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An Empirical Evaluation of Customers Behavioural Intention to Adopt Mobile Banking Apps in Nigeria

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ABSTRACT

Despite the rise in the use of mobile banking by bank customers in Nigeria there is little research on the effects of the factors influencing customers' behavioural intention to adopt mobile banking application. The aim of this paper is to present an empirical evaluation of mobile banking application adoption by bank customers in Nigeria, and hence the effects of the factors influencing customers behavioural intention to adopt mobile banking application in Nigeria. The study used the constructs of UTAUT and UTAUT2 models as theoretical framework. A total of 133 questionnaires and interviews were collected from the sampled population of bank customers comprising of students, academic staffs, administrative staffs and small business owners in the University of Port Harcourt. The data was analysed through statistical and qualitative techniques. The results showed that Performance Expectancy, Social Influence, Price Value, Online Rankings and Reviews, Herd Behaviour, age and gender have significant influence on behavioural intention of customers to adopt mobile Banking application in Nigeria while Effort Expectancy, Facilitating Conditions, Hedonic Motivation and Habit have no significant influence on customers' behavioural intention to adopt mobile banking application in Nigeria. The study recommends the following: (ii) improving the performance of mobile banking apps; (ii) introduce mobile banking to a target group of customers (e.g., younger and working class groups).

Keywords: Evaluation, Customers, Behavioural Intention, Mobile Banking Apps, Adoption and Nigeria

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1. INTRODUCTION

Over the years, Information and Communication Technology (ICT) has provided cutting edge innovations in the banking industry. With massive investment in ICT, the banking sector began to witness unprecedented growth in terms of processing speed of transactions and increase in customer base. The emergence of smartphones brought about unprecedented innovative dimension in mobile communication making wireless delivery channels to be seen by organizations as a promising alternative to creating business opportunities Yu (2012). The mobile and wireless market undoubtedly has become the fastest growing markets in the world. In a comparative analysis of banking transactions, it has been noted that banking transactions done through mobile banking are far too small compared to overall banking transactions Luarn and Lin (2005).

With the implementation of mobile banking services and downloadable programs called Apps, it has become very easy and convenient for customers to access their accounts from anywhere and at any time (Sohail and Shaikh, 2008; Noor, 2011). Despite the unprecedented spread of mobile devices, the use of mobile banking services has remained grossly underused and below expectation (Yao and Zhong, 2011; Cruz, BarrettoFilgueirasNeto, Munoz-Gallego, and Laukkanen, 2010).

It has been reported that that mobile phone usage in Nigeria has reached over one hundred million and one hundred and forty-seven million internet and mobile phone subscriptions, respectively as at January 2018, thereby ranking as the largest mobile phone market in Africa Danbatta (2011). The Banks in Nigeria have taken advantage of this to adopt mobile apps to enable mobile phone users access banking services outside normal business hours. While previous studies have focused on the general aspect of adopting mobile banking as an information technology, there little research that empirically evaluates the effects of customers behavioural intentions to adopt mobile banking apps. Motivated by this problem, this paper therefore uses the constructs of UTAUT and UTAUT2 models as theoretical framework for investigating users' intention to use mobile banking applications. Specifically, this paper empirically evaluates the effect of the factors influencing customers' behavioural intention to adopt mobile banking applications in Nigeria. The research question addressed in this paper is - *How can we apply the constructs of UTAUT2 model to empirically evaluate customers behavioural intention to adopt mobile banking apps in Nigeria.*

This paper used the constructs of UTAUT and UTAUT2 models as theoretical framework for investigating users' intention to use mobile banking applications. A total of 133 questionnaires and interviews were collected from the sampled population of bank customers comprising of students, academic staffs, administrative staffs and small business owners in the University of Port Harcourt. The data was analysed through statistical and qualitative techniques. The results showed that performance expectancy, Social Influence, Price Value, Online Rankings and Reviews, Herd Behaviour, age and gender have significant influence on Behavioural Intention of customers to adopt mobile Banking application in Nigeria while Effort Expectancy, Facilitating Conditions, Hedonic Motivation and Habit have no significant influence on customers' behavioural intention to adopt mobile banking application in Nigeria. The main contributions of this paper are:

1. Applying the constructs of UTAUT and UTAUT2 models as theoretical framework to investigate the adoption of mobile banking application (Apps) by bank customers in Nigeria.
2. Empirically evaluating the effect of the factors influencing customers' behavioural intention to adopt mobile banking applications in Nigeria.

The rest of the paper is organized as follows: Section II discusses the research methodology used in the study. Section III is the evaluation of the study. Section IV presents an analysis of the results of tests on the constructs. Section V discusses the results of the study. Section VI concludes the paper with possible future work.

2. METHODOLOGY

This study adopts the quantitative research method utilizing seven-Likert measuring scales to empirically investigate how the constructs of UTAUT2 (PE, SI, EE, FCs, HM, PV, HT, ORR, IO and DOI) determine customers behavioural intention (BI) to adopt mobile banking application in Nigeria using University of Port Harcourt as our case study. Survey method was used for data collection in this study, which according to Saunders, Lewis and Thornhill. (2016) "is the method whereby information from a sample drawn from a population is collected by a researcher, by collecting data at one point of time". Self-administered questionnaire was used to collect the data samples. The first stage after designing the questionnaire was to run a pilot test for checking the efficiency of the questionnaire in order to determine the relevant and irrelevant items. The second stage was to conduct the survey.

2.1 Research Design

The study used survey as a means of collecting data which quantitatively described specific aspect of the given population in relationship with variables of the population and according to Glasow (2005), we can use such findings to make a conclusion on the population. The study equally used Cross-sectional study method which according to Olsen and St George (2004) opined that the data collected in such study either on a subset of the population or on the whole population answer research questions of interest and explains the situation at only one point in time.

2.2 Design of Semi-structured Interviews

We used semi-structured interviews to give some directions to the questionnaire. However, the interviewees were at liberty to express their views and direction of the interviews. A group of six final year undergraduate students of Faculty of Science, University of Port Harcourt who were experienced in using mobile banking application were selected for the interviews. Based on convenience sampling method, interviewees were selected (Saunders, Lewis and Thornhill, 2016). This method is more practical and quicker method of sampling than the stratified random sampling method (Weir and Jones 2008). This approach has been used extensively for exploratory studies, hence it is approach for this study (Biggam, 2015; Haikin, 2012)

2.3 Design of Survey Instrument

Based on the input from the interviewees and the review of literature, a survey instrument was designed to capture the list of variables relating to mobile banking application. The questionnaire has two sections. The first section was designed to capture five key demographic data (gender, age, use of mobile banking app, occupation and experience) of the respondents while the second part captures information on constructs influencing mobile banking application adoption; which includes performance expectancy, effort expectancy, hedonic motivation, price value, social influence facilitating conditions, habit, online ranking and reviews, herd behaviour and behavioural intention.

These constructs were adopted from the previous research on mobile banking and mobile application adoption based on UTAUT model (Kishore and Sequeira, 2016; Vinnik, 2017) and adapted for this study. Using the existing framework for testing UTAUT model (Venkatesh, Davis and Morris, 2007) and that of UTAUT2 model Venkatesh, Thong and Xu (2012), we adopted the questionnaire from Vinnik (2017) and adapted the questions for mobile banking application (Appendix A) while the former focused on mobile banking. All items were measured with a Seven-Likert scale, ranging from 1 to 7 (that is strongly disagree to strongly agree).

2.4 Method of Data Collection

The collection of primary data for this study was through structured questionnaire with close-ended questions. To gather information from individuals using a set of questions, closed-ended type of questions was appropriate (Kothari, 2004). Questionnaires cover large samples representative of its population and are used to reduce the cost of data collection (Akbayrak, 2000). Self-administered questionnaires reduce biasing errors from the characteristics and skills of interviewers (Phellas, Bloch and Seale, 2011) hence, its use in this study.

2.5 Respondent Group

In understanding consumer adoption of mobile banking application in Nigeria, the target group for respondents for this study is the University of Port Harcourt community, comprising of students, academic staffs, administrative staffs of the Faculty of Science and small business owners on campus. The university has nine banks operating within her campuses, four of which are among the top five biggest banks in the country. The University community is representative of the larger society hence its choice is very much appropriate for this study. A total of one hundred and fifty questionnaire was distributed amongst the population sample involving students, academic staffs, administrative staffs and small business owners.

No reward or inducement was given to the respondents to influence their participation. Respondents answered the questions voluntarily and were equally anonymous. More of the questionnaire was distributed to students being the age group of population that mostly spend time using mobile applications. Statistical research showed people aged between 18 to 34 years spend more time every day on mobile applications than older users Pedotto and Chen (2016). Similarly, students are highly sociable and interconnected segment of population that are actively involved in the use of social media and are widely exposed to social influences, which is relevant for testing how social influences determine the behavioural intention to adopt mobile application among users.

The questionnaire captures demographic data of respondents such as age, gender, occupation, mobile banking application use and experience in addition to the main constructs in the model which measures Performance Expectancy, Social Influence, Price Value, Habit, Online Rankings and Reviews, Effort Expectancy, Hedonic Motivation, Facilitating Conditions, Herd Behaviour (measured with through two dimensions - Imitating Others and Discounting Own Information) and Behavioural Intention.

2.6 **Data Collation, Screening and Cleaning**
One hundred and thirty-nine respondents returned their questionnaire while eleven respondents did not return theirs. To ensure data quality at the end of collating the questionnaires and screening the respondents' responses we received one hundred and thirty-three (133) clean datasets, consisting of ninety-three (93) students, fifteen (15) academic staffs, seventeen (17) administrative staffs and eighteen (18) small business owners on campus. From those screened, six questionnaires were rejected because the respondents did not completely answer the questions. In the literature review demographic data such as age, gender, level of education and experience were used as moderating variables (Brown, Dennis and Venkatesh, 2010; Liang, Xue, Ke and Wei, 2010; Xiong, Qureshi and Najjar, 2013; Shen, 2015; Vinnik, 2017). However, for this study, we replaced education level with occupation since the research focuses on University of Port Harcourt community.

2.7 Analysis of Data
This section explains how the data analysis was done.

2.7.1 Descriptive Analysis
Descriptive analysis was used to analyse the data received from the questionnaire for the demographic data. The demographic data of target respondents (age, gender, use of mobile banking Apps, occupation and experience) will be described in frequency and percentage using tables and charts.

2.7.2 Statistical Analysis
Statistical and inferential analysis of the data collected from the questionnaire and survey was carefully and systematically conducted. The statistical tool used for analysis was the IBM SPSS.

3. EVALUATION

This section presents the sample data results using descriptive analysis, inferential analysis and scale measurement.

Table 1: Statistics of Reliability

Cronbach's Alpha	Cronbach's Alpha for Standardized Items	No. of Items
.762	.772	11

Table 2: Gender of Respondence

Gender	Frequency	Percentage (%)
Male	96	72
Female	37	28
Total	133	100

The analysis of the relationship of the proposed model and the properties of the scale was done using IBM SPSS. This was done in line with commonly accepted research assumptions considered to be appropriate for this research. The internal reliability of the multi items variable was determined using Cronbach's Alpha, thereafter the reliability of the measures was tested. Reliability analysis is a measure of the internal consistency of the construct's indicators (Hair Jr, Anderson, Tatham and Black, 1998). The reason is to show how well a set of items keyed into common sources of variance is measured with Cronbach's coefficient alpha (Noor, 2011). Cronbach's coefficient alpha is the ratio of the sum of the covariances between the components of the linear items which estimates the true variance to the sum of all elements in the measurement variance-covariance matrix equals the observed variance.

