EFFECT OF TECHNOLOGY QUALITY ON PERCIEVED USEFULNESSS AND EASE OF USE OF JAIZ ISLAMIC BANK IN ENHANCING E-BANKING EFFICIENCY IN NIGERIAN DWINDLING ECONOMY

BINTA USMAN DALHATU, PhD & MUSA MUHAMMAD TSAGEM, PhD
Department of Business Education,
Federal College of Education, PMB 2041, Katsina, Nigeria
E-mail: binsodangi@gmail.com, musatsagem@gmail.com
Phone No: +234-706-500-0132; +234-703-005-9370

Abstract
This study was conducted to assess the effect of technology quality on perceived usefulness and ease of use of Jaiz Islamic Bank (JIB) in enhancing e-banking efficiency in the Nigerian dwindling economy using technology acceptance Model (TAM). Questionnaires were used as means of data collection. The survey data was analysed using both descriptive statistics and Structural Equation Model (SEM). Three hypotheses were tested in the study. The study revealed that technology quality has no influence on the customers' perceived usefulness of the JIB e-banking. It also indicates that the JIB e-banking technology quality provides ease of use benefits to the customers. Finally, the study revealed that there is a direct positive significance relationship between perceived ease of use and perceived usefulness. Both the measurement and structural models show that the models fits the data collected without having to revise it, an indication of a good models. It is recommended that JIB improvement on quality of its technology is crucial especially the way their customers perceived the usefulness of its e-banking. Similarly, JIB should put more efforts on improving its technology quality so that people will develop positive perception on how easy it is to use their e-banking.

Keywords: Technology Quality, Perceived Usefulness, Ease of Use, Jaiz Islamic Bank (JIB), Enhancing E-Banking Efficiency, Nigerian Dwindling Economy

Introduction

E-banking refers to the usage of technology for delivery of information to and from the bank on any financial transactions. This type of services include the system that allows banking institutions and their clients to gain access to their accounts, and obtain the needed information immediately as well as make any financial transactions via a private or public network (Prakash & Malik, 2008). The banking industry plays a very crucial role in the economic development of any nation because it lubricates the engine of economic activities. Nonetheless, especially in developing countries like Nigeria, the banking industry to date has conducted its business based on traditional banking system.

Recently an important evolving phenomenon changing the landscape of banking and finance in Nigeria today is the advent of Islamic banking and finance and e-banking alternative. With the introduction of e-banking option in some countries especially developing one like Nigeria there are some issue with the technology quality (Agwu, 2012). It is in view of that information technology including e-banking studies has been conducted especially on its technology quality globally. Notable studies among them are Lallmahamood (2007), Rusu and Shen (2011), Hsu and Chang (2013), Jeung-tai, and Chihui, (2009) among others. However, Ringim (2013) noted that there is yet to be a study carried out on the effect of technology quality of e-banking in JIB Nigeria.

In order to fill in the research gap, this paper was conducted to assess the effect of technology quality on perceived usefulness and ease of use of JIB in enhancing e-banking efficiency in Nigerian dwindling economy using technology acceptance Model (TAM). Therefore the main objective of this study is to assess the effect of technology quality on perceived usefulness and ease of use of JIB in enhancing e-banking efficiency in Nigerian dwindling economy.

Literature Review

It is important for banks to provide excellent technology quality to their customers especially in the areas of convenience, security and privacy which were the main variables used in this study. Hence convenience, security and privacy were used in this research as the two components of technology quality. Based on this some related literature were reviewed. Lallmahamood (2007) investigated the influence of technology quality of e-banking using TAM. The survey included 500 internet users in Malaysian urban cities, in which the study used multiple regression analysis for data analysis. The main findings from his study showed that, security and privacy were highly correlated with perceived usefulness and perceived ease of use. In addition to that there is significant relationship between perceived ease of use and perceived usefulness.

