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Awareness, Adoption and Acceptance of ICT Innovation in Higher Education Institutions

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Abstract

This paper examined the awareness, adoption and acceptance of ICT innovation in higher education institutions. This study was conducted at the university of Jos Plateau state, Nigeria as a pilot study. One hundred questionnaires were administered and collected, containing 23 UTAUT survey questions and 9 demographic statements totaling 32 questions. In addition, 57% were male and 43% were female**.** We have achieved Objective (i), which is, "to determine the level of awareness of ICT by the respondents". By using the pilot study questionnaire part of the demographic statements, we are able to answer the questions (a) Is ICT mandatory or Voluntary in your institution? (b) What are the greatest barriers to using ICT to you as an academician? Using SPSS version 15 we have the following results. Question Q32 which talk about barriers to use of ICT, have the majority of the respondents (42%) which said that their problem is time; on the other hand (31%) said that the problem is training. Others respondents (4%) said that cost are their problem, another group (20%) said that they need compensation and the final group (3%) said that, it does not fit their programme. Performance expectancy had a mean response of 4.32 and standard deviation of .665. The constructs was significantly correlated with BI at the 0.05 level (2tailed). This implies that the university ICT make task more easily accomplished, thereby making them more productive. Hence result from the survey shows that 86.5% agree. Hence this determines the level of expected adoption of ICT by the respondents. Among the four UTAUT constructs, performance expectancy exerted the strongest effect. Therefore Performance expectancy is the most influential factor for the acceptance and use of ICT by the respondents. Recommendations made were that, all employed teachers in Federal, State and Private universities should undertake mandatory training and retraining on ICT programmes.

Keywords: ICT; Awareness; Adoption; Acceptance; HEIs; Innovations

Introduction

While issues of access and the adoption of new ICTs have tended to revolve around utopian themes of empowerment and the development potential of ICT, it has also raised the accompanying issue of digital divide and the challenges for developing countries to participate in the global information society. ICT, when adopted as one of many complementary strategies in development projects such as health, education and rural development, has the potential to empower communities with improved access to knowledge networks and services. On the other hand, any meaningful participation in this ICT 'revolution' is also challenged by very apparent discrepancies, imbalances and inequalities that currently characterize issues of ICT access and adoption. ICT has become a fashionable acronym borne largely out of the Internet and telecommunications 'revolution' to describe an electronic means of capturing, processing, storing and disseminating information. Little attention, however, is placed on the fact that ICT is not a recent phenomenon since its broader definition also includes print-media, radio, telephone and television. The pervasiveness of ICT has brought about rapid teleological, social, political and economic transformation, which

have eventuated in a network society organized around ICT(Yusuf, 2005). Currently e-learning is becoming one of the most common means of using ICT to provide education to students both on and off campus by means of teaching online offered via web-based systems. Considering the role of education in nation building and the population explosion in the secondary schools these days, the use of ICT in the teaching-learning process becomes imperative. This is true because its adoption by the teachers will enhance effective teaching. Such issues like good course organization, effective class management, content creation, self-assessment, self-study collaborative learning, task oriented activities, and effective communication between the actors of teaching learning process and research activities will be enhanced by the use of ICT based technology. Awareness campaign and sensitization of personnel is a necessary step in developing ICT infrastructure in education. Organization of seminars, conferences and workshops for top management and other critical staff within the Ministry of Education, National University Commission (NUC), and in the universities and with other stakeholders are necessary in ICT infrastructure development. These workshops, seminars and conferences aimed at raising the level of awareness of the infrastructure challenges, to discuss the users need and various infrastructure options, to promote and encourage multi-stakeholder approaches, to solicit feedback from management and staff (Gesci, 2007). The effective deployment of ICTs in education will therefore require that Ministries of Education collaborate with other ministries and government bodies responsible for infrastructure and ICT and associated policy development and planning. Ministries and NUC also need to establish close working relationships with the private sector and civil society involved in developing and promoting ICT policies, plans and infrastructure. Ministry of Education should hold meetings with other important ministries and stakeholders. The meetings are important and used as avenues to share the infrastructure needs and requirement, to request for consideration of educational institutions in the National ICT planning process and to keep abreast of national ICT developments.

