and composite reliability (CR) as well as Cronbach's alpha value of 0.70 or above is deemed to be acceptable. However, as can be seen in Figure 4, item PINN3 has a factor loading of 0.286. Thus, it needs to be removed.

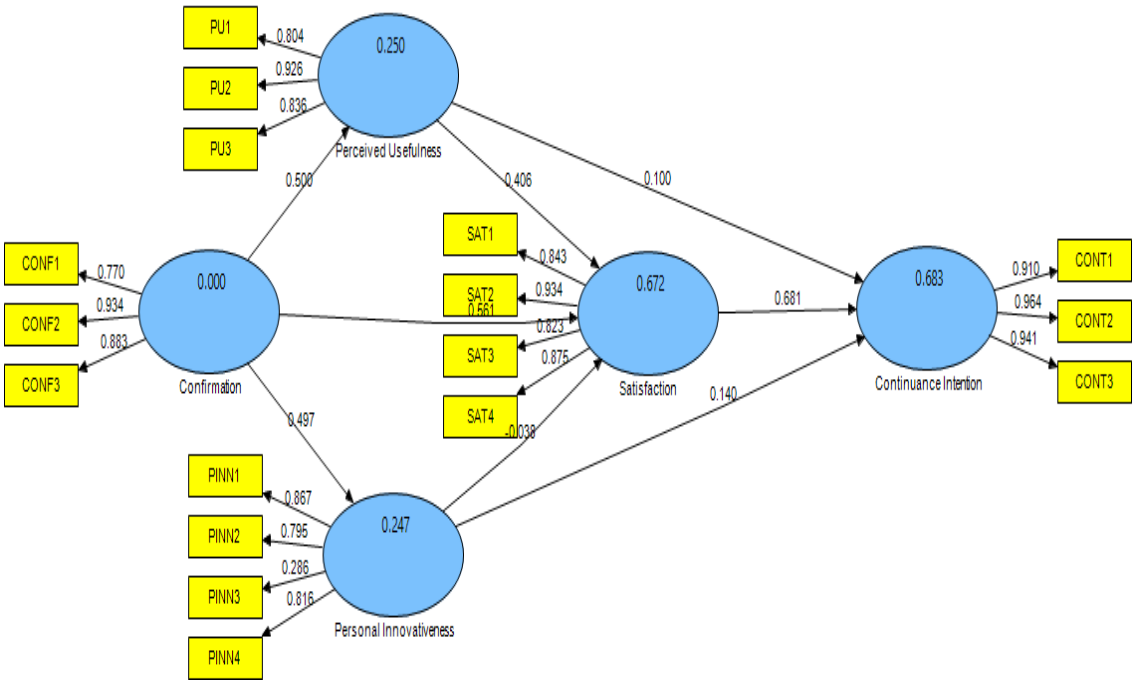

Figure 4: The measurement model

The measurement model went through the analysis again and yielded results as in Figure 5. As Table 3 displays, all loadings and AVE are above 0.50 and the composite reliability as well as Cronbach's alpha values are more than 0.70. Therefore, it can be concluded that convergent validity has been established.