However, in the study of Rusu and Shen (2011) it was indicated that security and privacy have negative relationship with perceived ease of use and perceived usefulness. Their finding is in disagreement with the findings of Lallmahamood (2007). They also revealed that if a bank ensures security and privacy in their electronic banking, other variables such as perceived ease of use and perceived usefulness shall be considered by customers, while if it is not ensured the opposite will occur. Their results also revealed that there is a statistically significant relationship between perceived usefulness and perceived ease of use. In the same vein, Hsu and Chang (2013) conducted a quantitative research with the objective of extending TAM by including perceived convenience, with total samples of 82 college and senior high school students. The result from their study showed that perceived convenience had a direct and significant effect on perceived usefulness and perceived ease of use.

Similarly, Jeung-tai, and Chihui, (2009) conducted a research by extending TAM with perceived convenience along with innovativeness and examined the impact of technology quality of e-banking. Their study comprised of 181 valid respondents. Their main findings revealed that perceived convenience is significantly related to perceived ease of use. This is similar to the findings of Hsu and Chang (2013), who revealed that perceived convenience has direct and significant effect on both perceived usefulness and the perceived ease of use.

In the same vein, the study of Njuguna, Ritho, Olweny, and Wanderi, (2013) revealed that perceived usefulness and perceived ease of use share a significant relationship. Similarly, both perceived usefulness and perceived ease of use significantly influence customers' attitudes towards use, which also influences intention to use. They also showed that the intention to use influences the actual use. Finally they also revealed that user satisfaction was also considered to be related to both perceived ease of use and perceived usefulness.

Methodology

Survey research design was used in the study. The population of interest in this study is all JIB current e-banking customers. Since JIB does not cover the whole of Nigeria, it covers only seven states and FCT. The sample size was calculated as follows. From the updated 2009 population estimate the estimated population of the study area i.e. state with JIB branches was

computed as 34,930,001 individuals (Information Nigeria Magazine, 2009). In view of Krejeie and Morgan (1970), argument that a minimum sample size of 384 suffices for a population of a million and above. A sample frame of 500 JIB customers was taken to determine the number of JIB customers to be chosen. Proportionate stratified sampling technique was adopted. The procedure for calculating a sample size for each state and FCT Abuja, involves dividing the 95% or 50% of population estimate of a given state or FCT Abuja with the total estimated population of the seven states and FCT Abuja and then multiplying the result with the adopted sample size of 500 NIB retail customers. For example the sample size of Borno state is calculated as follows: 3,943,633 × 500 ÷ 34,930,001 = 57

The same procedure was followed in arriving at a sample for the remaining six states and FCT Abuja. Sample size of seven states and FCT Abuja with JIB branches is 340 + 160 = 500.
As shown in table 1.

Table 1: Spread of sample size from the estimated populations of JIB customers from seven states with JIB branches and FCT Abuja in Nigeria.

	Five States with JIB branches	**95% of Estimated Population (states with highest Muslims populations)**	**Sample Subjects**
1	Borno	3,943,633	57
2	Gombe	2,236,185	32
3	Kano	8,914,498	128
4	Katsina	5,502,949	79
5	Zamfara	3,096,854	44
	Total of five states	23,694,119	340
	Two States and FCT Abuja with JIB branches	50% of Estimated Population (states with average Muslims populations)	
1	Kaduna State	3,033,281	43
2	Lagos State	7,500,000	107
	Abuja FCT	702,601	10
	Total of two states & FCT	11,235,882	160
	Total	34,930,001	500

Source*:* Developed by the Researcher, April, 2016

In order to obtain the most appropriate respondents who are most conveniently available, a purposive sampling procedure was adopted in this study. Bernard and Bernard (2012) refer to purposive sampling as type of sampling, whereby respondents are selected based on the judgment of the researcher in the study. The research instrument for this study is a survey questionnaire. A total of one thousand five hundred (1500) questionnaires were distributed to all the branches of Jaiz Islamic Bank. Eight hundred and twenty five questionnaires were collected, representing fifty five percent (55%) response rate. Twenty five of them were exempted from the analysis because they were not fully completed. Data obtained from the survey was analysed quantitatively using both descriptive and SEM as inferential statistics.

