Determinants of Continuous Use of Mobile Money Payment Systems in Ghana

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ABSTRACT

This study examines the effect of user's satisfaction on post-acceptance behaviour of mobile money users. Specifically, the paper identifies satisfactory factors and further examines the relationship between satisfaction and continuous use of mobile money application at the post-acceptance phase. Data was collected from 696 mobile phone users who had subscribed to mobile money services. Partial least squares (PLS) (Smart PLS 3.0) were used to analyse the collected data to test proposed hypotheses.

This study revealed that users' satisfaction is a significant factor that influences their intentions to continue to use mobile money services. The results indicated that users' satisfaction is strongly influenced by confirmation and perceived usefulness which in turn significantly impact on continuous use of mobile money applications. Also, perceived security and privacy exert significant impact on users satisfaction. It was noted that charges and fees were insignificant but positively related to users' intentions to continue to use mobile money applications.

The findings have implications on both telecommunication firms and policy makers as they offer practical guidelines in developing strategies to ensure continuous use of mobile money applications/ services as we improve upon financial inclusion in Ghana in particular and Africa in general. This study therefore fills the gap in the post-adoption stage of mobile money usage and further use in Ghana.

Keywords: *Mobile Money Payment, Expectation Confirmation Theory, Continuance Use*

Introduction

Over the years, several countries have experienced growth in financial innovations which have had implications on monetary policy. Though various technologies have been introduced over the centuries, one technology that has revolutionised the world and has particularly penetrated the lifestyles of consumers is the mobile phone technology (Jack and Suri, 2010). Mobile Money Transfer (MMT) technology has gained and continues to become vital in day-to-day transactions among both the banked and unbanked populations in several developing countries (Ismail Sheikh Yusuf Ahmed, 2017). The gaining of prominence of the application (technology) among low and middle income classes has been necessitated by the ease at which individuals and businesses are able to do financial transactions (buying, selling, payment of bills, sending and receiving money) in a timely and reliable manner.

In Ghana, mobile money transfer services introduced by the telecommunication companies have received a high acceptance level considering the rate at which people subscribe to the application, especially since 2015. Most small and medium sized enterprises, including those that utilise social media platforms to advertise their wares rely on MMT.

MMT has been identified as one of the many tools to enhance financial inclusiveness. In our part of the world where we have uneducated majority predominantly in rural communities, access to traditional banking is a challenge. In recent times, challenges faced by most of the financial institutions in Ghana deter people to save with them. These developments may inadvertently widen the unbanked ratio and make Mobile Money service a preferred alternative. However, research has shown that the kind of experience people get after initial use of an application will determine whether they will continue with the use. It is therefore imperative to conduct a search into the post-adoption intentions of mobile money users.

Previous studies centered on factors that contribute to the acceptance of electronic applications including mobile money transfer, but not much is seen about the post-adoption behaviour of users, especially mobile money users. The few post-adoption studies considered users' savings and spending behaviour. However, the current study seeks to extend previous studies by examining the factors that influence existing mobile money users' decision to continue using the application.

The rest of this paper is structured as follows: section two discusses related and relevant literature and section three outlines the research model and hypotheses of the study. The fourth section covers the sample size and data collection including measurement development of data collection instrument. Section five presents data analysis and results and section six discusses the results and presents research implications, limitations of the study and directions for future research.

Literature Review

Theoretical background of our study is developed with the literature review of the concepts and definitions of mobile money payments systems, technology acceptance theories, mobile payment adoption and continuous use. Based on reviewed literature and theories, the research hypotheses were consequently developed.

Concepts and definition of mobile money payments systems

In the midst of carrying out commerce electronically, electronic payment systems have grown steadily as they give room for both offline and online trade transactions through mobile money transfer services and payments. Businesses across the globe have witnessed advancement in electronic payment instrument purposely to facilitate trade and simplify payment. However, in Ghana, the payment system which has been commonly used for financial transactions for decades is the cash payment system. The quest to move into an era whereby people can easily carry out business transactions electronically without delay and stress cannot be overemphasised. The electronic way of making payment or carrying out other forms of transactions brings about mobile payments systems, including the mobile money transfer.

