Acceptance Of Mobile Phone In Nigeria For Internet Access Using The Unified Technology *Acceptance and Use of Technology (UTAUT) model*

Oveh Richard Omoefe &Egbokhare Francisca
Department of Computer Science
University of Benin
Benin City, Nigeria
omo_rich@yahoo.com; fegbokhare@yahoo.com

Abstract.

the fast advances in the use and penetration of mobile phones in Nigeria has forced various sector of the economy like banks to incorporate them into their operations. There is therefore the need for a research to enrich current knowledge in that direction. Thus the need to use Unified Theory of Acceptance and Use of Technology(UTAUT) to access is general acceptance as usage may not mean acceptance. Mobile phone has become indispensable and common palace in Nigeria, with voice services currently dominating, with almost 93 million subscribers in Nigeria. They now contribute immensely to the preparation and communication of information in Nigeria. Today, the use of mobile phones and GSM technologies have been extended beyond sending text messages and making calls/receive to embrace Internet browsing, and other services. Mobile internet provides convenient access to the users for surfing. This paper adapted the Unified Theory of Acceptance and Use of Technology (UTAUT) model to determine the level of acceptance of mobile phones for internet access in Nigeria

Keywords: *Mobile Phones, UTUAT*

INTRODUCTION

In recent time mobile phones are now widely used especially as tools for information preparation and communication in Nigeria. Initially, the use of mobile phones was limited to making calls, sending text messages and multimedia services but with the influx of mobile phones into the telecommunications arena in 2001, the nation has witnessed a twist in the technological advancements. Eugenia (2006) predicted that in the near future, users would be able to browse the Web via their mobile phones at cheap rates, which is now the present day reality. Today, mobile phones have also introduced mobility (mobile browsing) into the mainstream of Internet surfing. Since mobile phones are cheap and affordable, the use of mobile phones for web access has become an open area for research.

Akkeren et al(1999) said rightly that the Internet is the fastest growing aspect of ICT in history. Lin et al(2000), Davison et al (2004) and soto-Acostal et al(2009)also said that it is a useful technological tool connecting millions of computers and users around the world, providing access to information faster and more efficiently to the end user and services at low expense . Hence the world has now become a global village via the Internet. Gonzalez et al(2006) and Ritterband et al(2009) said that the Internet serves as a tool with a huge potential for health care organizations to deliver quality, cost effective, care to geographically dispersed populations. The popularity of the Internet resonates around all the continents of the world.

RELATED WORKS

Yeonsoo et al (2002) conducted a Cross-Cultural Study on the Value Structure of Mobil Internet Usage, comparing Korea and Japan. Both cultural and other factors were considered to identify mobile Internet users' needs or values. The findings showed that value structures were significantly different between Korea and Japan. The values that influence overall satisfaction of mobile Internet services were significantly different between the two countries, which show that value in terms of mobile web is country specific. It also brings other important factors like cultural and socio-economic factors as it affects mobile phone web usage. Neilson mobile (2008) studied the worldwide state of the mobile web. Their findings showed that The United States (U.S), United Kingdom (U.K) and Italy are leaders in mobile Internet penetration. Secondly, their findings revealed that unlimited data packages are an important part of the growth of the mobile Internet and are increasingly popular with U.S consumers. Schmiedl et al (2009) studied the mobile web as it relates to mobile content. The study was multidimensional where usage scenarios as well as the usability of mobile tailored systems were compared to full websites with a focus on Australia. The results showed clearly that users prefer and effectively do benefit from mobile optimized versions.

UTUAT has been applied in several studies, and in different areas. Li et al (2006) did a test for the invariance of the new measurement scale of the UTAUT instrument. Their quest was to test whether the key constructs in the UTAUT model were invariant across different population subgroups. The area of application for their study was Web log system users. Wang et al (2005) also did a study with UTAUT with respect to online stocking. Carlsson et al. (2006) study with UTAUT was to examine the factors affecting the intention to use and factors affecting the use of mobile devices/services. Studies on UTAUT are numerous. This paper seeks to determine the level of acceptance of mobile phones for Internet access in Nigeria.

METHODOLOGY

Questionnaire was the main tool used for data collection in this study. The questions were based on the UTAUT model. The questions were tailored for this research to determine the level of acceptance of mobile phones for internet access in Nigeria. The UTAUT model has been used to determine the level of acceptance of various technologies in different studies. 350 questionnaires were distributed, 320 were returned and 300 were valid, and used for the final analysis.