The Research Model

Technology Acceptance Model (TAM) was chosen as the reference paradigm within which the proposed theoretical framework was developed in this study. The model originally specified by the Fishbein (1967), and extensively analysed and developed by Fishbein and Ajzen (1975) as the Theory of Reasoned Action (TRA). Davis (1985) later modified it and formulated his own model of technology acceptance model in 1985. The model received broad support in empirical studies of technology acceptance which include Phatthana and Mat (2011); Amin, Rezaei, Abolghasemi, Chen, and Li. (2014); Reid and Levy (2008); Li-Ming, Wai, Hussin, and Mat, (2013); Alalwan, Dwivedi, Rana and Williams (2016).

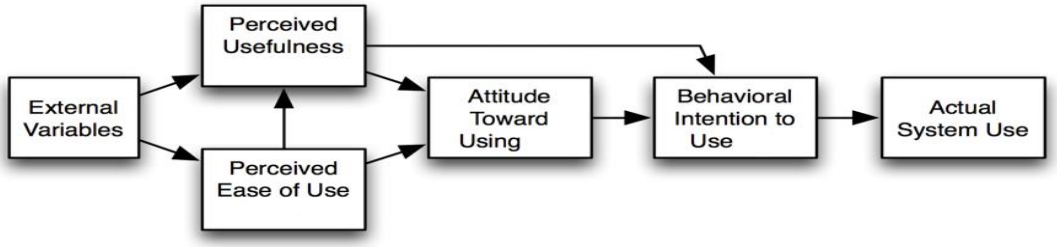
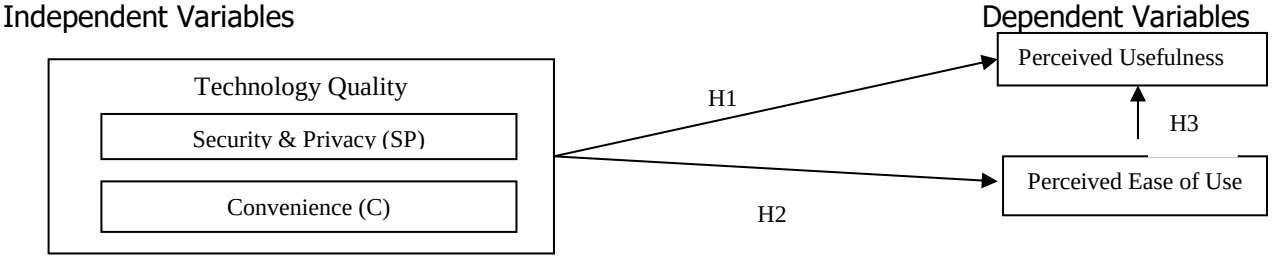


Figure 1: Technology Acceptance Model by Davis (1985)

Research Framework and Hypotheses



Based on the research framework developed for the study the following alternative hypotheses would be tested at 0.05 significance level.

H1: There is significant influence of technology quality (convenience security and privacy) of e-banking on its perceived usefulness among JIB *customers.*

H2: There is significant influence of technology quality (convenience security and privacy) of e-banking on its perceived ease of use JIB customers.

H3: There is significant influence of perceived ease of use on perceived usefulness of e-banking among JIB customers.

Results and Discussions

Table 2: Demographic profile of the respondents

Gender	**Percentage**	**Frequency**
Female	36.6	293
Male	63.4	507
Total	100.0	800
Age	**Percentage**	**Frequency**
18-27	19.0	152
28-37	43	344
38-47	29.6	237
48 & above	8.4	67
Total	100.0	800
Education	**Percentage**	**Frequency**
Islamic school	13.6	109
Primary	8.2	65
Secondary	15.6	125
Diploma/NCE	25.2	202
Degree	23.4	187
Post Graduate	14.0	112
Total	100.0	800
Income (Naira)	**Percentage**	**Frequency**
18000-19999	39.4	315
20000-39999	27.4	219
40000-59999	17.3	139
60000 & more	15.9	127
Total	100.0	800
Occupational category	**Percentage**	**Frequency**
Private Sector	71.0	568
Public Sector	29.0	232
Total	100.0	800

Source: Extracted from SPSS output

SEM was used in this analysis that requires the data to satisfy certain conditions like assessing normality and outliers. First of all descriptive analysis using the mean score and standard deviation was performed. After the descriptive analysis of the various questionnaire items and their associated latent variables their parametric properties is assessed as suggested by Hair et.al. (2010) that normality of the data for this study was assessed with a view to detect the presence of outliers, which may bias the results. The results show absence of multivariate non-normality in our data. The data used is not affected by the presence of outliers. EFA was conducted as presented in table 3 below.