The Impact of ICT

Recent studies have considered the impact of ICT in higher education in terms of the benefits for tertiary learners; for example, (Oliver & Goerke, 2007) investigated the use of mobile learning (m-learning) at Curtin University of Technology in Western Australia. “They suggested that emerging technologies owned and used by students, and incorporated wisely into university curricula, can go some way towards enhancing high quality, face to face learning experiences, where articulated knowledge is constructed and student achievement of intellectually challenging outcomes is effected” (p. 12). Another study conducted at the University of Melbourne (Kennedy, Krause, Churchward, Judd, & Gray, 2006) found evidence of a significant positive association between effective use of ICT and success in tertiary studies. The researchers reported that many students endorsed the use of a number of technologies and technology-based tools in their university studies. For example, mobile phones were identified as one of the widely accessed technologies; therefore, in higher education, an important aspect of the shift in technological processes has been to the adoption of ICT for learning and teaching. (Aniebonam, 2007) offered ten major interventions which, he believed, would assist in integrating ICTs in driving educational reforms in Nigeria. These are(:) provision of infrastructure (cyber centres, classrooms building, offices, etc.), institutional network (LAN, WAN, WiFi), systems and applications (Internet, elearning, education portals, etc.), capacity building, digital library, technical support in institutions, computer ownership scheme (for students, teaching and non-teaching staff), ICT content career development scheme, International Examination Digital Centre (IDEC) and continuous power supply.

Adoption of ICT in higher education institutions

In developing countries Nigeria precisely, preliminary investigations show that only a few organizations in the economy have adopted the IT, but there has not been formal study to determine the level of diffusion and the factors affecting IT diffusion as well as impact on the efficiency of the organizations. (Achimugu, Oluwagbemi, Oluwaranti, & Afolabi, 2009)opined that the adoption of Information Technology (IT) successfully in Developing Countries is one of the most pressing current developmental issues. Since IT became commercial in the early 1990s, it has diffused rapidly in developed countries but generally slowly in developing ones. Nigerian universities are focusing on curricula that might contribute more directly to economic growth and network as in the case of Nigeria today, individuals may not use ICT service for different reasons ranging from lack of interest, illiteracy, lack of awareness, exorbitant rate of services, poor quality of service and low per capita income. (Said, Lin, & Jim, 2009), investigated the perceived barriers to adopting ICT in Omani higher education. The findings show that the faculty members perceived moderate degrees of barriers in applying ICT to their teaching practices. The United Nations have identified four major sets of indicators for complete information technology diffusion in a country (Chiemeke & Longe, 2007): (a) ICT infrastructure and access. (b) Access to and use of ICT by households and individuals. (c) Use of ICT by businesses and (d) ICT sector and trade in ICT goods. The use of internet as a communication channel in Nigeria has led to increased productivity in sectors such as the educational, banking, communication and security, while Nigeria is gradually joining the league of globalizes nations.(Modupe & Binuomote, 2007), examined the awareness and adoption of Information Communication Technology (ICT) among secretarial staffs of Ladoke Akintola University of Technology, Ogbomoso. It was discovered that the level of adoption of Information Communication Technology (ICT) among the staffs in still low, information will have to be processed in a daily bases. However, recognizing the key roles that secretarial staffs play in University administration, it was recommended based on the findings of the study that more computer facilities are provided for these staffs, coupled with a good access to internet facilities.

(Bridget, 2008) opined that pedagogical adoption of ICT is complex and requires an integration of vision, system-wide experimentation and new roles and relationships for teachers and students. Let us not forget that classrooms have never been ideal learning environments and teachers in public education systems have always been somewhat burdened by working with students who are there under compulsion. ICTs can help to make schools less-stressful workplaces for both teachers and students. The rapid diffusion of the Internet has not only generated a renewed interest in the role of new information and communication technologies (ICTs) in higher education and learning (Dutton & Loader, 2002), but it has also affected the ways people teach and learn(DeLacey & Leonard, 2002)and(Radcliffe, 2002). At the same time, there has been growing concern over the possible decline of traditional practices and institutions, as e-learning, virtual universities, and distance education become feasible alternative platforms for higher education. Students, teachers, and administrators have continued to employ the Internet and Web for their practices, and e-learning have remained a key item on educational agendas. The adoption of these systems in campus settings has many implications for ICT innovations in education.(Yi 2006)), said that relative advantage, complexity, observability, and image are the most important factor in predicting users' intentions to make use of technology. (Martins, Steil, & Todesco, 2004) found that two most significant predictors are trialability and observability. There are numerous conditions to be met before ICT innovations can be introduced, adopted and diffused through higher education institutions. By investigating a range of theories devised to describe and understand attitudes towards, and uptake of, ICT innovations, a number of key factors in a framework for early adoption have been identified. Institutional factors include cultural values (management and personnel), communication and social networks, provision of suitable support, a safe environment for the exploration of new technologies and for creativity, as well as recognition and reward. Influences from outside the institution also have an impact on adoption of an innovation. External influences, such as the political climate and the aims of funding bodies, are broader in scope.