To ensure content validity, the questionnaire was presented to a team of Information Technology experts and the corrections made were effected before the final copies were produced and administered. the set of questionnaires were randomly distributed without any bias for gender, age, or occupation.

THE UTUAT MODEL

Venkatest et al (2003) developed unified theory of Acceptance and use of Technology(UTUAT) model. It is a product study of eight models, which include: Theory of Reasoned Action(TRA), Technology Acceptance Model (TAM,TAM2), Motivational Model(MM), Theory of Planned Behaviour(TPB), Combined TAM/TPB, Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT). UTUAT integrates components from the other models, and it helps to determine user acceptance on four constructs, namely: Effort Expectancy,

Performance Expectancy, Social Influence, and Facilitating conditions. However, other constructs like attitude and anxiety were added to the UTUAT model constructs. The constructs and their meaning are:

- Performance Expectancy: It is the degree to which an individual believes that using the system will help him/her to attain gains in job performance.
- Effort Expectancy: It is the degree of ease associated with the use of the system.
- Social Influence: It is the degree to which an individual perceives that others believe him/her should use the new system.
- Facilitating Condition: It is the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system.
- Attitude: It is a person's disposition towards an object, which could be positive or negative.
- Anxiety: A feeling of apprehension or fear.

These constructs were used as determinants to test acceptance of mobile phone for internet access.

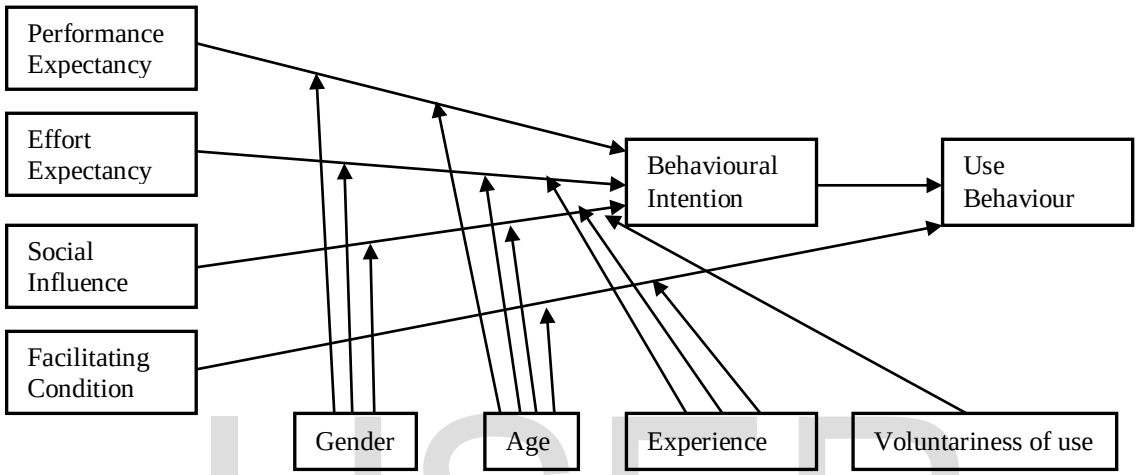

Figure 1: UTUAT Model (Venkatesh et al., (2003))

DATA ANALYSIS

The reliability of the technology acceptance questionnaire was conducted using Cronbach's Alpha (α), and a minimum of 0.752 was obtained (above 0.7 recommended). Factor Analysis was used to analyzing the data. Sampling adequacy predicts if data are likely to factor well, based on correlation and partial correlation. In factor analysis, this is measured by Kaiser-Meyer-Olkin (KMO) statistics.
KMO varies between 0 and 1.0 and the overall KMO should be 0.60 or higher to proceed with factor analysis. The overall KMO is 0.872 which indicated that we could proceed with factor analysis.

FINDINGS

Large set of data can be difficult to understand without any tool to simplify and summarize it. Factor analysis is a tool that can be used to simplify a matrix of correlation into more easily comprehensible factor. The factors represent a summary of relationship between set variables. Variables measuring individual construct should group together on factors, which goes to show a particular aspect of technology acceptance. The common guide what factors are selected if their eigenvalues are 1 or more, variables having a loading of magnitude 0.4 or more are considered to have a significant influence on the factor especially in large set.