Reliability results for the questionnaire are better if the Cronbach's Alpha gets to 1.0. Reliability results are considered poor if they are less than 0.60, those in the range of 0.70 are acceptable while those over 0.80 taken as being good Sekaran and Bougie (2003). The below table shows that reliability statistics for the eleven measured items (constructs – PE, SI, EE, FC, HM, PV, HT, ORR, IO, DOI and BI) in our model has a Cronbach's Alpha of 0.762 which is acceptable for the analysis. This means that the measured items of our model are 76.2% reliable. Table I shows the details of statistics of reliability.

3.1 Analysis of Demographic Data

The demographic data of the respondents analysed using descriptive statistics. The representation of the result of the analysis is as follows:

3.2 Gender

From the samples, 72% of the respondents are males while 28% are females. This is representative for gender distribution at the Faculty of Science in the University of Port Harcourt; where female students constitute between 30-35% of students' population.

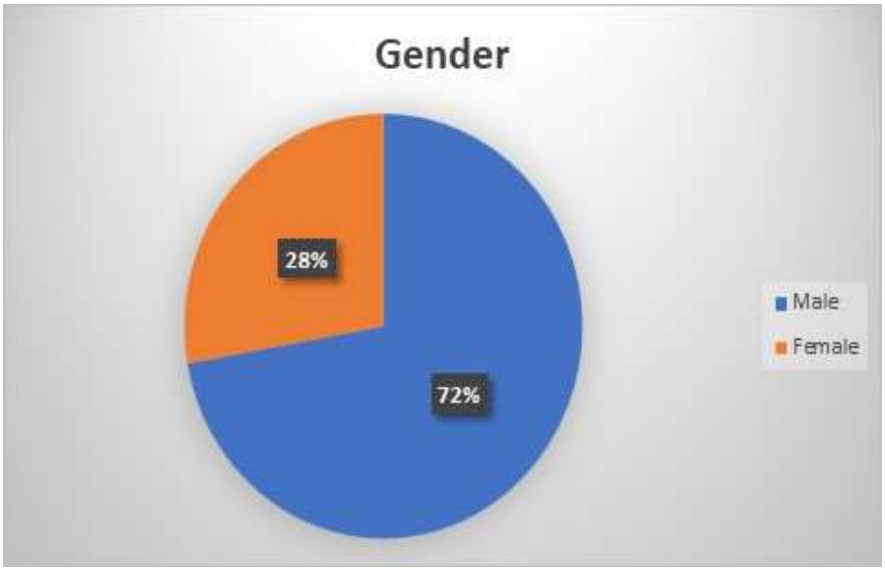

Figure 1: Gender of Respondents
(Source: Sample Data)

Table 3: Age of Respondents

Age	Frequency	Percentage (%)
18-23	42	32
24-30	51	38
31-40	29	22
41 and above	11	8
Total	133	100

3.3 Age

The sample data shows that respondents between age 18-23 constitute 32% of the dataset, 38% are between 24-30 years, 22% are between 31-40 years, whereas respondents from 41 years and above make up 8% of the dataset. Respondents aged between 18 and 30 years constitute 70% confirming the assumption that people aged between 18 to 34 years spend more time every day on mobile applications than older users Vinnik (2017).

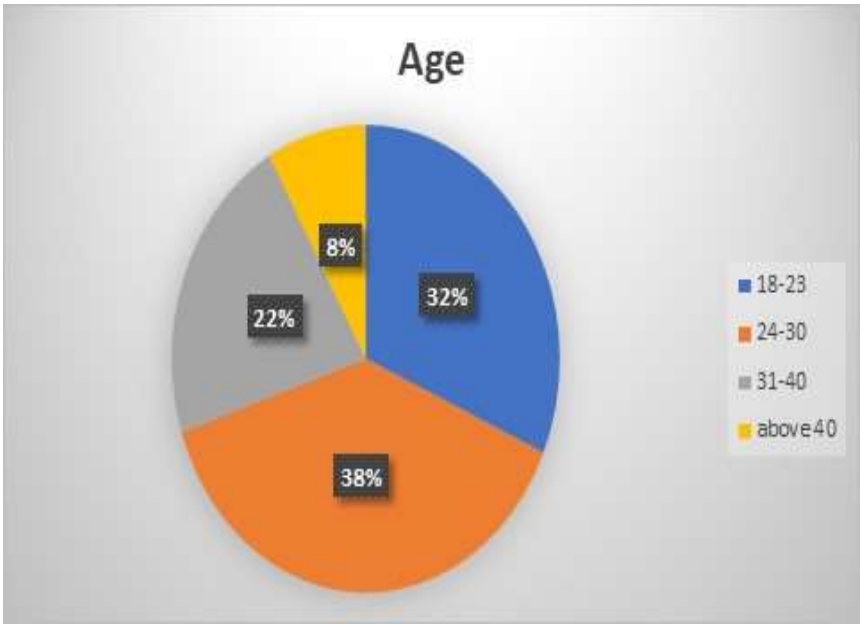

Figure 2: Age of Respondents
(Source: Sample Data)

3.4 Occupation

The result from the sample data drawn from the focus group in this research shows that students constitute 62% of the respondents, academic staffs 11%, administrative staffs 13% whereas small business owners make up 14% of the respondents. The below table shows the distribution.

Table 4: Occupation of Respondents

Occupation	Frequency	Percentage (%)
Students	83	62
Academic Staffs	15	11
Administrative Staffs	17	13
Small Business Owners	18	14
Total	133	100

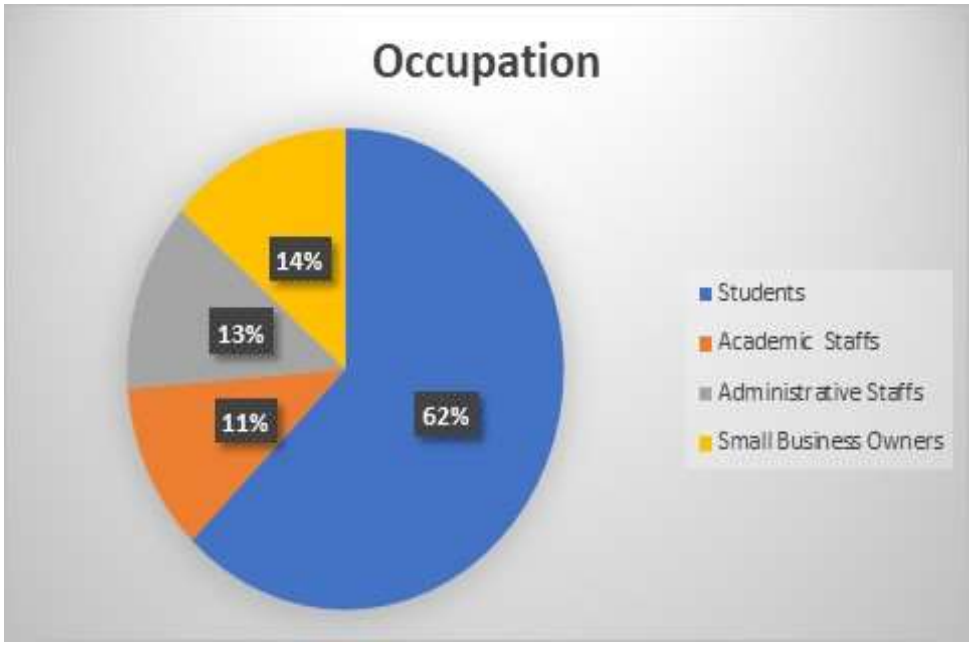

Figure 3: Occupation of Respondents
(Source: Data Sample)

3.5 Experience

Using five-points Likert scale where 1 indicates very little experience and 5 for very experienced; 7% of the respondents had very little experience in using mobile banking application, 16% of those that responded have little experience while 77% chose options 3 to 5 on the scale showing respondents with experience in mobile banking application usage. This is represented in Table 5.

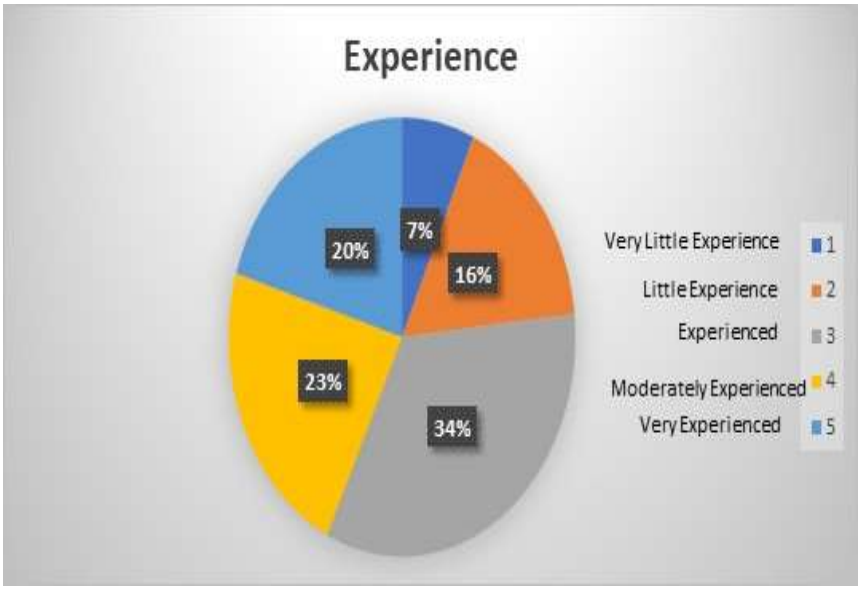

Figure 4: Experience of Respondents (Source: Data Sample)

3.5 Mobile Banking App Use

The study shows that 86% of respondents use mobile banking application whereas 14% do not use mobile banking application. This is represented in Table 6.