Table 3: Exploratory factor analysis of all variables

Indicator	Factor Loadings Factor Loadings: Variance Extracted: 72.38%, KMO: 0.815, Bartlett's: 709.544 Sig. 0.00			
TQC11	.815			
TQC12	.786			
TQC13	.829			
TQSP17		.765		
TQSP18		.832		
TQSP19		.791		
PU22			.758	
PU23			.845	
PU24			.862	
PU25			.817	
PEOU30				.859
PEOU31				.818
PEOU32				.841

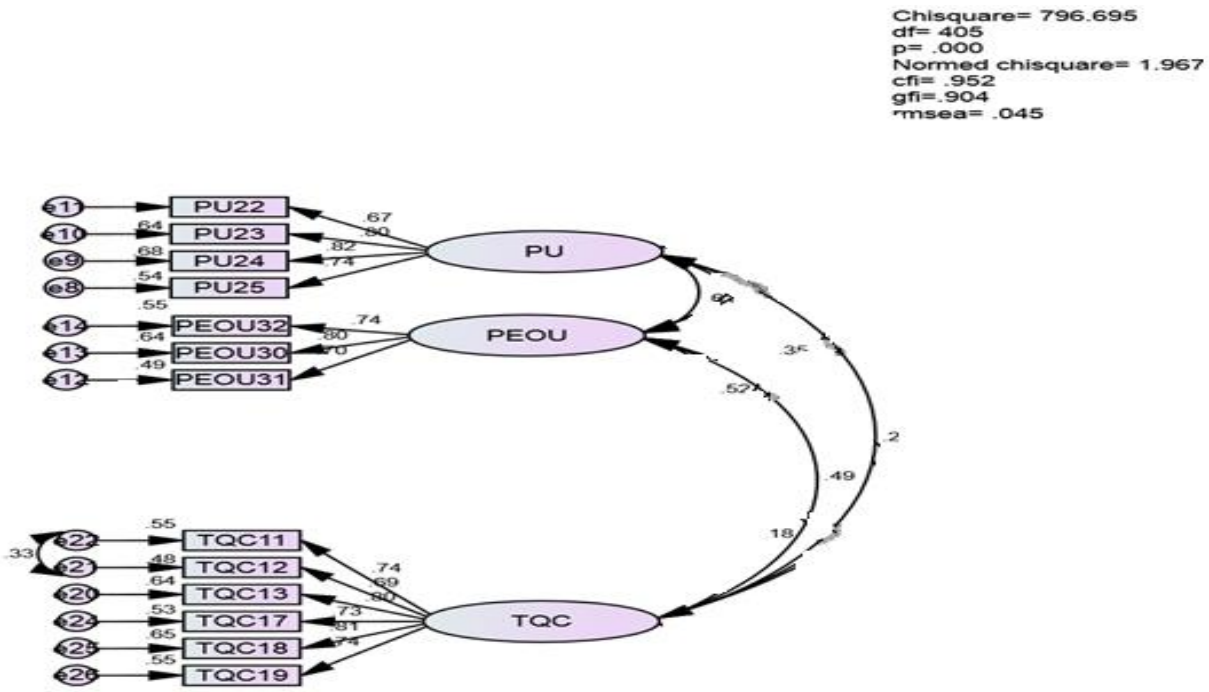
Source: Extracted from SPSS output

Measurement Model of the Constructs (CFA) of Jaiz Islamic Bank E-Banking

Analysis using the structural equation modelling entails two steps to establish the association between the items and relationship among the constructs as extracted during the EFA. The first step is known as the confirmatory factor analysis and the second step is the path analysis. The most commonly used fit indices among the ones mentioned above are CMIN/DF, CFI and RMSEA. According to Wothke and Arbuckle (1996), CMIN/DF with a value of between 2 and 5 is considered acceptable. They further stressed that the threshold values of CFI and TLI range from 0 to 1, with the values that are close to 1demonstrating a good fit (normally above 0.9). Finally, a value of RMSEA of ≤ 0.1 shows a reasonable error of estimation.