According to Zika (2005), a mobile payment is an electronic payment made through a mobile device: a cell phone or a Personal Digital Assistant (PDA). This uses a mobile electronic device to initiate and confirm electronic payment. In the field of payments, mobile phones opportunity is seen in the embedded SIM (smart) card used to store information of users.

Mobile Money Transfer (MMT) is the use of a cell phone as an electronic wallet (e-wallet) that allows individuals to transfer purchasing power by simple short messaging services (SMS) technology and to store value inside through 'cash-in' and 'cash-out' functions. Mobile money allows users to deposit funds for free while withdrawals are taxed. It typically allows four types of basic transactions: (i) cashing-in at a mobile money agent outlet (i.e., exchanging physical cash for e-money usable on the cell phone); (ii) transferring e-money to another cell phone number; (iii) paying for products or services at shops taking e-money; and (iv) cashing-out (i.e. exchanging e-money for physical money at an agent outlet).

Mobile money comes with unique features and this gives it an advantage over other electronic forms of service delivery such as ATM. The edge that this system has includes: ubiquity, affordability, fastness, safety and security through a Personal Identification Number (PIN). It ensures that users have convenient access to cash in/out options and to convert their cash into electronic money and vice versa.

Theories of Adopted Technology Acceptance and Continuous Intention to use Technology

Many researchers in technology behavioural intention and continuous use studies have employed various theories and models. Among these theories include the Expectation Confirmation Theory (ECT) and Information Systems Success Model. These theories are widely accepted as appropriate in examining the post acceptance behavioural intention and continuous use of innumerable technologies including mobile money transfer and/or payments systems and in some cases mobile banking services. Additionally, in information system (IS) literature, Expectation Confirmation Model (ECM) has been adopted as a post-acceptance model to study the dynamics of user beliefs and attitudes in technology use and re-use (Bhattacherjee, 2001b). ECM allows a comparison of users' pre-adoption and post-adoption perceptions and their satisfaction with their current IS usage (Chong, 2013b). Bhattacherjee posits that consumers' intention to continue their IS usage is based on three factors which are the users' satisfaction with the IS, the extent of their confirmation and their post-adoption behaviour which is measured by perceived usefulness (Chong, 2013b).

This study therefore adopts the extended ECT proposed by Bhattacherjee (2001). Perceived security, privacy and charges and fees were also introduced to help to produce a deep understanding of the continuous use or otherwise of a new technology such as mobile money transfer or payment system. Specifically, perceived usefulness, confirmation, user satisfaction, security, privacy and charges and fees are considered in the current

study because of their analyses for explaining user satisfaction and continuous intention to use mobile money payments systems.