Table 5: Experience of Respondents

Experience	Frequency	Percentage (%)
Very little experience	9	7
Little experience	22	16
Experienced	45	34
Moderately experienced	30	23
Very experienced	27	20
Total	133	100

Table 6: Mobile Banking App Use

Mobile Banking App Use	Frequency	Percentage (%)
Yes	114	86
No	19	14
Total	133	100

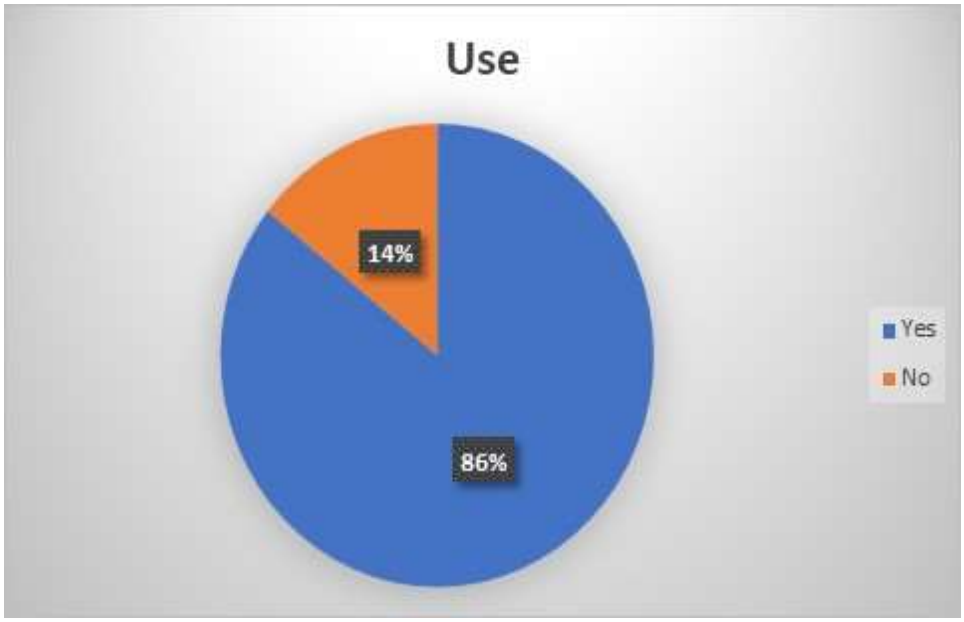

Figure 5: Mobile Banking App Use
(Source: Data Sample)

3.6 Analysis of Independent Variables

Critical examination of the dataset used for the test shows that they comply with the assumptions of multivariate analysis and allows conclusion to be drawn on the based on it. The questionnaire was distributed to 150 respondents within the Faculty of Science and small business owners within the University of Port Harcourt. A total of 139 participated in the survey and returned the questionnaire, while 11 respondents did not return their questionnaire. Out of the 139 respondents that returned the questionnaire, 133 respondents completed the questionnaire while 6 respondents did not complete the questionnaire and hence were screened out during the data cleaning process to ensure the validity of the data. Out of 133 respondents that completed the questionnaire, 19 respondents have not used mobile banking apps while 114 respondents use mobile banking application. The analysis of the independent variables was based on the 114 respondents that use mobile banking application. The quality of respondents to a large extent depended on the extent of engagement of the respondent with the questionnaire.

Table 7: Descriptive Statistics of mobile banking application(Source: Data Sample)

	N	Minimum	Maximum	Mean	Std. Dev	Variance	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
PE	114	1.667	7.000	5.424	0.843	0.710	-1.185	3.086
SI	114	1.000	7.000	5.132	1.645	2.707	-1.203	0.549
EE	114	1.000	7.000	5.991	1.132	1.282	-2.288	6.569
FC	114	1.000	7.000	5.607	1.156	1.336	-1.797	4.173
HM	114	1.000	7.000	5.456	1.368	1.871	-1.506	2.255
PV	114	1.000	7.000	5.041	1.509	2.276	-1.080	0.543
HT	114	1.000	7.000	4.348	1.776	3.153	-0.258	-1.199
ORR	114	1.000	7.000	3.845	1.649	2.719	0.050	-1.189
IO	114	1.000	7.000	4.599	1.597	2.551	-0.648	-0.623
DOI	114	1.000	7.000	4.871	1.332	1.775	-0.684	0.070
BI	114	1.000	7.000	5.883	1.266	1.603	-1.739	3.416
Valid (listwise)	N 114							

3.7 Normality Test

Table 4.6 shows a normal distribution of our dataset; all the variables fall within one standard deviation of the mean. Variables with skewness greater than 2 or less than 2 are considered skewed while variables with value range within +7 are acceptable (Curran, West, and Finch, 1996). The highest skewness value is 0.050 for ORR and the lowest skewness value is -2.288 for EE. Besides that, the highest kurtosis is 6.569 for EE and the lowest kurtosis is -1.199 for HT. The normality results computed indicated that the variables from the constructs are normally distributed, which shows that the results of skewness and kurtosis of each item falls between the acceptable ranges. Appendix C shows normal distribution of the constructs as demonstrated visually using Normal Q-Q Plot graphs. Table 4.6 Descriptive
Statistics of mobile banking application

3.8 Test of Multicollinearity

The association between variables was determined using Pearson correlation (Jahangir and Begum, 2008). Correlation coefficients having values ranging from 0.10 to 0.29 are taken as being weak; those with values ranging from 0.30 to 0.49 are considered medium while value range from 0.50 to 1.0 are considered strong Wong and Hiew (2005). Multicollinearity occurs when two or more variables in the model are correlated and provide redundant information. Table 4.7 shows that all the columns do not have correlation value higher than 1.000.

Correlation Matrix[a]

		PE	SI	EE	FC	HM	PV	HT	ORR	IO	DOI	BI
Correlation	PE	.762										
	SI	.502	.714									
	EE	.118	.311	.714								
	FC	.041	.239	.607	.650							
	HM	.153	.181	.552	.493	.642						
	PV	.052	.105	.167	.307	.370	.439					
	HT	.178	.149	.331	.357	.413	.134	.352				
	ORR	.108	.031	.019	.072	.179	.360	.276	.761			
	IO	.147	.183	.116	.163	.145	.262	.213	.514	.615		
	DOI	.005	.088	.190	.153	.145	.183	.092	.194	.110	.171	
	BI	.181	.241	.496	.450	.543	.287	.356	.205	.270	.204	.568

Figure 6: Pearson Correlation (Source: Data Sample)

This means that there was no multicollinearity problem discovered in this research. The ensure that the independent variables are not highly correlated we ran the collinearity test. For all independent variables in our model the test result indicated that Variance Inflated Factor (VIF) is lower than 5 (Appendix C) which means that our dataset does not have multicollinearity problem (Hocking and Pendleton, 1983). The table does not show any negative correlation coefficient; which means that the constructs in our model have positive correlations. Furthermore, the correlation coefficient values range from 0.005 to 0.607 indicating a positive correlation. This shows that the relationships between the variables are statistically significant. If we examine the constructs in detail; the correlation coefficient shows strongest relationship between EE and FC with a correlation coefficient of 0.607 and weakest relationship between PE and DOI with 0.005 correlation coefficient.

4. RESULTS

In this section, the results of the modelling will be presented.

4.1 Assumptions of structural equation modelling

We used structural equation modelling to test the hypotheses in our research model, using IBM SPSS version. The result is shown in Figure 7. The effects of the test on the model showed the influence of independent variables, (Performance Expectancy, Social Influence, Hedonic Motivation, Effort Expectancy, Facilitating Conditions, Price Value, Habit and Online Rankings and Reviews and Herd Behaviour) on the dependent variable (Behavioural Intention). The confirmatory test was done using Nonparametric Test, based on Kruskal Wallis test which shows that at least one sample dominates another sample stochastically (Kruskal and Wallis, 1952). Figure 11 to 22 shows the statistical plots of the constructs. The Kruskal Wallis test result is shown in Figure 23.

The test on the constructs confirmed that PE, SI, FC, PV, ORR, IO and DOI have significant influence on BI. This confirms hypotheses H1, H2, H6, H8, H9a and H9b have positive influence on BI. Based on the test, the influence of Performance Expectancy showed 0.484 which is higher than 0.05 (the threshold level of p=0.05). Kim and Han (2011) argued that, the utilitarian value for users of mobile data service is closely related to the effectiveness and efficiency that comes from the data service usage.

Users perception of Performance Expectancy is something concrete and task-related. The confirmatory test also showed Social Influence with significant value of 0.209 higher than the threshold value of 0.05.

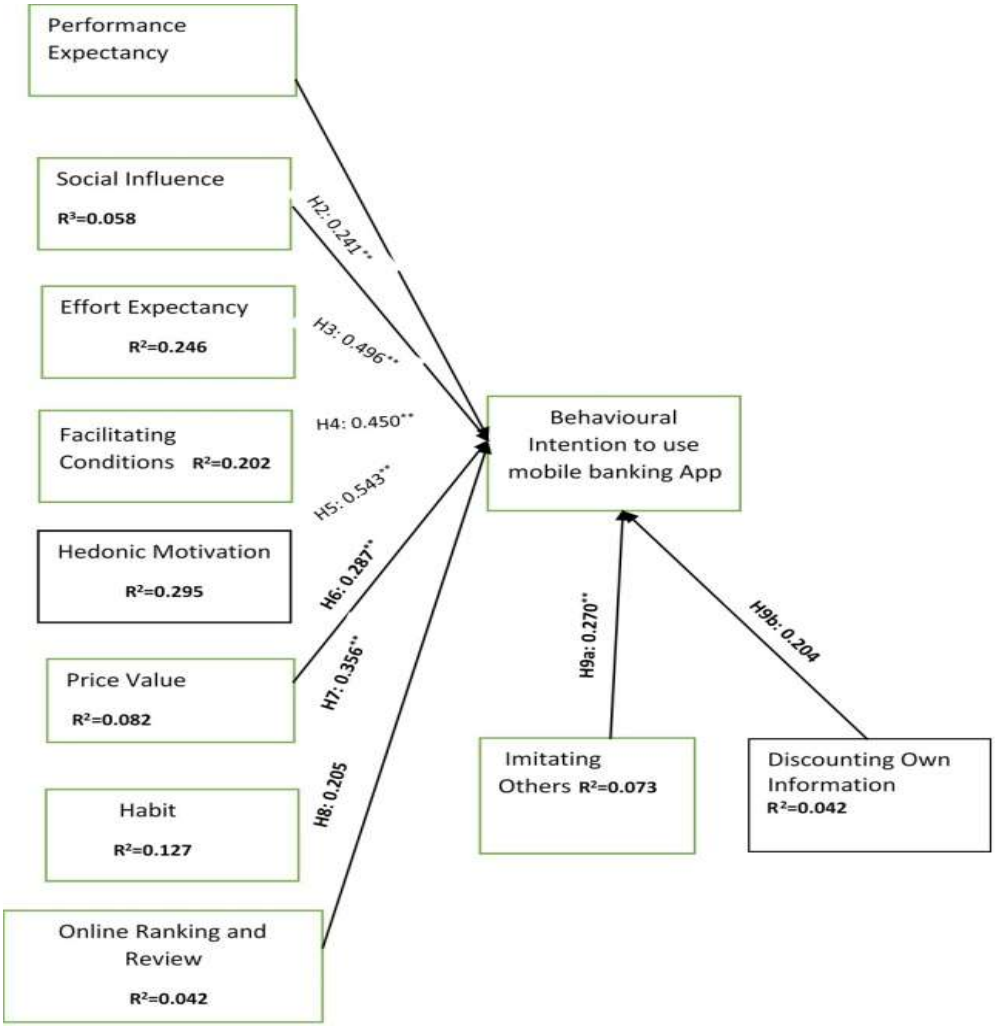

Figure 7: Empirical Result

This means SI has a significant influence on BI. For social Influence to have shown significant influence on users' attitude towards adopting mobile banking applications means that users could be more influenced by the opinions of their significant others for any services where the result and performance create values Vinnik (2017). For Price Value, the hypotheses test showed a significant value of 0.172 on Behavioural Intention, which is higher than the threshold of p=0.05. The confirmatory test also indicated that Online Review and Ranking has a significant influence on BI with a value of 0.082 ¿ 0.05 threshold value for acceptable degree of influence. The influence of Herd Behaviour on Behavioural Intention was tested using two variables (IO and DOI). The test indicated IO has a significant influence on BI with a value of 0.096 which is higher than the threshold value of 0.05. Similarly, DOI has a significant influence on BI with a value of 0.457 which is also higher than the acceptable value of 0.05. The Kruskal Wallis test rejected hypotheses H3 and H4 and that of H7 and H5.

