Cybercafés Use Continuance: An Empirical Test of a Research Model

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Abstract. Cybercafés served as the main access point to computer and Internet mostly for people in the developing world. This avenue for communal access to IT platform indeed has the potential for serving as an effective tool for bridging the effect of digital divide. Several researches into adoption and use of cybercafés emerged across the globe but few studies related to its use continuance exist. Empirical study is conducted base on previous researches to test a modified Bhattachee's model of expectation-confirmation theory with the purpose of exploring the use continuance of cybercafé from users' perspective in Nigeria. Using cross-sectional survey through random sampling design, the data collected from the valid 105 respondents was used to test the research model using the structural equation modeling approach. The results suggested perceive usefulness and habit are the most important factors influencing cybercafés use continuance in Nigeria. The implication for research and practice of cybercafés implementation is hereby presented.

Keywords: — Broadband, Digital divide, Expectation confirmation theory, Information systems.

1 INTRODUCTION

Information and communication technologies (ICTs) play a unique role as essential resources for socio-economic advancement in both developed and developing world (Garrido, Sey, Hart & Santana,2012). Particularly against the backdrop that the global economy is driven by the information age (Garrido et al., 2012). The consequence of this development resulted in deployments of ICTs, principally the Internets to the extent that no serious nation would be isolated from accomplishing positive utilization of ICT to its populace. Until recently, utilization of Internet services had been the preserve of private sector in Nigeria (Adenike & Osunade, 2005). The earlier services offered was electronic mail (e-mail) using dial up, however, sequel to the achievement recorded in the telecommunication technology, Internet services flourished to other sectors such that some organization and individual get access. Principally Internet services are deployed through various means to end users. The notable technology use in the deployment includes: Very Small Aperture Terminal (VSAT), Digital Subscriber Line (DSL), and Broadband. VSAT option is mostly used by many organizations and institutions due to its ease of deployment. Internet Service Providers (ISP) allowed access

directly to the Internet backbone through VSATs. Recently some fixed wireless operators and GSM operators employed the use of fiber optics in the deployment of Internet to end-users. Most Internet connection backbones are set on VSAT with few Internets broadband services. All major cities in the six geopolitical zones in Nigeria have been partially covered with Internet accessibility.

The Internet penetration rate in the year 2000 was just 0.06 per 100 inhabitants; this ratio has increased to 28.4 per 100 inhabitants (IWS, 2012). Despite the trend in Internet penetration, limitation emerged as reported by Garrido et al. (2012) from infrastructural constraints to an individual's ability to translate access of ICTs into tangible benefits in light of other environmental constraints. In Oyeyinka and Adeya's (2004) study of Internet access in Africa reported that its use is constrained by structural as well as cost factors. The major barriers that hamper the Internet access in some developing world include low rates of personal computer ownership, and low income level (Alam et al., 2009). Others reported on high cost of computer hardware and low digital literacy rates (Haseloff, 2005; Alam et al., 2007; Alam et al., 2009). For the information society to be a global reality, the need to integrate the un-served and underserved population becomes paramount in justify the need of transforming the world into an inclusive global village (Fuchs & Horak, 2008). Research has shown that the major constraints to the accomplishment of ICTs in developing countries like Sub-Saharan Africa (SSA) is basically lack of access (Mayanja, 2002). The most viable solution to this challenge is the provision of shared forms of access to ICTs such as Telecentres and Cybercafés (Abdulwahab & Zulkhairi, 2012). Cybercafés also refers to as Internet cafe is an avenue where public access to Internet is provided by entrepreneurs for a fee (Adomi, 2005). Shared access became inevitable in an attempt to ensure digital inclusion (Fuchs & Horak, 2008; Zulkhairi et al., 2009; Garrido et al., 2012; Abdulwahab & Zulkhairi, 2012). Compared to other public Internet access arena, Cybercafés play an important role of widespread Internet access in both urban and rural areas along the developing world (Alam et al., 2009). Thus, the continuous investment on cybercafé by the entrepreneur along developing world has necessitated the need for determining the factors that significantly influence its use continuance. Prior research has suggested that long-term viability of an Information Systems (IS) and its eventual success depend largely on its continuous use rather than its initial acceptance.