The CFI was 0.948 (above the 0.9 minimum), CMIN/DF was 2.057 (below the recommended ≤ 5 cut- off point) and the RMSEA was 0.046 (below the recommended value of ≤ 0.08). All these indicate that the model hypothesized fits the data (Figure 1). The loadings of the items were also examined to see their performances on their respective constructs. All the loading values of the items are more than 0.5 (minimum recommended value) and are all statistically significant, indicating that they are all good measures of their constructs. Therefore, it is concluded that the hypothesized model fits the data as presented in figure 1.

Figure 1: Measurement Model for TQ JIB



A tabular presentation of fit indices criteria compared to the recommended threshold with the observed values of the measurement model is presented in table 4 below:

Table 4: Tabular presentations of fit indices criteria compared to baseline model output

Fit Indices	Recommended Threshold	Observed Values
CMIN/DF	2 ≥ CMIN/DF ≤ 5	2.057
P	P ≥ 0.05	0.000
CFI	CFI ≥ 0.90	0.948
RMSEA	RMSEA ≤ 0.08	0.046

Source: Extracted from Amos output

Convergent and Discriminant Validity of Measurement Model of Use of Nigerian Islamic Bank E- Banking

Table 5: Result of convergent and discriminant validity

Factors	CR	AVE	MSV	ASV
Perceived Use	0.842	0.573	0.462	0.289
Perceived Ease of Use	0.792	0.560	0.774	0.509
Technological Quality	0.890	0.575	0.249	0.160

Source: Authors' computation via statistical tools package developed by Gaskin (2012)

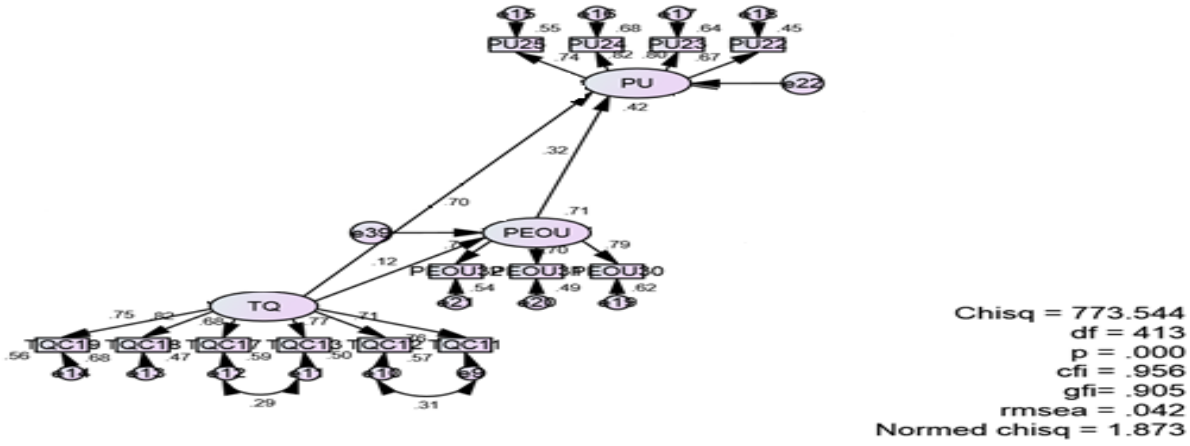
The values in Table 5 above were derived via the statistical tools package developed by Gaskin (2012). The recommended thresholds adopted were also based on those suggested by Gaskin (2012). The average variances extracted (AVE) of all the constructs are more than 0.5, and all the Critical Ratio (CR) is more than 0.7 a condition necessary for convergent validity. However, each construct could not be said to be distinct from each other (discriminant validity) as only one of the two conditions that established this is met by our model (AVE > ASV but not all MSV). It is envisaged that since the theoretical basis for developing each construct is different, the lack of divergent validity should not have serious effect on the final result (Gaskin, 2012). It was advocated that if there is such an issue, a researcher can proceed with the analysis taking cognizance of such lack of divergence provided the variables are used in different contexts within a model and do not generate offending estimates afterward in both the measurement and the structural models (Gaskin, 2012).