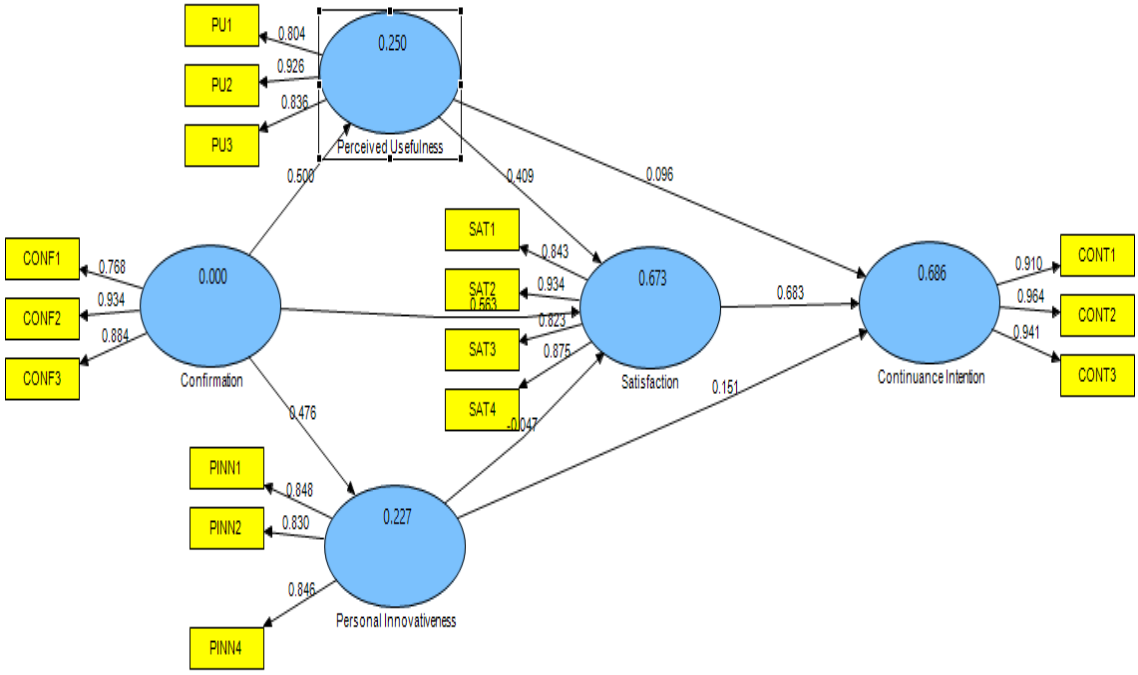

Figure 5: The respecified measurement model

Table 3: Results of convergent validity assessment

Construct	Item	Convergent Validity			
		Factor Loading	AVE	Composite Reliability	Cronbach's Alpha
Confirmation	CONF1	0.768	0.748	0.899	0.828
	CONF2	0.934			
	CONF3	0.884			
Perceived usefulness	PU1	0.804	0.734	0.892	0.816
	PU2	0.926			
	PU3	0.836			
Personal innovativeness	PINN1	0.848	0.708	0.879	0.797
	PINN2	0.830			
	PINN4	0.846			
Satisfaction	SAT1	0.843	0.757	0.925	0.892
	SAT2	0.934			
	SAT3	0.823			
	SAT4	0.875			
Continuance intention	CONT1	0.910	0.881	0.957	0.932
	CONT2	0.963			
	CONT3	0.941			

Afterward, discriminant validity was assessed. Discriminant validity is the extent to which a construct is actually different from the other constructs [14]. This can be established by the low correlations between all the measure of the interest and the measure of other constructs. To address discriminant validity, the square root of the AVE is compared against the correlations of the other constructs. Table 4 displays that discriminant validity has been established since the AVE extracted is larger than its correlations with all the other constructs [12].

Table 4: Discriminant validity of constructs

Construct	1	2	3	4	5
Confirmation	0.865	-	-	-	-
Continuance Intention	0.715	0.938	-	-	-
Perceived Usefulness	0.500	0.625	0.857	-	-
Personal Innovativeness	0.476	0.482	0.479	0.841	-
Satisfaction	0.745	0.810	0.668	0.417	0.870

Note: Diagonal represents the square root of AVE while the other entries represent squared correlations

Structural Model

The structural model represents the relationship between constructs or latent variables that were hypothesized in the research model. Figure 6 and Table 5 demonstrate the outcomes of the structural model. Satisfaction was found to be significantly related to continuance intention ($\beta = 0.683$, $p < 0.01$), thus supporting H1. Confirmation was found to be significantly related to satisfaction ($\beta = 0.563$, $p < 0.01$), perceived usefulness ($\beta = 0.500$, $p < 0.01$) and personal innovativeness ($\beta = 0.476$, $p < 0.05$) thus supporting H2, H3 and H6 of this study. Perceived usefulness ($\beta = 0.409$, $p < 0.01$) was found in this study to be significantly related to satisfaction, hence supporting H4. Contrary to expectations, there were no significant relationships between perceived usefulness and continuance intention, personal innovativeness and satisfaction as well as personal innovativeness and continuance intention. Therefore, H5, H7 and H8 are not supported.