This means that Effort Expectancy, Facilitating Condition, Hedonic Motivation and Habit have no significant influence on Behavioural Intention of users to adopt mobile banking application and hence hypotheses H3, H4, H5 and H7 of our model are not supported. Similarly, we tested the influence of Age on Behavioural Intention with the use of Kruskal Wallis test. The outcome showed that Age has a significant value of 0.909 which is higher than the threshold of 0.05. This confirmed that Age has a positive influence on users Behavioural Intention to adopt mobile banking application. Therefore, the test supported hypotheses H10. For Gender, the Kruskal Wallis test showed a significant value of 0.087, which is higher than the threshold of 0.05. The result of the test showed that Gender has significant influence on Behavioural Intention.

Therefore, the test supported hypotheses H11. We can conclude with the equation:

$$BI = B1 + B2 \quad (1)$$

where B1 and B2 are shown in Equation 2 and Equation 3, respectively.

$$B1 = \beta 1 * PE + \beta 2 * SI + \beta 3 * EE + \beta 4 * FCs + \beta 5 * HM \quad (2)$$

$$B2 = \beta 6 * PV + \beta 7 * HT + \beta 8 * ORR + \beta 9 * IO + \beta 10 * DOI + \varepsilon \quad (3)$$

By substituting the computed values, Equation 2 and 3 translates to Equation 4 and 5.

$$B1 = 0.095 * PE + 0.021 * SI + 0.228 * EE + 0.122 * FC + 0.283 * HM \quad (4)$$

$$B2 = 0.040 * PV + 0.056 * HT + 0.013 * ORR + 0.109 * IO + 0.070 * DOI + 0.321 \quad (5)$$

Figure 8 shows the comparison of the strength of influence on Behavioural Intention.

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Relationship	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	.321	.851		.377	.707		
PE → BI	.095	.133	.059	.717	.475	.709	1.411
SI → BI	.021	.069	.026	.306	.760	.659	1.518
PV → BI	.040	.072	.046	.558	.578	.719	1.390
ORR → BI	.013	.070	.017	.192	.848	.615	1.625
IO → BI	.109	.070	.130	1.557	.122	.695	1.440
DOI → BI	.070	.069	.073	1.011	.314	.915	1.092

Figure 8: Comparison of strength of Influence on BI

4.2 Convergent validity

To test the fitness of the construct items used in our model against the factors they were assigned to measure, a confirmatory factor analysis for structural equation model was run using IBM SPSS (Figure 9 and 10). The procedure used as a reference value for evaluating the extracted factor loadings, construct reliability and average variance was that produced by Hair Jr, Anderson, Tatham and Back (1998) which stipulated that standardized factor loading should be >0.7 for construct reliability (CR) with lowest acceptable level of 0.5 whereas Fornell and Larcker (1981) suggested that the value for average variance extracted
(AVE) should be >0.5.

4.2.1 Performance Expectancy

Both UTAUT and UTAUT2 models were used to measure the performance expectancy. In this study three items that were most relevant for the study were selected and modified to suite mobile banking application. The factor analysis of all three items on the factor showed loadings <0.7 but >0.6 reflecting high convergent validity of the measuring items (Hair Jr, Anderson, Tatham and Back, 1998). However, the factor analysis showed the construct reliability of 0.794, which is higher than the threshold value of 0.7 and the AVE is 0.656 which is higher than the threshold of 0.5. This shows that the measuring items that were used are related to the factor and hence, suitable for our measuring model.

4.2.2 Social Influence

The measuring items from the UTAUT2 model were adapted to suit the study, to measure the Social Influence. The three items were modified to describe the respondent's experience with usage mobile banking application. All the items measured indicated loads (i.e. value >0.6) which means that the measurement items and the factor that they measure are related and represented (Hair Jr, Anderson, Tatham and Back, 1998). The factor analysis equally showed construct reliability of 0.842, which is higher than the threshold value of 0.7 and AVE of 0.670 which is higher than 0.5.

4.2.3 Effort Expectancy

The adapted items from the UTAUT and UTAUT2 models were used to measure effort expectancy. The study modified the four measurement items from Venkatesh et al. (2003) and Venkatesh et al. (2012) to suit the adoption setting of mobile banking application. The items showed high factor loads on effort expectancy between 0.6 and 0.8 which means that the measurement items and the factors that they measure are related and represented (Hair Jr, Anderson, Tatham and Back, 1998). The factor analysis also showed the construct reliability of 0.900, which is higher than the threshold value of 0.7 suggested by Hair Jr, Anderson, Tatham and Back. (1998) and AVE of 0.715 which is higher than 0.5(the threshold for AVE). This means there is a consistency in relationship between adapted measurement items for Effort Expectancy.

4.2.4 Facilitating Conditions

Facilitating Conditions were measured using the adapted items from the UTAUT and UTAUT2 models. All the four measures adopted from previous studies have been modified to suit the setting for mobile banking application adoption. All the measurement items had high factor loads on Facilitating conditions between 0.6 and 0.74 indicating that the measuring items and the factor they measure are related and represented (Hair Jr. Anderson, Tatham and Back, 1998). The factor analysis also shows the construct reliability of 0.804, which is higher than the threshold value of 0.7 suggested by Hair Jr, Anderson, Tatham and Back (1998) and AVE of 0.647 which is higher than 0.5 (the threshold for AVE). This means there is a consistency in the relationship between the adapted measurement items for facilitating conditions.

		Loadings	CR	AVE
PE: Performance Expectancy	PE1: I find this mobile banking app useful in my everyday life.	0.654	0.794	0.656
	PE2: Using this mobile banking app increases my chances of achieving things that of importance to me.	0.640		
	PE3: Use of mobile banking app helps me accomplish things more quickly.	0.675		
SI: Social Influence	SE1: People that matter to me think I should use this app	0.662	0.842	0.670
	SE2: People that have influence on my behaviour said I should use this app	0.717		
	SE3: People whose opinions are valued by me encouraged me to Use this app	0.631		
EE: Effort Expectancy	EE1: Learning how to use mobile banking app is easy for me.	0.843	0.900	0.715
	EE2: I find mobile banking app easy to use.	0.823		
	EE3: My interaction with mobile banking app is clear and understandable	0.812		
	EE4: It is easy for me to become a skilled user of mobile banking app	0.581		
FC: Facilitating Conditions	FC1: I have the needed resources to use mobile banking app.	0.588	0.804	0.647
	FC2: I have the relevant knowledge to use mobile banking app.	0.740		
	FC3: The mobile banking app is compatible with other technology I am using.	0.628		
	FC4: I can access help from others when there are difficulties with usage of mobile banking app	0.632		
HM: Hedonic Motivation	HC1: Using mobile banking app is fun.	0.707	0.842	0.645
	HC2: Using mobile banking app is enjoyable.	0.648		
	HC3: Using mobile banking app is very entertaining.	0.580		
PV: Price Value	PV1: The mobile banking app is reasonably priced	0.779	0.893	0.797
	PV2: The mobile banking app is a good value for its price	0.828		
	PV3: At the current price mobile banking app provides good value	0.789		
HT: Habit	HT1: It has become a habit for me using mobile Banking app.	0.740	0.859	0.786
	HT2: I'm addicted to using the mobile banking app.	0.837		
	HT3: I must use mobile banking app	0.780		

Figure 9: Factor Analysis[1]

4.2.5 Hedonic Motivation

To measure the Hedonic Motivation, the items adapted from UTAUT and UTAUT2 models were used. In this study the three items that were most relevant for the study were selected and modified to suite mobile banking application. The factor analysis showed loadings between 0.6 and 0.7 for the three factor items which meant high convergent validity of the measurement items (Hair Jr, Anderson, Tatham and Back, 1998). However, the factor analysis showed the construct reliability (CR) of 0.842, which is higher than the threshold value of 0.7 and the AVE is 0.645 which is higher than the threshold of 0.5. This means that the measuring items are related to the factors and can be used in our measurement model.

ORR: Online Ranking and Review	ORR1: I checked for the online ratings and reviews I when I searched for this app.	0746	0.887	0.739
	ORR2: I accepted mobile banking app because it ranks high on the app store	0.791		
	ORR3: I accepted mobile banking app because I have many positive online comments and reviews	0.728		
	ORR4: I accepted mobile banking app because it was listed on mobile app top chart	0.689		
IO: Imitating Others	IO1: If mobile banking app seems to be a dominant mobile app on the market, I would also like to use it.	0.680	0.771	0.668
	IO2: I follow others in accepting mobile banking app.	0.773		
	IO3: I choose to accept mobile banking app because I see other people use it.	0.549		
DOI: Discounting Own Information	DI1: My acceptance of mobile banking app did not reflect my own preferences for banking services	0.681	0.671	0.684
	DI2: I did not make the decision on the basis of my own research and information when choosing mobile banking apps	0.754		
	DI3: If I didn't know a lot of people have accepted mobile banking app I could have still accepted it.	0.616		
BI: Behavioural Intention	BI1: I intend to continue using mobile banking app in the future	0.820	0.929	0.852
	BI2: I will always try to use my mobile banking app in my daily banking transactions.	0.878		
	BI3: I plan to continue to use mobile banking app frequently	0.858		

Figure 10: Factor Analysis[2]

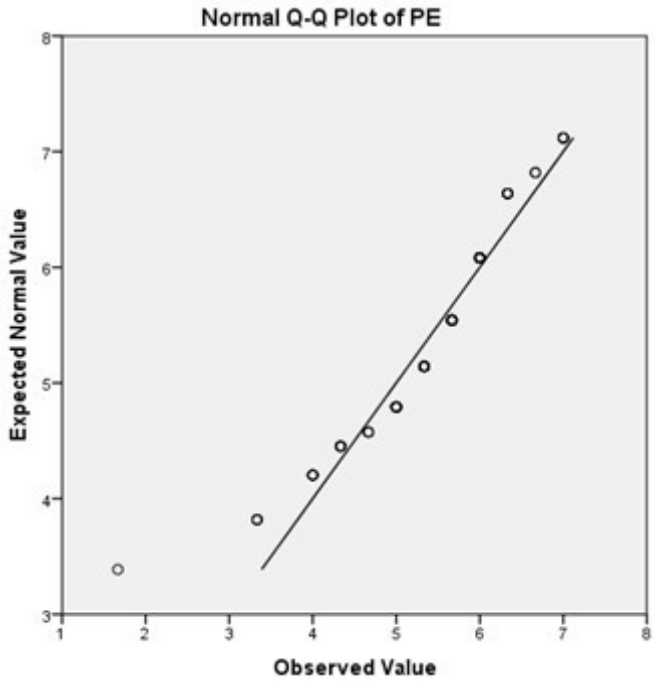

Figure 11: Plot of PE

4.2.6 Price Value

Price Value was measured using the items adapted from UTAUT and UTAUT2 models. In this study the three items that were most relevant for the study were selected and modified to suite mobile banking application. The factor analysis showed loads ¿ 0.7 for all the items on the factor, showing high convergent validity of the measurement items (Hair Jr, Anderson, Tatham and Back, 1998).