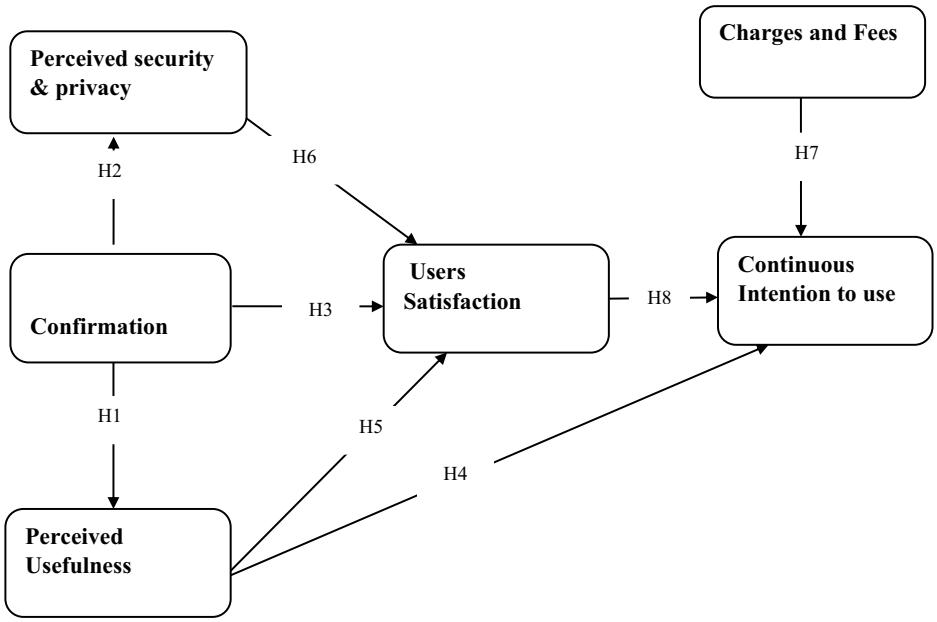
In mobile money transactions, the involvement of individual sensitive and financial information persists so security and privacy issues are of major concern to users. In view of the above, perceived security and privacy are added to the ECM model to avoid the possibility of security concerns becoming a barrier to technology adoption as posited by Duane, O›Reilly, & Andreev (2014). The researchers were of the opinion that when users have good perception towards the security and privacy condition of mobile money transfer and payment systems, they will have higher affective evaluation of the service and continuously decide to use the system.

Again, it was realised that payment through mobile money was not the only way users could make payments for products and services or receive or send money, hence the charges and fees associated with the use of the service was critical in making a decision involving the re-use of the service. These two constructs, security and privacy and charges and fees were added to the original model as they appear to have influence on continuous use of MMT.

Research Model and Hypotheses Development

The research model attempts to extend the ECM, which was developed on internet banking (Bhattacherjee, 2001a) in the context of mobile money payment system. Bhattacherjee and Premkumar, (2004) and Oghuma et al., (2015) have established the strength of the application of ECM in their studies in post-adoption behaviour. We added perceived security and privacy and charges and fees to the original ECM variables of perceived usefulness, satisfaction, continuous intention and confirmation. The research model examined in this study is shown in figure 1.

Figure 1: Proposed Research Model by the researchers



Confirmation

The expectation one holds towards a product or a service is an important factor in Expectation Disconfirmation Theory (EDT). In mobile money application, poor network coverage, merchants' inability to meet users request for cash-in and cash-out coupled with delays in sending and receiving cash can significantly affect customers' expectations in the use of the service and reduce one's satisfaction in using the service. As posited by Lederer et al., (2000), accuracy and timeliness is required in this operational environment

In ECM, attitudes and beliefs experienced after a product or service has been used is an important facet of perceived usefulness (Bhattacherjee, 2001b). Expectations of customers after using a product or a service can influence their satisfaction levels and intention of future reuse. In considering one of the drivers in measuring users' satisfaction and continuous use within the mobile money industry, the contribution of expectation can never be ignored. Expectation plays an important role in consumption behaviour studies (Aries Susanto, Younghoon Chang and Youngwook Ha, 2016). Also, Bhattacherjee, 2001b; Bhattacherjee and Premkumar, 2004; and Oghuma et al., 2015b utilised expectation to assess performance.

In the view of Oliver (1980) cited in Susanto et al. (2016), satisfied consumers will have higher likelihood to repurchase the products or services in the future. As a result, a dissatisfied consumer will avoid using the products or services again in the future. We therefore hypothesise that:

H1: Confirmation has a positive effect on Perceived Usefulness

H2: Confirmation has a positive effect on perceived security & privacy

H3: Confirmation has a positive effect on users' satisfaction

Perceived Usefulness

Perceived Usefulness (PU) is defined as the extent to which users consider the use of a system as a precursor job performance enhancement which positively influences their intention to use that system (Chen et al., 2007). Indeed, perceived usefulness has been identified as a predictor of consumer satisfaction in a mobile commerce context by Lee and Jun (2007). Similarly, Detlor et al., 2013 concluded in their studies that PU is a factor which significantly influences initial and continuous usage. Empirically, many researchers (see Kulkarni et al., 2006; Rai et al., 2002; Leclercq, 2007; Wang, 2008) have established that one antecedent of satisfaction is perceived usefulness. Similarly, Bhattacherjee, (2001b) indicated that it has an effect on user perception about satisfaction at acceptance stage and/or post-acceptance stage. Venkatesh et al., (2011), in support of Bhattacherjee (2001b), concluded that it wields valuable impact on continuous use of IS. For the purpose of this research, PU is defined as the overall measurement and awareness on the part of mobile money users and the ability to transfer money or do transaction with mobile phones.

Perceived usefulness has been reported to affect continuous use of mobile money applications. Several other studies (Chen et al., 2002; Lu et al., 2010; Shin et al., 2010; Sujeet and Srikrishna, 2014) have also reported perceived usefulness as significant on intention of usage by consumers. From the aforementioned, it can be inferred that higher satisfaction influences users to stay on to reuse a particular product or service. It is therefore hypothesed as:

H4: Perceived Usefulness has a positive effect on continuous use of mobile money system

H5: Perceived Usefulness has a positive effect on users' satisfaction

Perceived Security and Privacy

Privacy, is the ability of individuals to control when, how and to what extent their personal information is exchanged with and used by others (Wang et al. 2014). The user's perception of the mobile money transfers security and privacy in relation to the potential risk of unauthorised and misuse of personal information disclosure (Xu et al. 2011)

to parties who may use the information to dupe them may judge ones' satisfaction and continuous use. Hanafizadeh et al., (2014b) posited that users rationally may anticipate security controls which ultimately influence their satisfaction level and continual use of smartphone banking services. To deepen our understanding of privacy protection in mobile money payment system, a research is desired. As a result, we state that:

H6. Perceived security and privacy significantly influence users' satisfaction

2.5.4 Charges and fees

Price value, which includes charges and fees, is defined as perceived costs of using mobile services such as mobile money services, including transfer charges etc. (Hyunjeong Kang , Min Jae Lee & Jin Kyu Lee, 2012). Charges and fees are noticeable in mobile transfers as users are always charged transaction fees. As a result, the customer perception on the price can form the base line of one's satisfaction. High prices can be an obstacle for retaining existing users (Funk 2000; Kim and Kim 2003) and can discourage them from using mobile payment (Mallat, N., 2006). Owing to the above, if the charges and fees on mobile money transfer/ transaction are relatively cheaper as compared to banks (Omwansa, 2009), it may lead to a decision to continue the use of mobile payment. The hypothesis therefore is that:

H7: Charges and fees (CF) have a negative effect on continuous use

User satisfaction and continuous use

In Information System research, continuous use is described as the degree to which customers are ready to continue to use IS (Bhattacherjee, A. 2001). Kang et al. (2012) supported the relationship between users' satisfaction and continuous use, by revealing their studies that existing users of mobile banking will continue to use the application only when they perceive the service as valuable to them. It is widely recognised in marketing literature that user satisfaction with a product/service influences attitudinal and behavioural loyalty (Andreassen and Lindestad, 1998; Anderson and Srinivasan, 2003; Hallowell, 1996). The extent of one's level of satisfaction determines the continuous use of the service/product (Anderson and Srinivasan (2003). Bhattacherjee (2001) in supporting these views elaborated that existing users of IS will intend to continue to use the IS more, as long as their expectations are met - a position other researchers have confirmed in their studies in mobile and telecommunications service (Lee et al., 2001; Seo et al., 2008); and online-shopping (Khalifa and Liu, 2007). Judging from IS research perspective, customers consistently use a product/ service based on the satisfaction they derive from using the service or product. Built from IS usage research, our study hypothesis is:

H8: Users satisfaction has a positive effect on continuous use

Research Methodology

Population, Sampling Design and Data Collection

Our target population for the study consisted of all mobile money users located in three major cities in Ghana – Accra, Kumasi and Takoradi. A combination of convenience and purposive non-probability sampling methods were used in the study.