2 LITERATURE REVIEW

Continuance as a concept is not absolutely new in IS literature, the concept has been investigated as implementation, Incorporation and routinization (Kwon & Zmud, 1987; Cooper & Zmud, 1990). Barnes (2011) suggested the existence of a post-acceptance stage, when IS use is beyond conscious behaviour (i.e. intention) and becomes part of normal routine activity. Prior IS acceptance researches mostly focused on initial adoption, under the assumption that IS usage is determined mainly by intention (Davies, 1989; Venkatesh et al., 2000). Though, these assumption may hold in the case of initial adoption of IS platform yet it may not be as readily applicable to continued IS usage behaviour (Bhattacherjee, 2001) and Barnes, 2011). Particularly, based on the fact that prior IS acceptance researches ignores that frequently performed behaviour tends to become habitual and automatic over sometime (Barnes, 2011).

Reviews of previous researches revealed limited studies regarding the use continuance of Cybercafé in developing world (Alam et al., 2009). Much of the prior studies focused on cybercafé adoption (Alao & Folorunsho, 2008; Aladeniyi & Fasae, 2013). Of the few

theoretically based studies in this context was that of Fusilier and Durlabhji (2005) who applied both TAM and TPB to predict intentions to use the Internet as well as self-reported usage. Bjorn, Stein and Fathhul (2005) studies on Internet cafes in Indonesia tested user frequency as main dependent variable while individual capability, occupation, financial capability and media exposure as the determinant of frequency of usage. The finding shows that user frequency is statistically associated with the identified determinant. Of the few related studies that have attempted to examine use continuance in virtual world adapting Bhattacherjee continuance model is due to (Barnes, 2011). Barnes, (2011), suggested that IS continuance for the virtual world was driven by perceived usefulness, enjoyment and considerable explanatory power was obtained for both habit and continuance intention. Understanding use continuance as against initial use or acceptance of cybercafé as reported by many researches is the purpose of this research. To the best of the author's knowledge no study has attempted to explore the use continuance of cybercafés using empirical data. The current study is an attempt to fill in this gap. Table 1 shows the definition and sources of each construct explored in this study.

Table 1. Definition and sources of each construct explored

Constructs	**Sources**	**Definition**
IS Continuance	Bhattacherjee, (2001), Karahanna et al. (1999)	Users' intention to continue using IS Platform; totally continuance covaries with initial acceptance.
Habit	Barnes (2011)	Habit in the context of IS usage is defined as the extent to which people tend to perform behaviors (use IS) automatically because of learning.
Perceived Usefulness	(Davis et al.,1989)	Users' perception of the expected benefits of IS use.
Enjoyments	Barnes (2011); (Vallerand, 1997).	Enjoyments signify where "a behavior is performed for itself, in order to experience pleasure and satisfaction inherent in the activity"
Frequency of use	Barnes (2011), Bjorn, Stein & Fathhul (2005)	Frequency of use in context of IS implies the degree to which IS platform is being utilize.

The study adopted a modified expectation-confirmation model Bhattacherjee, (2001) in exploring use continuance of Cybercafé. Barnes (2011) argue that Information Systems (IS) continuance behaviour occurs after an IS use becomes unconsciously normal routine activity. Moreover, the unconscious behaviour emanated as a result of individual's decision to continue using a particular technology (Bhattacherjee, 2001and Barnes 2011). In this study use continuance and habit represent the main endogenous variable. The following sets of exogenous variables: perceived usefulness, enjoyment and frequency of prior use is explore in relations to the endogenous variables. Most variables explored in this model have basis from previous researches (Davis et al., 1989; Karahanna et al. 1999 and Bhattacherjee, 2001); Bjorn et al., 2005 and Barnes, 2011).

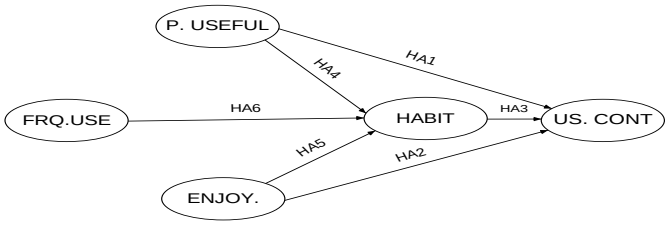


Fig 1 Research model

In Fig.1 the relationship among the endogenous and exogenous variables was examined. The symbol H_{Ai} shows the indications of this hypothesis based on the research model. A null hypothesis H_0 is returned when there is no significant influence between the variables in the stated hypothesis Otherwise, the hypothesis remain valid. The hypothesis is formulated as follows:

H_{A1}: Perceived usefulness is positively influenced by use continuance
H_{A2}: Enjoyment is positively influenced by use continuance
H_{A3}: Habit is positively influenced by use continuance
H_{A4}: Habit is positively influenced by perceived usefulness.
H_{A5}: Habit is positively influenced by enjoyments.
H_{A6}: Habit is positively influenced by frequency of use.