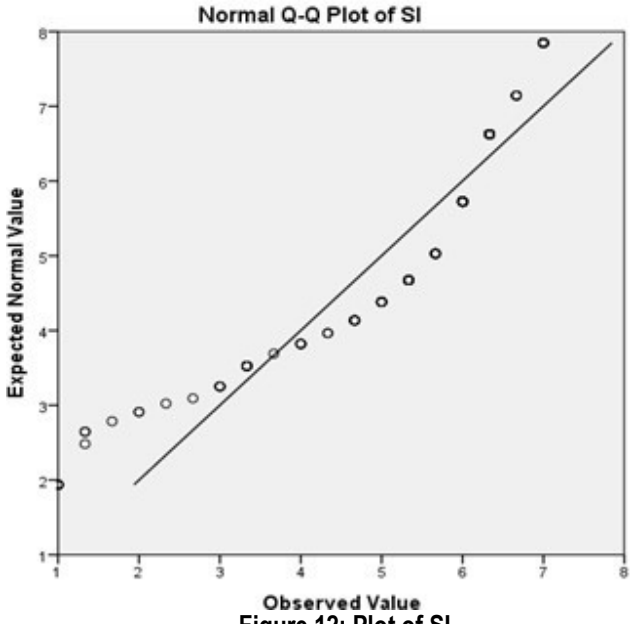

Figure 12: Plot of SI

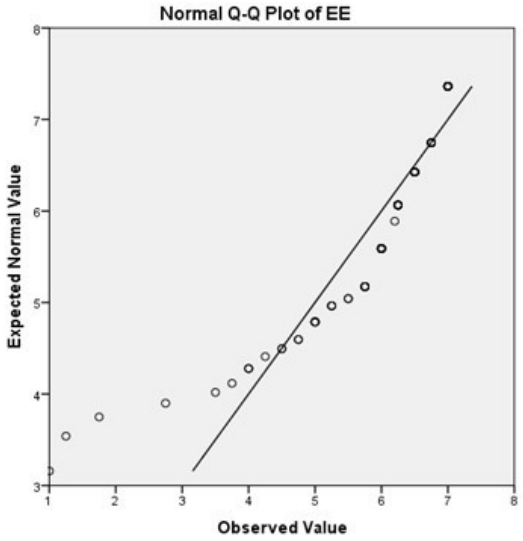

Figure 13: Plot of EE

However, the factor analysis showed the construct reliability (CR) of 0.893, which is higher than the threshold value of 0.7 and the AVE is 0.797 which is higher than the threshold of 0.5. This shows that the measurement items used are related to the factors and could be applied in our measurement model for Price Value.

4.2.7 Habit

To measure Habit, the items adapted from UTAUT and UTAUT2 models were used. In this study the three items that were most relevant for the study were selected and modified to suite mobile banking application. The factor analysis showed loads >0.7 for all the items on the factor, which means high convergent validity of the measuring items (Hair Jr, Anderson, Tatham and Back, 1998).

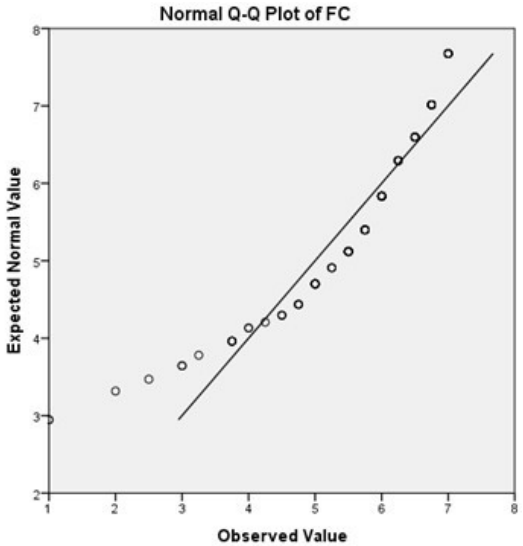

Figure 14: Plot of FC

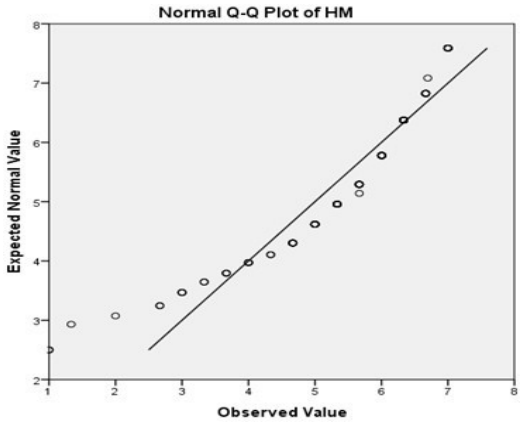

Figure 15: Plot of HM

The factor analysis showed the construct reliability (CR) of 0.859, which is greater than the threshold value of 0.7 and the AVE is 0.786 which is higher than the threshold of 0.5. This shows that the measurement items used are related to the factor and can be used in our measurement model for Habit.

4.2.8 Online Rankings and Reviews

The measurement items from Vinnik (2017) were adapted and used to measure Online Ranking and Review. These were modified to suit mobile banking application adoption setting. All the measurement items showed high factor loadings between 0.6 and 0.8 in the Online Ranking and Review means that the measurement items and the factor that they measure are related and represented (Hair Jr, Anderson, Tatham and Back, 1998). The factor analysis also shows the construct reliability of 0.887, which is higher than the threshold value of 0.7 suggested by Hair Jr, Anderson, Tatham and Back. (1998) and AVE of 0.739 which is higher than 0.5 (the threshold for AVE). This means that the relationship between adapted measurement items for Online Ranking and Review are consistent.

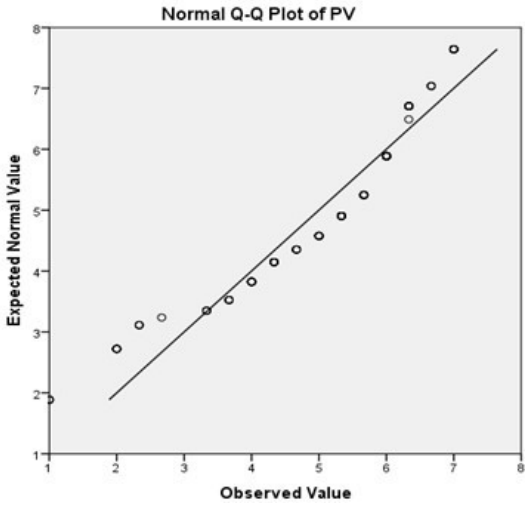

Figure 16: Plot of PV

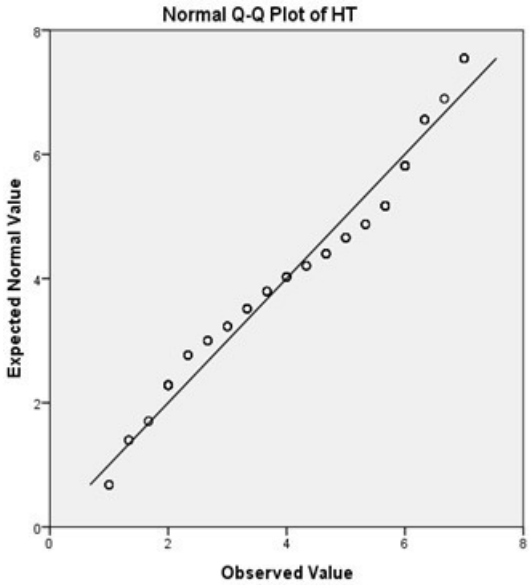

Figure 17: Plot of HT

4.2.9 Herd Behaviour

Items from Sun (2013) were adopted to measure Herd Behaviour. The measurement items were adapted from the original study, to measure mobile banking applications adoption. Imitating Others and Discounting Own Information were used as measuring variables to measure Herd Behaviour. On Imitating others, two items showed factor loads between 0.7 and 0.8, while one item showed low but still acceptable factor loading >0.5. The factor also showed high construct reliability of 0.771 and AVE of 0.668; while on Discounting Own Information the three measurement items showed loading between 0.6 and 0.8 on the factor.

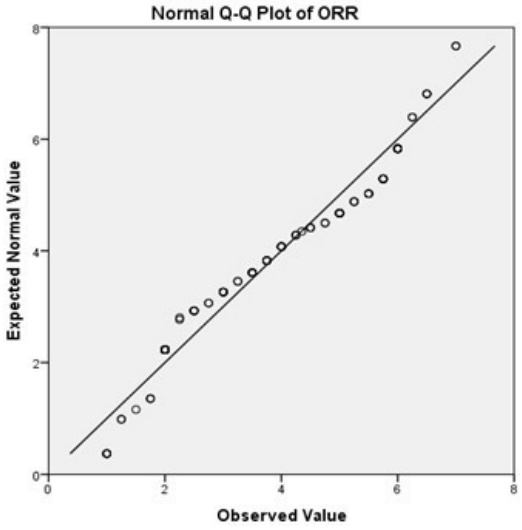

Figure 18: Plot of ORR

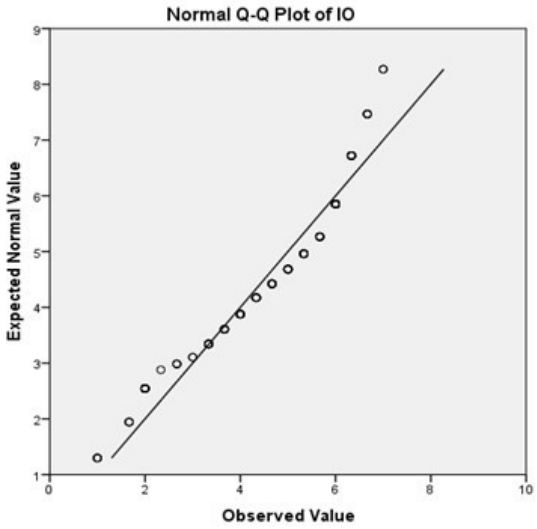

Figure 19: Plot of IO

The construct reliability for Discounting Own Information was 0.671 which slightly lower than the generally acceptable level and the AVE was 0.684 which is higher than 0.5 (the threshold for AVE). This means the relationship between adapted measurement items for Herd Behaviour is consistent.

4.2.10 Behavioural Intention

To measure Behavioural Intention, we adopted measurement items from the UTAUT2 model only. These items were initially meant to measure the latent usage of a general technology. In this study, Behavioural Intention measurement items were adapted for the measurement of actual users experience with mobile banking applications. The factor analysis showed high loadings ¿ 0.8 for all three items on the factor, which meant high convergent validity of the measuring items within Behaviour Intention (Hair Jr, Anderson, Tatham and Back, 1998).