The authors, with the support of two teaching assistants, administered eight hundred and sixteen (816) questionnaires to the respondents in the three major cities selected. A total of two hundred and

seventy-two (272) respondents from each of the selected cities were sampled using convenience and purposive sampling approach. The decision to select these cities as study area was grounded on the fact that they are the three major cities in Ghana with vibrant economic activities which may necessitate regular transfer/receipt of money from workers and business owners to their dependents or customers. It is worth noting that only mobile money users were considered in this study.

Our research instrument was pre-tested among one hundred and twenty (120) users who had had mobile payments experience. The comments they expressed compelled us to accordingly revise some of the measurement items in order to improve upon clarity.

The process of distribution and collection of the questionnaire lasted for one month (1st November to 30th November, 2018). The responses obtained were comprehensively scrutinised to identify those that might affect the results of the study. In achieving that, responses with too many missing values were dropped. In the end, six hundred and ninety-six (696) out of the total of eight hundred and sixteen (816) questionnaires were considered valid and used for the analysis. This gives a response rate of approximately 85.3%.

Of the six hundred and ninety-six (696) respondents, 57.2% of them were female and 42.8% were male. Two hundred and two (202) were aged between 18-30 years old, three hundred and eleven (311) between 31-40 years old and one hundred and eighty-eight (183) were above the age of 40 years. Among the 696 respondents, 45% had mobile money usage experience of more than 5 years while 19.4% and 35.6% of them had 1-2 and 2-4 years' experience respectively. 65% of the respondents use MTN mobile money, 21% use Airtel money and Tigo cash and 14% use Vodaphone cash.

Data analysis and results

The Partial Least Square (PLS) method was used to analyse the collected data. Researchers use the PLS methods to assess behaviour intentions and continuous use of mobile payments and mobile banking services in their studies. This is because the PLS method is purported to offer the best measurement of causal relationships (Hair, Ringle & Sarstedt, 2011).

Development and Measurement of the Constructs for the Study

The model for the study comprises of six factors, namely: perceived security and privacy, confirmation, perceived usefulness, charges and fees, users' satisfaction and continuous intention use. The measurement items for this study were adopted from different sources and modified to suit the study. The items measuring perceived usefulness and charges and fees were adopted from Venkatesh et al. (2012) and Belanger and Carter (2008); items for perceived security and privacy were adopted from Cheng et al. (2006). Those for continuous intention use were adopted from Bhattacherjee (2001), Lee (2010) and Chong (2013b) and those for confirmation came from Bhattacherjee (2001b) and Kim et al. (2009). Measurement items for satisfaction were adopted from Bhattacherjee (2001) and Chong (2013b). A five point likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used to measure all items.

The researchers used the adopted measurement items from existing literature to ensure an improved content validity. The items adapted were modified where applicable, during the pre-testing stage to fit the specific context of our study.

Results and Analysis

Measurement Model

In assessing the measurement model, we conducted reliability, convergent validity and discriminant validity tests.

The reliability of the constructs which measures the internal consistency of all the indicators in the constructs, was determined by calculating the Cronbach's alphas (CA), composite reliability (CR) and average variance extracted (AVE). Table 1 shows the results of the composite reliability and Cronbach's alpha values for the constructs ranging between 0.778 to 0.864 and 0.861 to 0.923 respectively. The results of the CA and CR exceed the recommended threshold of not less than 0.70 (Hair et al. 2011). Additionally, the AVE of all the measurement constructs exceeded the cut-off value of 0.5 (Fornell & Larcker, 1981).