3 METHODOLOGY

The current study relies on a positivist epistemology (Myers, 1997). A deductive approach was employed to understand cybercafé use continuance by testing the research model in an empirical setting. Prior studies on IS have adopted a positivist epistemology (Wang et al. 2009; Barnes, 2011 and Venkatesh et al., 2011). The unit of analysis for this study is individual; this is justifiable based on the stated reasons: Firstly, the individual is seen as the most suitable respondent of this research, being the end users of a cybercafés. There is empirical evidence by previous researchers that have used individual as their main respondents (Wang & Shih, 2008; Wang et al., 2009; Loo et al., 2009 and Venkatesh et al., 2011). Simple random sampling was used in selecting the users of cybercafés from students, civil servants, applicants' and other cybercafés adopters. The questionnaires as shown in appendix was developed using a 7- point interval scale in measuring the constructs, including endogenous and exogenous variables. An individual chooses a scale from the ranges of seven scales starting from "strongly disagree" to "strongly agree". The interval scale was selected because it can measure the degree of the difference in the preference among the individual (Sekaran, 2006). All the questionnaires used in this study were adapted from previous

researches (Davis et al., 1989; Karahanna et al. 1999; Bhattacherjee, 2001; Bjorn et al., 2005 and Barnes, 2011)

4 DATA COLLECTION

The data collection was conducted in Nigeria for an approximate period of seven months. Three hundred questionnaires were distributed among the respondents out of which 125 was retrieved representing 42% response rate. Following the removal of the duplicates and invalid responses a total of 105 questionnaires remained for conducting the analysis. A test for non-response bias for early and late respondents to the survey was conducted; the independent samples test reveals that there is no difference between the early and the late respondents on the basis of age, gender and computer access indicating that no problem of response bias could be attributed to the data collection. The research model was tested by using structural equation modeling techniques using AMOS 7.0 Computer software.

4.1 Measurement

All the constructs and scale items used in the study were adopted from previously validated sources and the measurement items and sources of each is shown in the Table 1.

5 RESULTS

Analyzed result from Table 2 shows the demographic characteristics of the respondents. Almost 82.9% was male indicating the dominance of male than female in patronization of cybercafé. The ages of the respondent's ranged from 20 to 61 years with a higher percentage in the ages among 21-30 and 31-40 representing (38.1% and 30.5%) respectively. The average age of all the respondents was 25years. Majority of the respondents were students (51.4%). In terms of income, the respondents were unevenly distributed among the groups: 57.1% are lower- income; 41.9% are middle - income and only 1.0% falls into category of high - income. On the ownership of personal computer 64.8 % have access to a computer at home and 57.1 % lack Internet access at home. This result justifies the need of having cybercafés as means of having communal access to computer and Internet.

Table 2. Respondent's characteristics

Gender	**Frequency**	**Percentage**
Male	87	82.9
Female	18	17.9
Age		
15-20	22	21.0
21-30	40	38.1
31-40	32	30.5
41-50	8	7.6
51-60	2	1.9
61+	1	1.0
Occupation		
Student	54	51.4
Civil Servant	36	34.3
Unemployed	12	11.4
Others	3	2.9

Income		
Low	60	57.1
Middle	44	41.9
High	1	1.0
Computer Ownership		
Have	68	64.8
Lack	37	35.2
Internet Access		
Have	45	42.9
Lack	60	57.1
Cybercafé Usage		
Basic Computer	13	12.4
Internet Browsing	57	54.3
Social Network	14	13.3
Others	21	20.0

5.1 Reliability analysis

Confirmatory factor analysis (CFA) was run on the measurement model. The measurement model was evaluated to show the internal consistency, convergent and discernments validity. The reliability was measured in terms of composite reliability (CR) indicating the extent to which an instrument are free from random error, stable across time and across the various items in the scale (Sekaran & Bougie, 2010). From the measures, Average Variance Extracted (AVE), Composite Reliability (ρc), and Cronbach's Alpha (CA) was calculated based on previous researches (Fornell & Larcker, 1981 and Gefen & Straub, 2005). Table 3, shows the psychometric properties of the measures.