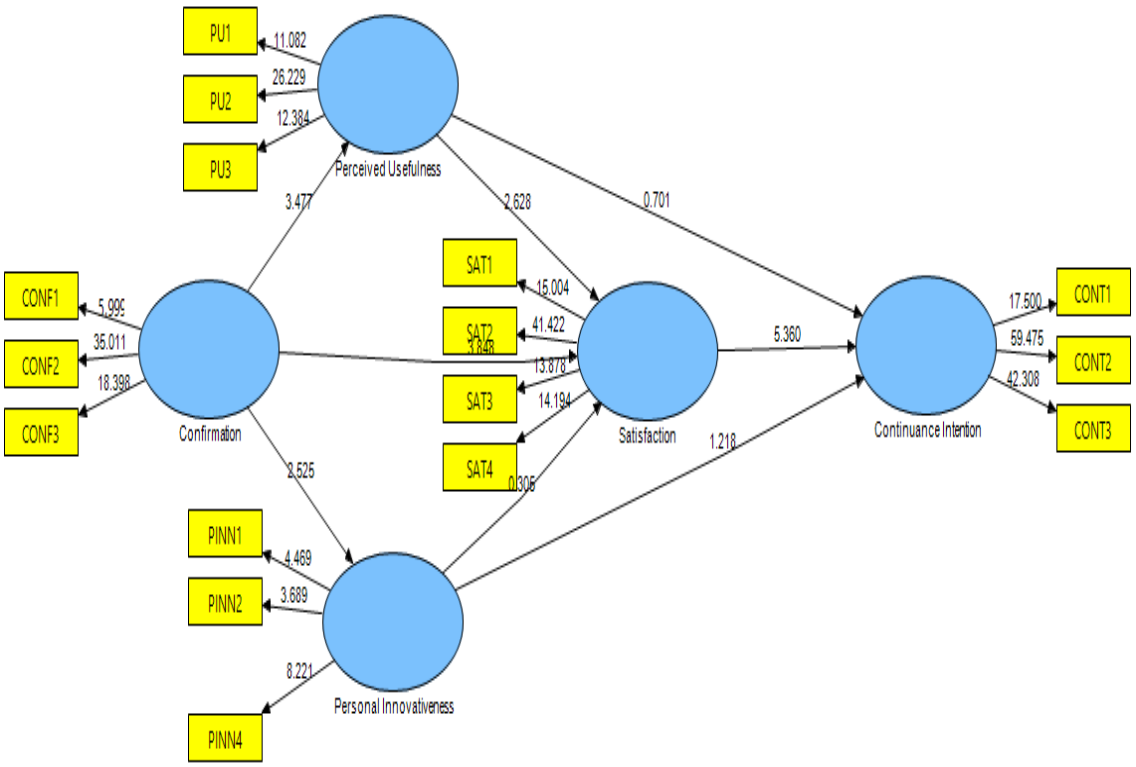

Figure 6: The structural model

Table 5: Summary of the structural model

Path	Hypotheses	Path Coefficient	Standard Error	T-Value	Results
Satisfaction -> Continuance Intention	H1	0.683	0.127	5.360***	Supported
Confirmation -> Satisfaction	H2	0.563	0.146	3.848***	Supported
Confirmation -> Perceived Usefulness	H3	0.500	0.144	3.477***	Supported
Perceived Usefulness -> Satisfaction	H4	0.409	0.156	2.628***	Supported
Perceived Usefulness -> Continuance Intention	H5	0.096	0.136	0.701	Not supported
Confirmation -> Personal Innovativeness	H6	0.476	0.189	2.525**	Supported
Personal Innovativeness -> Satisfaction	H7	-0.047	0.154	0.305	Not supported
Personal Innovativeness -> Continuance Intention	H8	0.151	0.124	1.218	Not supported

***p < 0.01, **p < 0.05

The goodness of the structural model is established by the variance explained (R^2) of the endogenous constructs and the significance of all path estimates [7]. Referring to Table 6, the structural model explains 68.6% of the variance in continuance usage intention. On top of that, based on the path coefficient results in Table 5, it is discovered that satisfaction mainly predicts continuance usage intention whereas confirmation largely predicts satisfaction.