Table 1 shows the eight (8) factors obtained from the rotated component matrix after factor analysis. We deduced from the study that gender, age, experience and voluntariness of use did not significantly affect use behaviour of mobile phone web usage directly or indirectly. The eight factors which directly influence the acceptance and use of mobile phones for browsing were named as follows: *Flexibility, Available Features, Trend, User Interface, Cost, Health Risk, Suitability, And Knowledge*.

Table 1:Extracted Rotated Component Matrix
(Only Factors loading ≥ 0.4 are extracted and shown)

	Component							
	1	2	3	4	5	6	7	8
PE2	.871							
PE1	.845							
PE3	.788							
PE4	.597							
ATTITUDE2		.881						
ATTITUDE1		.832						
ATTITUDE3		.803						
BEHAVIOUR2			.893					
BEHAVIOUR3			.811					
BEHAVIOUR1			.759					
EE5				.788				
EE1				.674				
FC1					.793			
FC2					.738			
SI2					.533			
ANXIETY1						.717		
ANXIETY2						.687		
FC3								
SI3								
EE3							.824	
EE4							.736	
SI1								.741
FC4								.588
EE2								

Factor 1, FLEXIBILITY had the highest loading on Performance evaluation. This is the degree to which an individual believes that using a particular system will help him or her to attain gains in job performance.

Factor 1 shows that mobile phone flexibility is implied by the fact that they can be used anytime and anywhere.

Factor 2 (available features) was based on the respondents' attitude towards the technology features available on the mobilephone. The high loadings of the variables in this factor indicate that the level of sophistication of mobile phones determine their acceptance for Internet usage.
Behavioural intention loaded by 89.3%, 81.1%, and 75.9% into factor 3, which we called TREND. The trend here has a social nature attached as the respondents tend to be among those that use the latest technology/device. They are willing to try out a new technology. Like factor 2, it shows similar trend for flair of new technology.

Effort expectancy loaded by 78.8% and 67.4% into factor 4, which we call USER INTERFACE. The user interface is the medium by which access is made to internet. Effort expectancy loading high on this factor shows that the respondents to a large extent are literate in the direction of the use of phone to meet their objective, respondents don't really need assistance in the use of their phones, and that the user interface is easy to use.

Facilitating condition and social influence loaded into factor 5 which we call COST. Facilitating condition loaded high by 79.3% and 73.8%, while social influence loaded averagely by 53.3%. This shows the respondent's falls into the category of people that can afford to pay for the service. Their desire here falls into those that want the technology to work well irrespective of the cost. Cost could be a limiting factor to the use of latest technology as the more the features the more the cost. In this case cost is none limiting to the respondents in question.

Anxiety loaded by 71.7% and 68.7% into factor 6 which we call HEALTH RISK. The respondents are of the view that there is no health risk involved in their use of mobile phones. Thus health issues are not a major concern for the respondents.

Effort Expectancy loaded by 82.4% and 73.6% into factor 7 which we call SUITABILITY. Suitability here shows that mobile phone fulfils its purpose. It also shows that mobile phone is also suitable for the purpose of internet browsing, and the degree of ease associated is high.

Social influence and facilitating condition loaded into factor 8, which we call KNOWLEDGE. Social Influence loaded by 74.1% and facilitating condition by 58.8%. Despite the fact that the respondents have all the knowledge required in the use of mobile phone, social influence comes into play here.

People's views are put into consideration in the use of mobile phone by the respondents. This goes to show that there is a relationship between what the society think and the technology in use. Overall, this analysis tends to suggest acceptance of mobile phone web use among the respondents. However, the poor state of mobile phone services was noticed as a barrier to anytime anywhere Internet access via mobile phones.

Overall, the analysis of the data shows acceptance of mobile phone use in Nigeria for internet access.

DISCUSSION

It was discovered from this study that there were other factors that affect the constructs in UTUAT model which directly or indirectly affect the use behaviour of the technology with regards to mobile phone usage in Nigeria. It was discovered that gender, age, experience and voluntariness of use did not significantly affect use of behaviour of mobile phone web usage directly or indirectly. The factors extracted from the factor analysis can be seen to affect the use behaviour of our respondents in the use of mobile phones for web usage. From our findings, it was deduced that Mobile Phone is accepted in Nigeria for internet access.

CONCLUSION

Mobile phones usage which spans across all ages, sector, profession, trade, culture, gender is an area of great importance. This paper has been able to employ the use of UTAUT model in determining it's acceptance in Nigeria. The research has shown that mobile phones are accepted for use in Nigeria, especially with reference to the internet.

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