The discriminant validity, which measures the extent to which an indicator is unique from other variables, was assessed using factor loadings and square root of the AVE respectively. The factor loadings ranging from 0.741 to 0.933 are substantial in magnitude on their corresponding construct compared with cross loadings on the other constructs in the model (Fornell & Larcker, 1981). Additionally, as shown in Table 2, the square root of AVE of each construct is significantly higher than its correlations with other variables (Hullard 1999). The results of the factor loadings and square root of the AVE indicate good discriminant validity of the measurement model.

Given the results of the AVE and the CR as shown in Table 1, the convergent validity was deemed valid. Hair, Black, Babin, Anderson and Tatham, (2006) recommends elimination of all variables whose factor loading values fall below 0.50 from further analysis since they have insignificant contribution to that latent construct. Consequently, two (2) variables CONF1 and PSP4 were dropped.

The measurement models were deemed fit by obtaining values within the recommended range as displayed in Tables 1 and 2 respectively.

Table 1: Cross Loadings, Cronbach's Alpha Values, CR and AVE Results

	CU	CONF	PU	PSP	CF	US	α	CR	AVE
CIU1	**0.849**	0.262	0.247	0.221	0.300	0.408	0.847	0.907	0.765
CIU2	**0.885**	0.324	0.306	0.297	0.424	0.525			
CIU3	**0.889**	0.294	0.346	0.284	0.334	0.530			
CONF2	0.225	**0.796**	0.448	0.311	0.131	0.333	0.778	0.871	0.693
CONF3	0.335	**0.867**	0.388	0.303	0.185	0.354			
CONF4	0.285	**0.834**	0.371	0.324	0.255	0.372			
PU1	0.259	0.313	**0.742**	0.382	0.283	0.260	0.785	0.861	0.608
PU2	0.317	0.359	**0.805**	0.438	0.320	0.335			
PU3	0.205	0.432	**0.794**	0.313	0.217	0.314			
PU4	0.296	0.399	**0.775**	0.264	0.212	0.319			
PSP1	0.245	0.276	0.349	**0.874**	0.508	0.385	0.781	0.873	0.698
PSP2	0.304	0.324	0.338	**0.885**	0.528	0.423			
PSP3	0.220	0.348	0.444	**0.739**	0.245	0.265			
CF1	0.372	0.167	0.300	0.407	**0.884**	0.447	0.864	0.917	0.786
CF2	0.344	0.231	0.316	0.483	**0.887**	0.434			
CF3	0.366	0.211	0.262	0.497	**0.887**	0.441			
US1	0.509	0.346	0.329	0.314	0.326	**0.820**	0.842	0.894	0.680
US2	0.472	0.365	0.334	0.352	0.378	**0.861**			
US3	0.486	0.391	0.372	0.370	0.394	**0.872**			
US4	0.385	0.292	0.264	0.400	0.567	**0.738**			

Note: CIU = Continuance Intention Use, CONF= Confirmation, PU = Perceived Usefulness, PSP = Perceived Security and Privacy**,** CF = Charges and Fees, US = Users Satisfaction

Source: Field Survey (2018)

Table 2: The Square Roots of AVE (Bold at Diagonal) and Factor Correlation Coefficients

	CU	CONF	PE	PSP	CF	US
CU	**0.875**					
CONF	0.338	**0.833**				
PE	0.346	0.484	**0.779**			
PSP	0.310	0.376	0.446	**0.836**		
CF	0.408	0.228	0.330	0.521	**0.886**	
US	0.564	0.424	0.396	0.433	0.497	**0.825**

Note: CIU = Continuance Intention Use, CONF= Confirmation, PU = Perceived Usefulness, PSP = Perceived Security and Privacy**,** CF = Charges and Fees, US = Users Satisfaction

Source: Field Survey (2018)

Structural Model

Structural Equation Modeling (SEM) using SmartPLS 3.0 was used to test the relationship between the variables. Results of assessment as displayed in Table 3 indicate that the model fits the data.