Table 3 .Shows the psychometric properties of the measures

Construct	AVE	CR (ρc),	CA
Perc. Usefulness	0.566	0.796	0.797
Enjoyments	0.508	0.754	0.748
Frequency of Use	0.555	0.786	0.777
Habit	0.618	0.866	0.864
Use Continuous	0.498	0.745	0.753

Composite reliability (CR) ranges from 0.745 to 0.866 (as shown in Table 3), above the recommended threshold of 0.70 (Nunally, 1978 and Yi & Davis, 2003). The CA obtained was above the reliability threshold of 0.7 (Nunally, 1978). Convergent validity was measured in terms of factor loading and average variance extracted (AVE). Previous researches suggested that convergent validity entails having a factor loading of above 0.70 (Gefen & Straub, 2005 and Chin, 2010). The average variances extracted is used to establish discriminant validity; all constructs have an AVE of above 0.5 except for use continuance construct with AVE = 0.498. The square root of the extracted (AVE) as in Table 4, is found to exceed the intercorrelations of the construct with the other constructs in the model (Chin, 2010 and Cornell & Larcker, 1981).

Table 4.Correlations between constructs
(diagonal elements are roots of the ave)

	FU	ENJ	HAB	USE CO.	P.USEF
FU	0.745				
ENJ	-0.283	0.713			
HABIT	0.365	-0.266	0.786		
USE CO.	0.619	0.075	0.617	0.706	
P. USEF	0.719	0.135	0.696	0.609	0.752

Correlations between constructs (diagonal elements are square roots of the average variance extracted).

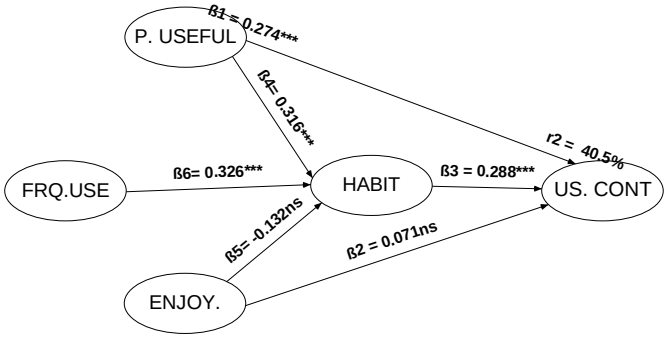
5.2 Assessment of measurement

Prior studies have suggested the use of the following indices to confirm the overall measurement model fit (Gefen & Straub, 2005 and Chin, 2010). The CMIN/DF (i.e. ratio) of the model was 1.431 (Chi-square = 135.986, DF=95). The value obtained is less than the cut-off criterion of 3 recommended by (Bagozzi & YI, 1988). Further, the next fit indices for the measurement model exhibits good fit. The adjusted goodness of fit index (AGFI) was 0.816 which exceeds the recommended value of 0.8 (Chau & HU, 2001). The comparative fit index (CFI) and the Tucker Lewis Index (TLI) was 0.935 and 0.918 respectively. The values obtained are greater than the 0.9 recommended by (Bagozzi & YI, 1988). The root mean square error approximation (RMSEA) was 0.064, lower than the recommended value of 0.08 (Browne & Cudeck, 1993). As shown in Table 5, all the model fits indices were above the recommended level suggested by previous researches (Bagozzi & YI, 1988; Gefen & Straub, 2005 and Chin, 2010). Accordingly, the result demonstrated that the measurement model fits with the data collected (Suki & Ramayah, 2010).

Table 5.Goodness of fit (gof) index for the measurement model

Quality-of-fit measure	*Recommended value*	*Measurement model*
X^2/df	≤ 3.00	1.431
AGFI	≥ 0.80	0.816
CFI	≥ 0.90	0.935
TLI	≥ 0.90	0.918
RMSEA	≤ 0.08	0.064

The structural model entails estimating the path coefficients, i.e., the strengths of the relationship between the endogenous and exogenous variables and determining R- Square (Suki& Ramayah, 2010). The R-square value denotes the extent of variance explained by exogenous variables. The squared multiple correlations for structural equations show the model explained 40.5% of the variance in use continuous and 28.3% variance in habit.