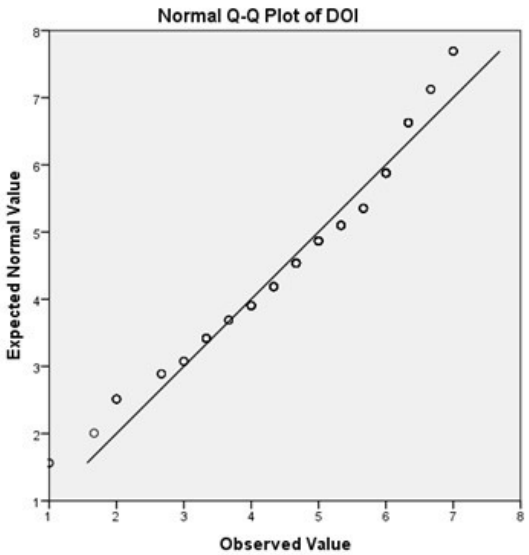

Figure 20: Plot of DOI

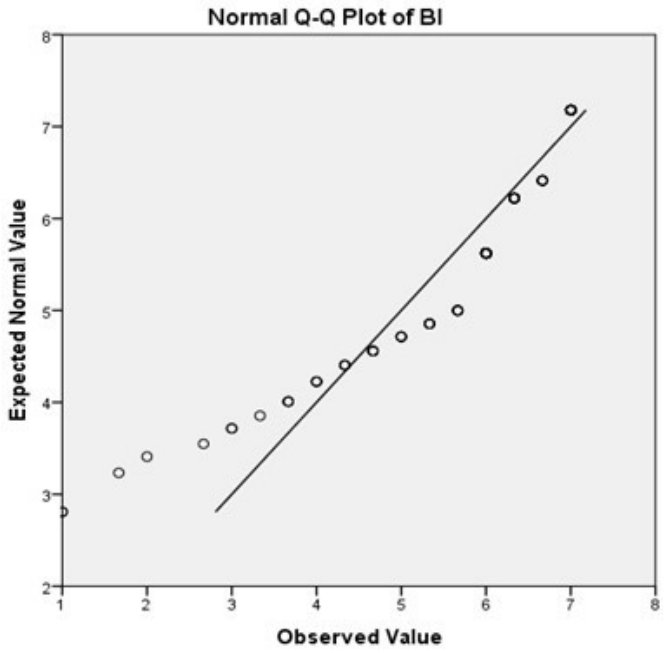

Figure 21: Plot of BI

The factor analysis equally showed the construct reliability of 0.929, which is greater than the threshold value of 0.7 as suggested by Hair Jr, Anderson, Tatham and Back. (1998) and AVE of 0.852 which is greater than the threshold value suggested by Fornell and Larcker (1981). This means that the selected measuring items for Behavioural Intention are commonly related to the factor and could be applied in our measurement model.

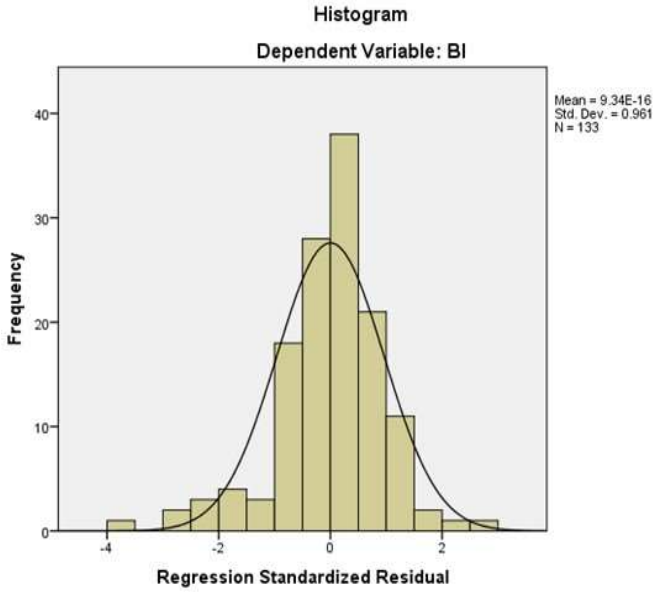

Figure 22: Histogram – BI

5. DISCUSSION

In this section, we present a general discuss regarding the theoretical and business management implications of the study.

5.1 Theoretical Implications

The study tested the constructs of UTAUT2 model for the adoption of mobile banking applications in Nigeria and extended the model to see the effect of age beyond just being moderating factor on performance expectancy and social influence to having direct influence on behavioural intention of users to adopt mobile banking application. Studies on mobile application adoption is relatively new as shown in the literature review and limited studies on mobile banking application based on UTAUT and UTAUT2 in particular. This study enhances the baseline of UTAUT research as well as adds new theoretical contributions to the studies on adoption of mobile banking application. Similarly, it has also enhanced the theoretical research line by Hew, Lee, Ool and Wei, (2015) focused on mobile application adoption in the Malaysian market and that of Vinnik (2017) users' adoption of mobile applications in the Norwegian market.

These are the only researchers in the literature review that applied the UTAUT2 model in mobile applications adoption studies. However, some of the findings revealed in our study are different from those confirmed by Hew, Lee, Ool and Wei (2015). In contrast to our study, the UTAUT2 model did not confirm the significant effect of Hedonic Motivation, Facilitating Conditions, Habit and Effort Expectancy for mobile banking application, while Price Value showed significant effect in the model. It could be concluded that there can be differences in how users perceive the process of adopting mobile application based on the contextual maturity of market development (developed or transitioning economy), hence the need for further research initiatives in this area of study.

Venkatesh and Davis (2000) in the review of application of UTAUT model suggested that one of the directions for future UTAUT research is to conceptualize the use of technology at the feature level, linking it to individual outcomes. Venkatesh and Goyal (2010) claimed that there are few studies which tested the effects of moderation in their UTAUT applications. In this study, apart from testing the moderation effect of age and gender on performance expectancy and social influence, we tested their influence directly on behavioural intention which was not done in UTAUT and UTAUT2 models. Kim and Han (2011) and Shen (2015) argued that users' perception of mobile application adoption may differ depending on the type and value that they create for them.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of PE is the same across categories of BI.	Independent-Samples Kruskal-Wallis Test	.618	Retain the null hypothesis.
2	The distribution of SI is the same across categories of BI.	Independent-Samples Kruskal-Wallis Test	.097	Retain the null hypothesis.
3	The distribution of EE is the same across categories of BI.	Independent-Samples Kruskal-Wallis Test	.003	Reject the null hypothesis.
4	The distribution of FC is the same across categories of BI.	Independent-Samples Kruskal-Wallis Test	.001	Reject the null hypothesis.
5	The distribution of HM is the same across categories of BI.	Independent-Samples Kruskal-Wallis Test	.002	Reject the null hypothesis.
6	The distribution of PV is the same across categories of BI.	Independent-Samples Kruskal-Wallis Test	.137	Retain the null hypothesis.
7	The distribution of HT is the same across categories of BI.	Independent-Samples Kruskal-Wallis Test	.039	Reject the null hypothesis.
8	The distribution of ORR is the same across categories of BI.	Independent-Samples Kruskal-Wallis Test	.127	Retain the null hypothesis.
9	The distribution of IO is the same across categories of BI.	Independent-Samples Kruskal-Wallis Test	.109	Retain the null hypothesis.
10	The distribution of DOI is the same across categories of BI.	Independent-Samples Kruskal-Wallis Test	.473	Retain the null hypothesis.
11	The distribution of AGE is the same across categories of BI.	Independent-Samples Kruskal-Wallis Test	.774	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Figure 23: Kruskal Wallis Test Result

5.2 Implications for Business Management

For bank management, the main contribution of this research is that it reveals the factors that influencing the users' intention to adopt mobile banking applications. The results gotten from this study will be helpful for application in a business setting and equally fill the knowledge gap on mobile banking applications adoption for business managers, developers and marketers. From the results we can establish the fact that the main constructs in our model influence the user intention to adopt mobile banking application.

First, we see that the user's intention to adopt mobile banking application was motivated by the expectation of how the application will perform on its main functions and tasks, confirming the fact that mobile applications create value for businesses (Nah, Siau and Sheng, 2005). One of the core features that attract consumers to mobile applications is convenience Kim, Wang, and Malthouse (2015). Benefit seeking also played a role in the adoption of mobile instant messaging applications Oghuma, Chang, Libaque-Saenz, Park and Rho (2015). Our study confirmed that performance expectancy is one of the critical factors that influence the mobile banking application adoption process. The implication of this in general, is that when planning to develop a mobile application, developers and business organizations should critically examine performance, usefulness and task-fit of the mobile application; which could be useful for promotional and marketing purposes.

There are very few researches on how price value influences user's intention to adopt mobile application since mobile applications are offered on the market for free or for insignificant price. Liang et al. (2015) argued that moderating effect of Apps price will be significant, only when consumers' perception of product quality and mobile application service are in focus. Hew et al. (2015) showed that Price Value did not have significant influence on user's Behavioural Intention to adopt mobile application. In contrast, our study of the Nigerian market confirmed that price value is an important factor influencing the user's behavioural intention to adopt mobile banking application. This validated the findings of Vinnik (2017) on Norwegian market in 2017. The result of our study therefore, showed that users willingly paid for mobile applications they think will be useful to them. The finding from our study can be useful for developers in their choice of appropriate pricing strategy for their mobile banking application.

Vinnik (2017) did not show any significant influence of online rankings and reviews on users' behavioural intention to adopt mobile applications. In contrast, our study discovered that online rankings and reviews have significant influence on users' behavioural intention to adopt mobile banking application in Nigeria, validating earlier research findings of significant influence of online WOM, feedbacks, ratings and reviews for sales and attitudes towards mobile applications (Huang and Korfiatis, 2015; Shen, 2015; Liang et al., 2015). Based on this finding we suggest banks to explore the opportunities offered by online rankings and reviews for promoting their mobile banking application.

6. CONCLUSION

This paper presents an empirical evaluation of the effects of the factors influencing customers behavioural intention to adopt mobile banking application bank customers in Nigeria, to contribute to literature on user acceptance of information technology, and in particular the adoption of mobile banking applications. The results of statistical analysis of the sample data as shown in Table 6.1 confirmed that six of the independent variables of our model – performance expectancy, social influence, price value, online rankings and reviews, imitating others and discounting own information had a significant influence on behavioural intention of customers to adopt mobile banking application in Nigeria.

The results supported hypotheses H1, H2, H6, H8, H9 and H10. However, the result showed that effort expectancy, facilitating conditions, hedonic motivation and habit did not have significant influence on behavioural intention of customers to adopt mobile banking application in Nigeria; the implication is that the result did not support hypotheses H3, H4, H5 and H7 of our research model. Apart from moderating performance expectancy and social influence, the result showed that age and gender have significant influence on behavioural intention of customers to adopt mobile banking application in Nigeria; thereby supporting hypotheses H11 and H12 of our research model. This study has helped to narrow the knowledge gap found in the literature review and provided useful information that could influence the intention to adopt mobile banking application by bank customers by answering the research questions. The first research question RQ1 sought answers on the extent of adoption of mobile banking application by bank customers in Nigeria. The result showed that 76.2% of variance in the adoption of mobile banking application was explained by the six variables that had significant influence on Behavioural Intention.