Structural Model for Technology Quality of JIB E-Banking

As noted earlier, analysis using structural equation modelling involves two stages- measurement model and path analysis structural model. The hypothesized structural model for this study was analysed using maximum likelihood method in AMOS software with the same criteria as stated above: the chi-square test, the comparative fit index (CFI), and the root mean square error of approximation (RMSEA).

In addition, the path coefficients were examined for statistical significance at $p < 0.05$; and practical significance at path loading of ≥ .20. Examining the factor loadings, all the items are well loaded on their factors, having the values range from 0.63 to 0.85, well above 0.5, which is the cut-off point. Then the researcher checked the fit indices to see how well the model fits the data. As presented in Figure 2 the chi-square is significant, $\chi 2$ (422) = 1238.851, p =0.000, normed chi-square, 2.936 (within the acceptable value of <5), CFI, .901 (within the acceptable value of ≥0.9) and RMSEA of .062 (well within the recommended value of **≤** 0.08). This shows that the model fits the data collected without having to revise it an indication of a good model. Figure 2: below presents the structural model for actual use of Nigerian Islamic Bank e-banking**.**

Figure 2: Structural Model for Technology Quality of JIB E-Banking



Having established the goodness of fitness of the model, the next thing is to examine the path coefficient for practical and statistical significance. As observed earlier, a path (causal relationship) is practically significant if the path coefficient is greater than or equal to 0.2.

Statistical significance is established with t-value that reaches the level of significance at p<0.5. Altogether, there are three paths specified in the model; two are both practically and statistically significant. These are paths from the Technological Quality to Perceive Ease of Use and from Perceived Ease of Use to Perceived Usefulness. The path from Technological Quality to Perceived Usefulness is not significant. A tabular presentation of fit indices criteria compared to the recommended threshold with the observed values of the structural model is presented in table 6.

Table 6: Tabular presentation of fit indices criteria compared to baseline model output

Fit Indices	Recommended Threshold	Model Output
CMIN/DF	2 ≥ CMIN/DF ≤ 5	2.936
P-value	P ≥ 0.05	0.000
CFI	CFI ≥ 0.90	0.901
RMSEA	RMSEA ≤ 0.08	0.062

Source: Extracted from Amos output

Table 7: Regression weights of the structural model

			Estimate	S.E.	C.R.	P	Label
PEOU	<---	TQ	.120	.048	2.692	.001	par_34
PU	<---	TQ	-.054	.061	-1.007	.314	par_3
PU	<---	PEOU	.318	.119	2.757	.006	par_4

Source: *Extracted from Amos output*.

In accordance with the extended TAM, this study discussed the research findings of the effect of technology quality on perceived usefulness and ease of use of JIB in enhancing e-banking efficiency in Nigerian dwindling economy where some points were emphasized as follows.

H1: There is significant influence of technology quality (convenience security and privacy) of e-banking on its perceived usefulness among JIB *customers.*

The results of regression weight of the structural model on Table 7 are the evidence of the positive influence of technology quality on perceived usefulness. However the value of path loading between technology quality and perceived usefulness, which is a negative value (-0.054) shows that the quality of technology is statistically insignificant in terms of its impact on the perceived usefulness. The result also revealed the statistical significance of the parameter factor loadings which show that the standardized direct effect between the two variables is statistically insignificant with a value of -0.054 and critical ratio of -1.007 which does not satisfy the threshold stipulation (CR >1.96). This means that the data failed to support hypothesis, thus, H1 was not supported.