Table 6: The variance explained (R^2) of the endogenous constructs

Construct	AVE	R^2
Continuance intention	0.881	0.686
Satisfaction	0.757	0.673
Perceived usefulness	0.734	0.250
Personal innovativeness	0.708	0.227

DISCUSSION

The objectives of this study were to examine the relationships among confirmation, perceived usefulness, personal innovativeness, satisfaction and the influence of perceived usefulness, personal innovativeness and satisfaction on the continuance intention of mobile commerce usage activities. Findings revealed that confirmation and perceived usefulness have positive associations with consumers' satisfaction whereas satisfaction significantly affects continuance intention. The result of this study is comparable to the study by [8, 16, 21] whereby those studies found significant relationships among confirmation, perceived usefulness, satisfaction and continuance intention in mobile commerce usage.

Additionally, the findings of the study are also in line with previous researches on the other information system continuance intention. In [36] found a significant relationship among perceived usefulness, confirmation, satisfaction and continuance intention in a study on electronic tax filing continuance intention. Other studies that have established strong positive effects of satisfaction on the continuance intention include [20, 22, 24, 26, 32], which further corroborate the findings of this study.

Interestingly, confirmation of expectations among mobile commerce consumers has a significant relationship with their personal innovativeness. It simply means that when a consumer's expectation of mobile commerce usage activities matches its actual performance, the consumer is likely to explore and venture more into the use of mobile commerce activities. This is in accordance with the statement by [39], which corresponds that the characteristics of the individuals adopting or considering the adoption of information technology innovation also play a vital role in their intention to adopt an innovation.

An unanticipated finding was that perceived usefulness does not show any significant relationship with continuance intention. This result mirrors that of the previous study by [19]. Nevertheless, it differs from the findings of a great deal of the previous work in this field (5, 8, 15, 16, 21, 41]. One possible explanation for this may be the lack of adequate sample size employed in this research.

It was somewhat surprising that no significant relationships were seen among personal innovativeness, satisfaction, and continuance intention. This finding contradicts with a study conducted by [27] whereby the author found that personal innovativeness significantly influences continuance intention. This discrepancy could be attributed to the fact that this study focuses on post-adoption of a technology. Even though personal innovativeness has been studied extensively in information technology adoption and it is one of the salient individual characteristics examined in technology adoption research [23], in [39] assert that during the later stage of technology adoption, an individual characteristic such as personal innovativeness is not likely to be influential because non technology adopters may not be as innovative as the innovators and early adopters. Therefore, personal innovativeness may not influence a user to either continue or discontinue using a technology.

The model embraced in this study indicates that consumers' satisfaction with mobile commerce usage activities describes approximately 68.6% of the variance in mobile commerce continuance intention. This result verifies that the enhanced model of ECM has reasonably good predictive power on continuance intention.

CONCLUSION AND RECOMMENDATIONS

Irrespective of the valuable discoveries of this pilot study, there are several limitations that need to be acknowledged. First, being a preliminary study, the sample size was only limited to 45 respondents. Second, this research used convenience sampling approach. Third, there is a possibility that additional adoption factors have not been included in this study. Finally, the results cannot be generalized lengthily in Malaysia as the scope of the study is only narrow to university students. As such, caution needs to be taken when generalizing to the population of the whole country. For that reason, this research can be improved further in the future by increasing the number of sample size by using a random sampling approach which incorporating other relevant variables based on the latest literature suggestions, and collecting data from general mobile commerce users.

In this preliminary study, it was found that satisfaction is the significant predictor of continuance intention in mobile commerce usage activities. Perceived usefulness and confirmation of expectations were found to be significantly related to satisfaction. Thus, mobile commerce industry players must emphasis on improving the satisfaction of the consumers which can be achieved by maintaining connectivity, connection speed, privacy, security and confidentiality of the data transmitted wirelessly, to name just a few.

REFERENCES

1. Agarwal, R. and J. Prasad, 1998. A Conceptual and Operational Definition of Personal Innovativeness in the Domain of Information Technology. Information System Research, 9 (2): 204-216.
2. Anderson, J.C. and D.W. Gerbing, 1988. Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach. Psychological Bulletin, 103 (3): 411-423.