The second research question RQ2 sought answer to the extent of the influence of the constructs of UTAUT2 on Behavioural Intention of customers to adopt mobile banking application. The result showed that six out of ten variables had significant influence on Behavioural intention of customers to adopt mobile banking application; while the remaining four variables did not show any significant influence on Behavioural Intention of user to adopt mobile banking. Furthermore, the result showed that age and gender moderated performance expectancy and social influence towards behavioural intention of customers to adopt mobile banking application, which answered research question RQ3. Our study has some limitations that create scope for future researches without undermining the findings of this study. The study was conducted in Nigeria and findings are specific to Nigerian banking sector. Thus, future researches could investigate the same model with data from different market be it developed or transitioning economy.

In future, we plan to conduct further empirical research to identify mechanisms of adoption of mobile banking applications for specific categories of mobile applications including social, shopping, lifestyle and games; and to test the model on other groups of respondents and in a different setting. Previous research findings showed some adoption patterns for different categories of mobile applications: shopping apps Taylor and Todd (1995), security apps Han et al. (2014), mobile banking apps Ver´ıssimo(2016), messaging apps Oghuma et al. (2015), mobile hotel services Morosan and DeFranco (2016), but none of them used UTAUT2 model, notwithstanding that UTAUT2 model has more benefits than the earlier technology adoption models.

This may explain why some of the initial research model hypotheses were not confirmed because they were insignificant in the overall model, but have stronger significance for specific categories of mobile applications. For example, Vinnik (2017) did not showed any significant influence of herd behaviour on the behavioural intention of users to adopt mobile application for all types of mobile applications while our study confirmed herd behaviour has significant influence on behavioural intention to adopt mobile banking application. Similarly, Ver´ıssimo (2016) confirmed effort expectancy had significant influence on behavioural intention using TAM whereas our study using UTAUT2 model showed that effort expectancy had no significant influence on behavioural intention of users adopt mobile banking application.

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APPENDIX A

QUESTIONNAIRE

Introduction Dear respondent, I sincerely appreciate and thank you for your participation in this survey! The following survey was prepared by EchebiriWobidi, a postgraduate student at Global Development Institute, School of Environment and Development (SED), University of Manchester. It will take you approximately 10 minutes to complete the survey. Your response is anonymous. It is voluntary to answer the questionnaire and you can drop out from the survey at any point. For questions and comments feel free to send an email to echebiri.wobidi@postgrad.manchester.ac.uk. The topic of my thesis is an empirical investigation on mobile apps adoption by bank customers in Nigeria.
Demographics
Please indicate as appropriate.
Your age: _____
a.) 18-23 years
b.) 24-30 years
c.) 31-40 years
d.) Above 40 years
What is your gender? _____ Male/Female
What is your occupation? _____
a.) Student
b.) Academic Staff
c.) Administrative Staff
d.) Small Business Owner
Do you use mobile banking apps (Yes/No)? _____
How would you describe your experience in using mobile banking apps? _____
1.) Very little experience
2.) Little experience
3.) Experienced
4.) Moderately experience
5.) Very experienced
Some of the questions may look a bit similar. This is done on purpose to ensure valid results. To make your response valuable for the research, please answer all the questions as carefully as possible.

How would you describe the performance of mobile banking app? Please tick [X] as appropriate.

Performance Expectancy	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
I find mobile banking app useful in my everyday life.							
Using mobile banking app increases my chances of doing things that are important to me							
Using mobile banking app helps me accomplish things more quickly							

What do people that matter to you think about mobile banking application? Please tick [X] as appropriate

Social Influence	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
People that matter to me think I should use this app.							
People that have influence on my behaviour said I should use this app							
People whose opinions are valued by me encouraged me to use this app							

How much effort does it take you to use this application? Please tick [X] as appropriate

Effort Expectancy	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neither Agree Nor Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
Learning how to use mobile banking app is easy for me..							
I find mobile banking app easy to use.							
My interaction with mobile banking app is clear and understandable							
My It is easy for me to become skilled at using mobile banking app with mobile banking app is clear and understandable							

Do you feel like you have necessary conditions and infrastructure to use this application? Please tick [X] as appropriate

Facilitating Conditions	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neither Agree Nor Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I have the needed resources to use mobile banking app.							
I have the knowledge necessary to use mobile banking app.							
The mobile banking app is compatible with other technology I use.							
I can access help from others when I have difficulties with usage using mobile banking app.							

Table 13: How would you describe the pressure of using mobile banking application? Please tick [X] as appropriate

Hedonic Motivation	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neither Agree Nor Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
Using mobile banking app is fun.							
Using mobile banking app is enjoyable..							
Using mobile banking app is very entertaining.							

Does this application deliver value for money? Please tick [X] as appropriate

Price Value	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neither Agree Nor Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
The mobile banking app is reasonably.							
The mobile banking app is a good value for its price.							
At the current price mobile banking app provides good value.							

Is using mobile app a habit for you? Please tick [X] as appropriate.

Habit	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neither Agree Nor Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
The use of mobile banking app has become a habit for me.							
I am addicted to using mobile banking app.							
I must use mobile banking app.							

Do you know what rating and feedbacks mobile banking app has online? Please tick [X] as appropriate.

Online rankings and reviews	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neither Agree Nor Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I checked for the online ratings and reviews when I searched for this app.							
I accepted mobile banking app because it ranks high on the app store.							
I accepted mobile banking app because I have many positive online comments and reviews.							
I accepted mobile banking app because it was listed on mobile app top charts.							

When making your choice do you consider how popular mobile banking app is on the market? Please tick [X] as appropriate.

Herd behaviour Imitating others	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neither Agree Nor Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
If mobile banking app seems to be a dominant mobile app on the market I would like to use it as well.							
I follow others in accepting mobile banking app.							
I choose to accept mobile banking app because I see other people use it.							

When making your choice to use mobile banking app to what extent do you rely on your own knowledge and information? Please tick[X] as appropriate.

Discounting Own In-formation	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neither Agree Nor Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
My acceptance of mobile banking app did not reflect my own preferences for banking services.							
I did not make the decision based on my own research and information when choosing mobile banking apps.							
If I didn't know that a lot of people have accepted mobile banking app I could have still accepted it.							

When making your choice to use mobile banking app to what extent do you rely on your own knowledge and information? Please tick[X] as appropriate.

Behavioural Intention	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Neither Agree Nor Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
I intend to continue using mobile banking app in the future.							
I will always try to use mobile banking app in my daily banking transactions.							
I plan to continue to use mobile banking app frequently							

APPENDIX B

OUTPUT OF DATA ANALYSIS

Factor Analysis		Description of Variables	Seven-Likert scale						
Construct	Variable		1	2	3	4	5	6	7
	PE1	I find mobile banking apps useful in my every day life	1	2	2	13	20	62	50
	PE2	Using mobile banking app increases my chances of doing things that are	1	2	2	12	18	65	50
		important to me							
PE	PE3	Using mobile banking app helps me accomplish things more quickly	1	2	2	10	11	65	59
	SI1	People that matter to me think I should use this app.	11	9	2	8	10	70	40
	SI2	People that have influence on my behaviour said I should use this app	17	13	4	20	12	57	27
SI	SI3	People whose opinions are valued by me encouraged me to use this app	11	10	5	9	15	60	40
	EE1	Learning how to use mobile banking app is easy for me.	4	5	3	4	14	65	55
	EE2	I find mobile banking app easy to use.	2	2	5	3	13	68	57
	EE3	My interaction with mobile banking app is clear and understandable	2	3	4	7	15	57	62
EE	EE4	It is easy for me to become skilled at using mobile banking app	3	5	3	8	14	64	53
	FC1	I have the resources necessary to use mobile banking app.	5	7	8	6	24	65	35
		I have the knowledge necessary to use mobile banking app.	3	4	3	3	18	67	52
		The mobile banking app is compatible with other technology I use.	2	8	5	13	22	56	44
FC		I can get help from others when I have difficulties with usage using mobile	4	6	4	7	23	68	38
	HM1	Using mobile banking app is fun.	8	4	3	10	26	61	38
	HM2	Using mobile banking app is enjoyable.	4	4	5	8	25	64	40
HM	HM3	Using mobile banking app is very entertaining.	7	8	5	12	25	63	30
	PV1	The mobile banking app is reasonably priced	6	23	5	12	30	51	23
	PV2	The mobile banking app is a good value for its price.	6	12	5	14	35	53	25
	PV3	At the current price mobile banking app provides	5	9	5	18	30	53	30
PV		good value							
	HT1	The use of mobile banking app has become a habit for	8	26	7	10	23	51	25
	HT2	I am addicted to using mobile banking app.	16	39	7	14	20	34	20
HT	HT3	I must use mobile banking app	10	28	10	23	23	36	20
	ORR1	I checked for the online ratings and reviews when I	10	60	7	13	18	35	7
		searched for this app.							
	ORR2	I accepted mobile banking app because it ranks high	11	55	8	19	23	28	6
		on the app store							
	ORR3	I accepted mobile banking app because I have many	10	54	12	23	10	28	13
		positive online comments and reviews							
	ORR4	I accepted mobile banking app because it was listed	12	55	12	18	15	26	12
ORR		on mobile app top charts							
	IO1	If mobile banking app seems to be a dominant mobile	10	15	5	8	34	55	23
		app on the market I would like to use it as well.							
	IO2	I follow others in accepting mobile banking app.	7	26	4	15	24	57	17
	IO3	I choose to accept mobile banking app because I see	11	31	7	15	26	42	18
IO		other people use it.							
	DOI1	My acceptance of mobile banking app did not reflect	4	18	10	16	28	64	10
		my own preferences for banking services							
	DOI2	I did not make the decision based on my own	5	22	7	14	22	65	15
		research and information when choosing mobile							
	DOI3	If I didn't know that a lot of people have accepted	2	26	7	12	14	63	26
DOI		mobile banking app I could have still accepted it.							
	BI1	I intend to continue using mobile banking app in the	3	3	3	10	7	65	59
	BI2	I will always try to use mobile banking app in my daily	2	5	5	10	17	56	55
BI	BI3	I plan to continue to use mobile banking app	2	6	5	7	12	64	54

Figure 24: Raw Data Summary

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PE	133	1.667	7.000	5.469	0.801	.641	-1.298	.210	3.701	.417
SI	133	1.000	7.000	5.135	1.610	2.591	-1.244	.210	.705	.417
EE	133	1.000	7.000	6.013	1.099	1.208	-2.259	.210	6.554	.417
FC	133	1.000	7.000	5.633	1.125	1.265	-1.765	.210	4.147	.417
HM	133	1.000	7.000	5.466	1.318	1.736	-1.487	.210	2.385	.417
PV	133	1.000	7.000	5.043	1.470	2.161	-1.058	.210	.558	.417
HT	133	1.000	7.000	4.351	1.711	2.928	-.268	.210	-1.117	.417
ORR	133	1.000	7.000	3.749	1.640	2.689	.166	.210	-1.185	.417
IO	133	1.000	7.000	4.596	1.537	2.364	-.649	.210	-.529	.417
DOI	133	1.000	7.000	4.792	1.352	1.828	-.667	.210	-.066	.417
BI	133	1.000	7.000	5.890	1.290	1.663	-1.747	.210	3.241	.417
Valid N (listwise)	133									