The inconsistency between the result and the prediction was proven by the non- significant path estimates towards perceived usefulness. This confirmation is a clear indication that technology quality is a critical factor in enhancing the efficiency of JIB's e-banking, but have no

influence on the customers' perceived usefulness of the bank e-banking. However, the strong loadings of the items of the construct - technology quality, confirmed its important contribution to the fitness of the whole measurement model. This means that even though the technology quality of JIB is positive, it is not statistically significant.

The findings of this study contradict the previous findings of Lallmahamood (2007); Hsu and Chang (2013) and Jeung-tai, and Chihui, (2009) in which bank technology quality was discovered to have provided security and privacy and convenience and also improve positively on customer perceived usefulness. The common explanation for the disparities or inconsistencies between the findings of the present study and previous ones is linked to the environment where these studies were being conducted. Most of those studies were conducted in Taiwan, Malaysia and China, where their technology quality of their e-banking are in excellent condition.

In Nigeria, wherein the optimum utilization of e-banking technology has been circumvented by a series of environmental uncertainty, contributed tremendously to gross disparity between findings of this present study and the previous ones. The result of this study is however supported by the study of Rusu and Shen (2011). Their study indicated there was no significant relationship between technology quality and the perceived usefulness of technology.

H2: There is significant influence of technology quality (convenience security and privacy) of e-banking on its perceived ease of use JIB customers.

Regarding the effect of technology quality supporting perceived ease of use, findings showed that the hypothesized model is supported by the data. (Coefficient (β=.120; CR=2.692; P = .001<.05), Therefore Hypotheses H2 was supported. This result is in line with previous findings of Lallmahamood (2007). It is also consistent with Hsu and Chang (2013) and Jeung-tai and Chihui (2009) who found in their studies that excellent technology quality provides ease of use benefits such as easy transfer, time saving, less cost as well as speedy transaction which are related to transaction. On the other hand, findings of this study contradicts the result of Rusu and Shen (2011), in which technology quality does not influence perceived ease of use.

H3: There is significant influence of perceived ease of use on perceived usefulness of e-banking among JIB customers.

There is a direct positive significance relationship between perceived ease of use and perceived usefulness. The consistency between the result and the prediction was proved by positive and significant path estimates which is as follows (β=.318; CR= 2.757; P = .006 <.05), Thus, Hypothesis 3 was supported. The implication of this finding is that customers' perception about the ease of use of e-banking efficiency in JIB greatly influenced about 32% the usefulness perceived therein. This result is supported by the findings of Njuguna et.al, (2012) Lallmahamood (2007) and Rusu and Shen (2011) their studies indicated that perceived usefulness is a major determinant of perceived ease of use. However, findings of this study contradict the result of Al-Somali, Gholami, and Clegg, (2008) who proved that perceived ease of use did not significantly influence the perceived usefulness of the customers' in his e-banking study.

Conclusion and Recommendations

In conclusion, accordance with the extended TAM, this paper summarized the findings of effect of technology quality on perceived usefulness and ease of use of JIB in enhancing e-banking efficiency in dwindling economy. It is revealed in this study that the result of the structural equation model shows a good model fit (Figure 2). Out of three hypotheses in the study, two were substantiated while the remaining one was rejected for failure to support the model and its non-significant influence.

On the general recommendations it is highly suggested that JIB improvement on quality of its technology is crucial as this can enhance the actual use of its e-banking, and also the way the customers perceived the usefulness of its e-banking in Nigeria dwindling economy. Offering secured and excellent technology quality services that measure up to customers' preference are prominent problems in the modern banking industry. However, these duo technological services are highly necessary for the bank to be competitive amidst stiff competition and globalization that are growing in the banking sector in order to improve Nigeria dwindling economy.

Secondly there is significant influence between technology quality and perceived ease of use. This means as Jaiz Islamic banks increases its technology quality, their customers' perception on how easy it will increase significantly. Therefore this is the reason why JIB should put more efforts on improving its technology quality so that people will develop positive perception on how easy it is to use their e-banking products and services. Similarly since the percentage of perception about the ease of use of e-banking in JIB is small therefore in order to enhance efficiency in this dwindling economy this is why it is recommended that the bank needs to simplify its e-banking services so that customers can change their perception about the ease of use of e-banking.

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