In Table 3, R2 values are shown within each construct. The model explains 28.4 % of the variance in user satisfaction, 23.5% in perceived usefulness, 14.1% in confirmation and 35.2% of the variance in continuous use. The low R2 values especially in confirmation is not surprising; this is because in human behaviour studies high R2 is always not the case due to difficulty in predicting human behaviour.

Confirmation has a positive and statistically significant relationship with its connected construct: perceived usefulness (β=0.484, t=14.93, p < 0.005), perceived security and privacy (β=0.376, t=9.746, p < 0.005) and user satisfaction (β=0.247, t=6.146, p < 0.005).

Perceived usefulness has a positive and statically significant relationship with user satisfaction (β=0.156, t= 3.679 < 0.005) and continuous use intention (β=0.123, t= 3.516, p < 0.005).

Perceived security and privacy also has a positive and statically significant relationship with user satisfaction (β=0.271, t= 6.954, p < 0.005).

Charges and fees hypothesis with user satisfaction is rejected (β=0.147, t= 3.628, p > 0.005) and the mediating variable user satisfaction has a statistically significant relationship with continuous use intention (β=0.442, t=10.44, p < 0.005).

Table 3 summarises the findings of the model test.

Table 3: Structural Model Results

Hypotheses	Path	Path Coefficient	T Statistics	P Values	Result
H1	CONF àPU	0.484	14.93	0.000	Supported
H2	CONF à PSP	0.376	9.746	0.000	Supported
H3	CONF àUS	0.247	6.146	0.000	Supported
H4	PU àCU	0.123	3.516	0.000	Supported
H5	PU àUS	0.156	3.679	0.000	Supported
H6	PSPà US	0.271	6.954	0.000	Supported
H7	CF àCU	0.147	3.628	0.060	Rejected
H8	US à CU	0.442	10.44	0.000	Supported

Model Fit		R-Squared	
SRMR	0.074	User Satisfaction	0.284
		Perceived Usefulness	0.235
		Confirmation	0.141
		Continuance Use	0.352

Note: CU = Continuance Intention Use, CONF= Confirmation, PU = Perceived Usefulness, PSP = Perceived Security and Privacy**,** CF = Charges and Fees, US = Users Satisfaction

Source: Field Survey (2018)

All the hypotheses (H1-H8) of the study were measured at a significance level of 5 % (0.05) (Hair et al., 2010).

Discussions and Implications of the Study

Discussions

The purpose of the study was to determine the effects of users' satisfaction on continuous use of mobile money application systems.

As documented in previous studies (Bhattacherjee, 2001b; Bhattacherjee et al., 2008; Oliver, 1980), confirmation as a post-consumption perception plays a vital role in influencing user perceptions, including perceived usefulness and perceived security and privacy. Users' satisfaction has positive relationship with continuous intention to use the mobile money application. This indicates that mobile money users will continue to use mobile money application as long as they are satisfied with the use of the application. The relationship between user satisfaction and reuse intention has previously been tested and empirically supported by past studies (Hung et al., 2012; Pikkarainen et al., 2004; Zhou, 2013). Our study tested the same effect in the context of MMT post-adoption use. Our findings support the views that reuse of a product or service depends on the satisfaction one gets from first time use.

In assessing the factors that measure satisfaction, it was revealed in the test analysis that users' satisfaction antecedent factors i.e. confirmation, perceived usefulness, perceived security and privacy have a significant relationship with user satisfaction. It indicated that mobile money users directly react to these variables as they have direct significant effect on users' satisfaction. Consequently, consumers will consider these factors when they expect to maximise their satisfaction level of a product or a service. In other words, these factors have a strong predicting power on users' satisfaction and their intentions to continue to use mobile money applications.