Figure 25: Raw Data Summary

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	.321	.851		.377	.707		
PE	.095	.133	.059	.717	.475	.709	1.411
SI	.021	.069	.026	.306	.760	.659	1.518
EE	.228	.115	.195	1.985	.049	.501	1.994
FC	.122	.108	.106	1.124	.263	.542	1.844
HM	.283	.091	.290	3.097	.002	.552	1.813
PV	.040	.072	.046	.558	.578	.719	1.390
HT	.056	.061	.075	.918	.361	.725	1.379
ORR	.013	.070	.017	.192	.848	.615	1.625
IO	.109	.070	.130	1.557	.122	.695	1.440
DOI	.070	.069	.073	1.011	.314	.915	1.092

Figure 26: Collinearity Diagnosis of Mobile Banking Application

		PE	SI	EE	FC	HM	PV	HT	ORR	IO	DOI	BI
Normal Distribution	Local	5.4686	5.1353	6.0127	5.6334	5.4663	5.0426	4.3508	3.7488	4.5964	4.7919	6.8897
	Scale	.80092	1.6096	1.0986	1.1245	1.3176	1.4699	1.7111	1.6397	1.5374	1.3518	1.2895
The cases are unweighted												

Figure 27: Estimated Distribution Parameters

Construct	Variables	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness	Kurtosis
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
PE	PE1	133	2.0000	7.0000	5.466165	.9812552	.963	-1.150	2.124
	PE2	133	1.0000	7.0000	5.360902	.9796285	.960	-1.271	4.601
	PE3	133	2.0000	7.0000	5.526316	.8667157	.751	-.897	1.495
SI	SI1	133	1.0000	7.0000	5.353383	1.7888353	3.200	-1.433	.923
	SI2	133	1.0000	7.0000	4.729323	1.9776318	3.911	-.786	-.696
	SI3	133	1.0000	7.0000	5.323308	1.7690473	3.130	-1.295	.693
EE	EE1	133	1.0000	7.0000	6.015038	1.2967615	1.682	-2.187	5.260
	EE2	133	1.0000	7.0000	6.067669	1.1690160	1.367	-2.271	6.370
	EE3	133	1.0000	7.0000	6.067669	1.2197584	1.488	-2.089	5.100
	EE4	133	1.0000	7.0000	5.902256	1.3363488	1.786	-1.888	3.808
FC	FC1	133	1.0000	7.0000	5.548872	1.4326610	2.053	-1.410	1.509
	FC2	133	1.0000	7.0000	5.962406	1.2875041	1.658	-2.199	5.498
	FC3	133	1.0000	7.0000	5.556391	1.4481625	2.097	-1.314	1.362
	FC4	133	1.0000	7.0000	5.466165	1.5153201	2.296	-1.466	1.573
HM	HM1	133	1.0000	7.0000	5.496241	1.5256596	2.328	-1.572	2.249
	HM2	133	1.0000	7.0000	5.691729	1.3881558	1.927	-1.742	3.228
	HM3	133	1.0000	7.0000	5.210526	1.6239338	2.637	-1.230	.841
PV	PV1	133	1.0000	7.0000	4.827068	1.7602999	3.099	-.832	-.570
	PV2	133	1.0000	7.0000	5.060150	1.5943052	2.542	-1.170	.520
	PV3	133	1.0000	7.0000	5.240602	1.5032811	2.260	-1.194	.882
HT	HT1	133	1.0000	7.0000	4.721805	1.8883751	3.566	-.646	-.994
	HT2	133	1.0000	7.0000	4.022556	2.0093198	4.037	-.094	-1.458
	HT3	133	1.0000	7.0000	4.308271	1.9116091	3.654	-.259	-1.250
ORR	ORR1	133	1.0000	7.0000	3.751880	1.9204088	3.688	.125	-1.574
	ORR2	133	1.0000	7.0000	3.729323	1.8345498	3.366	.109	-1.428
	ORR3	133	1.0000	7.0000	3.796992	1.8900032	3.572	.263	-1.350
	ORR4	133	1.0000	7.0000	3.721805	1.9553864	3.824	.299	-1.375
IO	IO1	133	1.0000	7.0000	4.924812	1.7948751	3.222	-.923	-.256
	IO2	133	1.0000	7.0000	4.669173	1.8204304	3.314	-.682	-.907
	IO3	133	1.0000	7.0000	4.263158	1.9574827	3.832	-.308	-1.341
DOI	DOI1	133	1.0000	7.0000	4.714286	1.6356420	2.675	-.837	-.564
	DOI2	133	1.0000	7.0000	4.721805	1.7724892	3.142	-.746	-.821
	DOI3	133	1.0000	7.0000	4.939850	1.8247432	3.330	-.760	-.874
BI	BI1	133	1.0000	7.0000	5.977444	1.3732629	1.886	-2.044	4.327
	BI2	133	1.0000	7.0000	5.842105	1.3863081	1.922	-1.531	2.168
	BI3	133	1.0000	7.0000	5.849624	1.3734288	1.886	-1.720	2.790
	Valid N (listwise)	133							

Figure 28: Normality Test

Correlations

		PE	SI	EE	FC	HM	PV	HT	ORR	IO	DOI	BI
PE	Pearson Correlation	1	.502**	.118	.041	.153	.052	.178*	.108	.147	.005	.181*
	Sig. (2-tailed)		.000	.177	.635	.079	.556	.041	.217	.091	.953	.037
	Sum of Squares and Cross-products	84.676	85.453	13.687	4.931	21.302	8.010	32.129	18.687	23.929	.744	24.652
	Covariance	.641	.647	.104	.037	.161	.061	.243	.142	.181	.006	.187
	N	133	133	133	133	133	133	133	133	133	133	133
SI	Pearson Correlation	.502**	1	.311**	.239**	.181*	.105	.149	.031	.183*	.088	.241**
	Sig. (2-tailed)	.000		.000	.006	.037	.231	.087	.723	.035	.313	.005
	Sum of Squares and Cross-products	85.453	342.011	72.588	57.099	50.758	32.679	54.129	10.799	59.707	25.301	65.986
	Covariance	.647	2.591	.550	.433	.385	.248	.410	.082	.452	.192	.500
	N	133	133	133	133	133	133	133	133	133	133	133
EE	Pearson Correlation	.118	.311**	1	.607**	.552**	.167	.331**	.019	.116	.190*	.496**
	Sig. (2-tailed)	.177	.000		.000	.000	.054	.000	.832	.183	.029	.000
	Sum of Squares and Cross-products	13.687	72.588	159.393	99.086	105.513	35.644	82.137	4.415	25.902	37.204	92.721
	Covariance	.104	.550	1.208	.751	.799	.270	.622	.033	.196	.282	.702
	N	133	133	133	133	133	133	133	133	133	133	133
FC	Pearson Correlation	.041	.239**	.607**	1	.493**	.307**	.357**	.072	.163	.153	.450**
	Sig. (2-tailed)	.635	.006	.000		.000	.000	.000	.412	.061	.080	.000
	Sum of Squares and Cross-products	4.931	57.099	99.086	166.944	96.335	66.910	90.772	17.460	37.245	30.609	86.124
	Covariance	.037	.433	.751	1.265	.730	.507	.688	.132	.282	.232	.652
	N	133	133	133	133	133	133	133	133	133	133	133
HM	Pearson Correlation	.153	.181*	.552**	.493**	1	.370**	.413**	.179*	.145	.145	.543**
	Sig. (2-tailed)	.079	.037	.000	.000		.000	.000	.039	.095	.095	.000
	Sum of Squares and Cross-products	21.302	50.758	105.513	96.335	229.170	94.528	122.992	51.179	38.817	34.136	121.871
	Covariance	.161	.385	.799	.730	1.736	.716	.932	.388	.294	.259	.923
	N	133	133	133	133	133	133	133	133	133	133	133
PV	Pearson Correlation	.052	.105	.167	.307**	.370**	1	.134	.360**	.262**	.183*	.287**
	Sig. (2-tailed)	.556	.231	.054	.000	.000		.123	.000	.002	.035	.001
	Sum of Squares and Cross-products	8.010	32.679	35.644	66.910	94.528	285.203	44.568	114.510	78.062	47.957	71.847
	Covariance	.061	.248	.270	.507	.716	2.161	.338	.867	.591	.363	.544
	N	133	133	133	133	133	133	133	133	133	133	133
HT	Pearson Correlation	.178*	.149	.331**	.357**	.413**	.134	1	.276**	.213*	.092	.356**
	Sig. (2-tailed)	.041	.087	.000	.000	.000	.123		.001	.014	.291	.000
	Sum of Squares and Cross-products	32.129	54.129	82.137	90.772	122.992	44.568	386.516	102.240	73.941	28.152	103.813
	Covariance	.243	.410	.622	.688	.932	.338	2.928	.775	.560	.213	.786
	N	133	133	133	133	133	133	133	133	133	133	133
ORR	Pearson Correlation	.108	.031	.019	.072	.179*	.360**	.276**	1	.514**	.194*	.205*
	Sig. (2-tailed)	.217	.723	.832	.412	.039	.000	.001		.000	.026	.018
	Sum of Squares and Cross-products	18.687	10.799	4.415	17.460	51.179	114.510	102.240	354.913	171.156	56.646	57.335
	Covariance	.142	.082	.033	.132	.388	.867	.775	2.689	1.297	.429	.434
	N	133	133	133	133	133	133	133	133	133	133	133
IO	Pearson Correlation	.147	.183*	.116	.163	.145	.262**	.213*	.514**	1	.110	.270**
	Sig. (2-tailed)	.091	.035	.183	.061	.095	.002	.014	.000		.206	.002
	Sum of Squares and Cross-products	23.929	59.707	25.902	37.245	38.817	78.062	73.941	171.156	312.011	30.281	70.637
	Covariance	.181	.452	.196	.282	.294	.591	.560	1.297	2.364	.229	.535
	N	133	133	133	133	133	133	133	133	133	133	133
DOI	Pearson Correlation	.005	.088	.190*	.153	.145	.183*	.092	.194*	.110	1	.204*
	Sig. (2-tailed)	.953	.313	.029	.080	.095	.035	.291	.026	.206		.018
	Sum of Squares and Cross-products	.744	25.301	37.204	30.609	34.136	47.957	28.152	56.646	30.281	241.245	46.949
	Covariance	.006	.192	.282	.232	.259	.363	.213	.429	.229	1.828	.356
	N	133	133	133	133	133	133	133	133	133	133	133
BI	Pearson Correlation	.181*	.241**	.496**	.450**	.543**	.287**	.356**	.205*	.270**	.204*	1
	Sig. (2-tailed)	.037	.005	.000	.000	.000	.001	.000	.018	.002	.018	
	Sum of Squares and Cross-products	24.652	65.986	92.721	86.124	121.871	71.847	103.813	57.335	70.637	46.949	219.493
	Covariance	.187	.500	.702	.652	.923	.544	.786	.434	.535	.356	1.663
	N	133	133	133	133	133	133	133	133	133	133	133

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Figure 29: Pearson Correlation