3. Balasubramanian, S., R.A. Peterson and S.L. Jarvenpaa, 2002. Exploring the Implications of M-Commerce for Markets and Marketing. Journal of Academy of Marketing Science, 30 (4): 348-361.
4. Bhattacherjee, A., 2001. Understanding Information Systems Continuance: An Expectation-Confirmation Model. Management Information Systems Quarterly, 25 (3): 351-370.
5. Chen, L., T.O. Meservy and M. Gillenson, 2012. Understanding Information Systems Continuance for Information-Oriented Mobile Applications. Communications of the Association for Information Systems, 30 (9): 127-146.
6. Chin, W.W., 1998. Commentary: Issues and Opinion on Structural Equation Modeling. Management Information Systems Quarterly, 22 (1): 7-16.
7. Chin, W.W., 2010. How to write up and report PLS analyses. In: Handbook of Partial Least Squares: Concepts, Methods and Applications (ed V.E. Vinzi) pp. 655-689. Springer, Berlin.
8. Chong, A.Y.-L., 2013a. Understanding Mobile Commerce Continuance Intentions: An Empirical Analysis of Chinese Consumers. The Journal of Computer Information Systems, 53 (4): 22-30.
9. Chong, A.Y.-L., 2013b. Mobile Commerce Usage Activities: The Roles of Demographic and Motivation Variables. Technological Forecasting and Social Change, 80 (7): 1350-1359.
10. Chong, A.Y.-L., F.T.S. Chan and K.-B. Ooi, 2012. Predicting Consumer Decisions to Adopt Mobile Commerce: Cross Country Empirical Examination between China and Malaysia. Decision Support Systems, 53 (1): 34-43.
11. Feng, H., T. Hoegler and W. Stucky, 2006. Exploring the critical success factors for mobile commerce. In the Proceedings of the 2006 IEEE International Conference on Mobile Business, pp: 40.
12. Fornell, C. and D.F. Larcker, 1981. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. Journal of Marketing Research, 18 (1): 39-50.
13. Goi, C.-L. and P.-Y. Ng, 2011. Perception of Young Consumers on Mobile Phone Applications in Malaysia. World Applied Sciences Journal, 15 (1): 47-55.
14. Joseph F. Hair, William C. Black, Barry J. Babin, Rolph E. Anderson and Ronald L. Tatham, 2010. Multivariate data analysis. Pearson Prentice Hall.
15. Hong, S., J. Thong and K. Tam, 2006. Understanding Continued Information Technology Usage Behavior: A Comparison of Three Models in the Context of Mobile Internet. Decision Support Systems, 42 (3): 1819-1834.
16. Hsiao, W.H. and T.S. Chang, 2014. Understanding Consumers' Continuance Intention towards Mobile Advertising: A Theoretical Framework and Empirical Study. Behaviour & Information Technology, 33 (7): 730-742.
17. Hung, M.-C., S.-T. Yang and T.-C. Hsieh, 2012. An Examination of the Determinants of Mobile Shopping Continuance. International Journal of Electronic Business Management, 10 (1): 29-37.
18. International Telecommunication Union, 2013, ICT facts and figures. Retrieved from http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013.pdf.
19. Kim, B., M. Kang and H. Jo, 2014. Determinants of Post-Adoption Behaviors of Mobile Communications Applications: A Dual-Model Perspective. International Journal of Human-Computer Interaction, 30 (7): 547-559.
20. Kim, D. and C. Steinfield, 2004. Consumers Mobile Internet Service Satisfaction and Their Continuance Intentions. In the Proceedings of the 2004 10th Americas Conference on Information Systems, pp: 2776-2780.
21. Kim, H.J., H. Choi and J. Kim, 2010. A Comparative Study of the Effects of Low and High Uncertainty Avoidance on Continuance Behavior. Journal of Global Information Management, 18 (2): 1-29.
22. Kim, H., I. Lee and J. Kim, 2008. Maintaining Continuers vs. Converting Discontinuers: Relative Importance of Post-Adoption Factors for Mobile Data Services. International Journal of Mobile Communications, 6 (1): 108-132.
23. Kwon, O., K. Choi and M. Kim, 2007. User Acceptance of Context-Aware Services: Self-Efficacy, User Innovativeness and Perceived Sensitivity on Contextual Pressure. Behaviour & Information Technology, 26 (6): 483-498.
24. Lee, M.C., 2010. Explaining and Predicting Users' Continuance Intention toward E-Learning: An Extension of the Expectation-Confirmation Model. Computers & Education, 54 (2): 506-516.
25. Lin, C.S., S. Wu and R.J. Tsai, 2005. Integrating Perceived Playfulness into Expectation-Confirmation Model for Web Portal Context. Information & Management, 42 (5): 683-693.
26. Lin, Y.M. and D.H. Shih, 2008. Deconstructing Mobile Commerce Service with Continuance Intention. International Journal of Mobile Communications, 6 (1): 67-87.
27. Lu, J., 2014. Are Personal Innovativeness and Social Influence Critical to Continue with Mobile Commerce? Internet Research, 24 (2): 134-159.
28. Mahatanankoon, P., H.J. Wen and B. Lim, 2005. Consumer-Based M-Commerce: Exploring Consumer Perception of Mobile Applications. Computer Standards & Interfaces, 27 (4): 347-357.
29. Mobile Marketing Association, 2013, Mobile commerce. Retrieved from http://www.mmaglobal.com/wiki/mobile-commerce.