*** denotes p<0.001; ** denotes p<0.01; * denotes p<0.05 ns denotes Non-significant

Fig. 2 Estimated model

The standardize path coefficient in the hypothesized model as in Fig. 2, shows that perceived usefulness is a significant determinant of use continuance (β 1 = 0.247; t = 3.065; p < .001) while enjoyment is not significant on use continuous (β 2 = 0.071; t=0.71) indicating that enjoyments is not determined by use continuance. Based on the estimated model, habit is a significant determinant of use continuance (β 3 = 0.288; t = 3.219; p < .001). Further, habit is also a significant determinant of perceived usefulness (β 4 = 0.316; t = 2.728; p < .001). Conversely, with the result obtained by Barnes, (2011), the relationship between habit and enjoyments is found to have non-significant influence (β 5= - 0.132; t = -1.040). The frequency of prior usage behavior is also a significant determinant of habit (β 6 = 0.326; t = 3.372; p < .001).

6 DISCUSSION

The study explored use continuance in the context of cybercafé as an effective means of bridging digital dive in a developing country. The finding shows that the frequent users of cybercafés are male and younger adult, the average age of respondents was 25 years old. The finding is consistent with prior research (Alam et al., 2009). Based on the findings, Cybercafés usage became necessary because substantial number of the respondents lack computer and Internet facilities at home. This could be attributed to the fact that most of the respondents are low-income earners, thus owning computers and Internet access might be a challenge. This finding concurs with prior researches conducted in developing countries (Pieter & Justin 2003; Alam et al., 2009).

Table 6. Results of hypothesis testing

Hypothesis		Result
H_{A1}	Perceived usefulness is positively influenced by use continuance	**Supported**
H_{A2}	Enjoyment is positively influenced by use continuance	**not support**
H_{A3}	Habit is positively influenced by use continuance	**Supported**
H_{A4}	Habit is positively influenced by perceived usefulness	**Supported**
H_{A5}	Habit is positively influenced by enjoyments	**not support**
H_{A6}	Habit is positively influenced by frequency of use.	**Supported**

The results of hypothesis testing as in Table 6, using sample of valid 105 respondents, established has support for the validity and reliability of all the constructs presented in the model. Moreover, the model is tested by using Amos software. Among the three determinants of use continuance, perceived usefulness (H_{A1}) and habit (H_{A3}) were clearly supported in the model. The results obtained was consistent with the findings suggested by Barnes [*](2011), that use continuance for IS platform was driven by perceived usefulness and habit. Contrary with the findings by Barnes (2011) enjoyment is not a determinant of use continuance; consequently (H_{A2}) is not supported. Though, Barnes (2011) suggested that experience reduced the effect of enjoyment on use continuance, showing that value judgments about enjoyment became less important for more experienced users. Thus more experienced users had generally less intention to continue using the IS Platform.

The implication of our finding in context of this research shows that enjoyment becomes less important in cybercafé use continuance possibly, most of the respondents are uncomfortable with service delivery but only have to patronize the cybercafé being the cheap medium in which computer and Internet can be access. Against the backdrop that computer ownership is an issue from the result obtained. Consequently enjoyment does not influence their decision making in terms of cybercafé use continuance. Further, consistent with prior research Barnes (2011), the extended relationship proposed to explain habitual behaviour (H_{A4} and H_{A6}) is supported. While H_{A5} is not supported, showing habit is not influenced by enjoyments in cybercafé use continuance in context of the current research.

7 CONCLUSION

Cybercafe certainly served as the main access point to computer and Internet mostly for a fee for people in developing world. This avenue for communal access to computer and Internet has the potential as an effective tool for bridging the effect of digital divide. Understanding the use continuance was the goal of this study. An empirical study was conducted based on prior research to test a modified Bhattacherjee model of expectation-confirmation theory with the purpose of exploring the use continuance of cybercafés from perspective of users' in Nigeria. The findings of the research suggested that perceive usefulness and habit are the most important factors influencing cybercafés use continuance in Nigeria while enjoyment is not a determinant of use continuance. The finding suggests that enjoyment becomes less important in cybercafé use continuance possibly, most of the respondents were uncomfortable with service delivery but only have to patronize the IS platform being the cheap medium in which computer and Internet are access. Despite the laudability of this finding, limitations of this study could be attributed to the small sample size and the approach used in conducting the research. Increasing the sample size and applying mixed methods of inductive and deductive approach using a longitudinal survey on these factors might offer a more in-depth understanding of cybercafés use continuance. Despite the limitations identified, the findings offer support for the model in explaining habitual behavior in context of cybercafé. Creating favorable environment surrounding the cybercafé use in terms of Internet speed, access fee and trust would no doubt influence its use continuance. Comprehensive understandings of this model will access cybercafés owners to explore the reason for the use continuance among the users in the future and support them to enhance the cybercafés usage.

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