The findings also highlighted that confirmation significantly influences perceived usefulness, perceived security and privacy and user satisfaction. This is consistent with previous findings by Aries Susanto Younghoon Chang Youngwook Ha (2016). Since MMT involves sensitive financial information, it is important to assure users that its use is secure. It is only when users have high assurance towards the security and privacy provided by MMT providers that they will continue to use the services. Therefore, the significant relationship among perceived security and privacy, user satisfaction and continuous use was highly expected. The outcome of this study is consistent with Aries Susanto Younghoon Chang Youngwook Ha (2016). The findings also revealed that perceived usefulness has positive effects which significantly influence continuous use.

However, charges and fees were found to be positively related to satisfaction and continuous use of mobile money applications but no significant factor was revealed by this study. This is contrary to the expectation of the researchers and existing literature. For example, Mallat, N. (2006), Kuo & Yen (2009), D. H. Shin (2009) and Y. M. Shin et al. (2010) posit that charges and fees are positively and significantly related to adoption and reuse of mobile money applications. According to Mallat, N. (2006), some interviewees said that they had refrained from using mobile payments because of premium pricing as mobile users are always charged transaction fees. High fees may decrease users' continuous use of mobile money payments. The hypothesis for the study is therefore not supported and this suggests that users of mobile money applications in Ghana are not so worried about the charges and fees applied by the telecommunication companies. Rather, it indicated that they prefer using mobile money despite the charges that go with it. It could be that the other alternatives are more expensive, risky or time consuming.

Implications of the study

For telecommunication firms operating mobile money transfers, the findings disclose some key determinants that influence users' satisfactions

and a possible continuous use of the mobile money payment systems after having initially experienced the service. The telecommunication firms, in trying to concretise their grounds and strategise how to ensure an improved service or growth in mobile money payments especially in the face of tight competition from other electronic transfer platforms, must consider the key determinants as per this study.

Indeed, as revealed in the study, user satisfaction is a fundamental factor in increasing the rate of mobile money users' intentions for continuous usage. It is therefore imperative that telecommunication firms in Ghana, in their quest to increase the number of mobile money users and sustain the number of subscribers, concentrate on the factors revealed as relevant by the study.

Despite the above findings, sight must not be lost of the fact that technology literacy rate among Ghanaians for instance is low. Consequently, matters of security and privacy, effort efficiency and performance efficiency, which form users' satisfaction attitudes, could largely affect post use of electronic mobile payment systems.

Further, mobile money payment systems present some peculiar challenges including intangibility and complexity. This offers a high degree of uncertainty and risk in the use of the application. It is therefore incumbent on the communication firms to offer high level of assurance to maintain users' confidence and satisfaction.

Limitations and directions for future research

The study relied on users mostly from only three major cities in Ghana. As a result, the outcome may not be a good representation of the whole of Ghana, let alone Africa. Future research can compare the continuous use of mobile money payment systems at post-adoption stage among the rural folks in Ghana or West and Central African countries. It can then draw meaningful conclusions from the differences between the two.

Additionally, our study focused on users who perform mobile money transactions using mobile phones and individuals who are into active economic activities being workers or owners of small businesses as respondents. Other users of this application such as mobile money merchants and those who use devices other than mobile phones (eg. ATMs) should have been considered since their continuous use intentions may be different. In the future, research could examine post continuous use intentions across different categories of mobile money payments users including people who depend on others for survival to come up with meaningful conclusion on the connection among them.

Conclusion

In order to optimise the commercial investment in mobile money system use, telecommunication firms must ensure that any customer who uses the service for the first time is satisfied with it so as to continue its use.

This paper has provided evidence on the factors that will influence users' satisfaction and lead to continuous intention to use mobile payment services.

Summing up, the findings illustrate that user satisfaction plays a prominent role in influencing continuous use of mobile money payments service at the post acceptance stage. Confirmation, perceived usefulness, perceived security and privacy significantly affect user satisfaction. Also, charges and fees for use of mobile money do not have any significant influence on the users when it comes to their intentions of continuous use of the system.

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