30. MobiThinking, 2013, Global mobile statistics 2013. Retrieved from http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats/a.
31. Khalifa, M., S.K. Cheng and K.N. Shen, 2012. Adoption of Mobile Commerce: A Confidence Model. Journal of Computer Information Systems, 53 (1): 14-22.
32. Ng, E.H. and K.Y. Kwahk, 2010. Examining the Determinants of Mobile Internet Service Continuance: A Customer Relationship Development Perspective. International Journal of Mobile Communications, 8 (2): 210-229.
33. Peng, J., J. Quan and S. Zhang, 2013. Mobile Phone Customer Retention Strategies and Chinese E-Commerce. Electronic Commerce Research and Applications, 12 (5): 321-327.
34. R. Kelly Rainer and Casey G. Cegielski, 2013. Introduction to information systems. John Wiley & Sons, pp: 228.
35. Richter, F., 2013, 5 billion people to use mobile phones by 2017. Retrieved from http://www.statista.com/markets/15/topic/122/landlines-cell-phones/chart/1517/worldwide-mobile-phone-users/.
36. Santhanamery, T. and T. Ramayah, 2014. Explaining the e-government usage using expectation confirmation model: The case of electronic tax filing in Malaysia. In: Government E-Strategic Planning and Management (eds L.G. Anthopoulos and C.G. Reddick) pp. 287-304. Springer, New York.
37. Stewart, D.W. and A. Pavlou, 2002. From Consumer Response to Active Consumer: Measuring the Effectiveness of Interactive Media. Journal of the Academy of Marketing Science, 30 (4): 376-396.
38. Sultan, F., A.J. Rohm and T. Gao, 2009. Factors Influencing Consumer Acceptance of Mobile Marketing. Journal of Interactive Marketing, 23 (4): 308-320.
39. Sun, Y. and A. Jeyaraj, 2013. Information Technology Adoption and Continuance: A Longitudinal Study of Individuals' Behavioral Intentions. Information & Management, 50 (7): 457-465.
40. Jahromi, A.T., M.M. Sepehri, B. Teimourpour and S. Choobdar, 2010. Modeling Customer Churn in a Non-Contractual Setting: The Case of Telecommunications Service Providers. Journal of Strategic Marketing, 18 (7): 587-598.
41. Thong, J., S. Hong and K. Tam, 2006. The Effects of Post-Adoption Beliefs on the Expectation-Confirmation Model for Information Technology Continuance. International Journal of Human-Computer Studies, 64 (9): 799-810.
42. Tiwari, R. and S. Buse, 2007. The mobile banking prospects: A strategic analysis of mobile commerce opportunities in the banking sector. University Press Hamburg.
43. Urbach, N. and F. Ahlemann, 2010. Structural Equation Modeling in Information System Using Partial Least Square. Journal of Information Technology Theory and Application, 11 (2): 5-40.
44. Valvi, A.C. and D.C. West, 2013. E-Loyalty Is Not All About Trust, Price Also Matters: Extending Expectation-Confirmation Theory in Bookselling Websites. Journal of Electronic Commerce Research, 14 (1): 99-124.
45. Varnali, K. and A. Toker, 2010. Mobile Marketing Research: The-State-of-the-Art. International Journal of Information Management, 30 (2): 144-151.
46. Zhang, L., J. Zhu and Q. Liu, 2012. A Meta-Analysis of Mobile Commerce Adoption and the Moderating Effect of Culture. Computers in Human Behavior, 28 (5): 1902-1911.