Figure 1: The stages of Innovation

The innovation-decision process theory is base on time and five distinct stages. (Rogers, 2003) described the innovation-decision process as "an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation" (p. 172). According to (Rogers, 2003), the innovation-decision process involves five steps: (1) knowledge, (2) persuasion, (3) decision, (4) implementation, and (5) confirmation. These stages typically follow each other in a time-ordered manner. The process is shown in Figure 1.

Model of Acceptance as a Theoretical Framework

Understanding why people accept or reject new information or communication technology has been one of the most challenging issues in the study of new technologies (Swanson, 1988). Among the various efforts to understand the process of user acceptance of information systems, the Technology Acceptance Model (TAM) introduced by (F. D. Davis, 1986) is one of the most cited theoretical frameworks. The model aims not only to explain key factors of user acceptance of information systems, but also to predict the relative importance of the factors in the diffusion of technological systems (Davis, Bagozzi, & Warshaw, 1989). The TAM is rooted in the theory of reasoned action (I Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), which has been applied to predicting and explaining user behaviors across a wide variety of domains. According to the theory of reasoned action (TRA), a person's performance of a specified behavior is determined by his or her behavioral intention to perform the behavior, and behavioral intention is jointly determined by the person's attitude and subjective norms concerning the behavior in question (I Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Following the logic of the TRA, the TAM explores the factors that affect behavioral intention to use information or computer systems and suggests a causal linkage between two key variables—*perceived usefulness* and *perceived ease of use*—and users' attitude, behavioral intention, and actual system adoption and use (F. D. Davis, 1986).

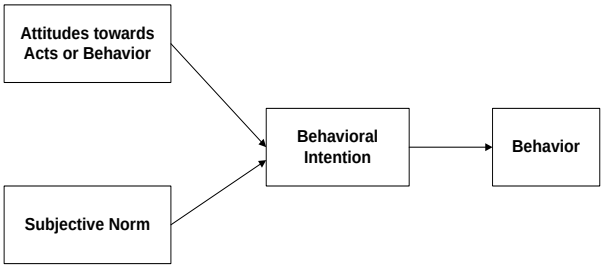

Figure 2:TRA theory proposed by(Fishbein & Ajzen, 1975) that an individuals' attitudes towards behavior and the surrounding subjective norms influence their behavioral intention.

Theory of Planned Behavior (I. Ajzen, 1991), According to Ajzen, intention is an immediate predictor of behavior. (F. D. Davis, 1985, 1989), developed TAM to explain computer usage and acceptance of IT.

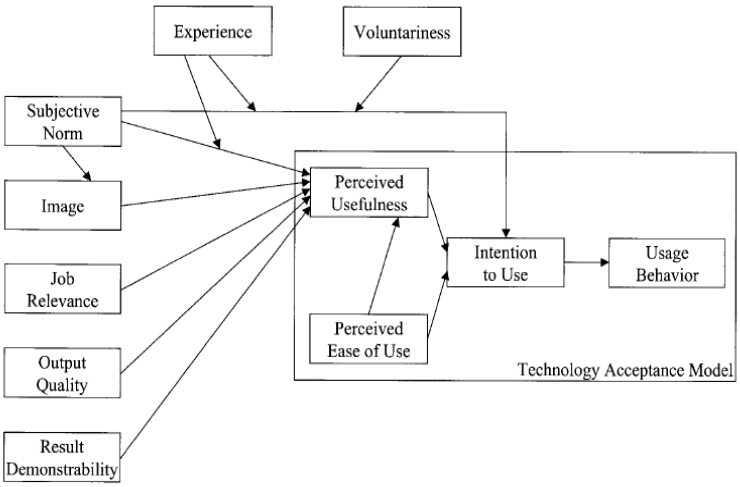

Figure 3:TAM2(Venkatesh & Davis, 2000)

TAM2 is the extension of TAM which includes social influence process such as subjective norms and cognitive instrumental process.

Limitations of TAM

- TAM is only capable of predicting technology adoption success of 30%.
- TAM2 (TAM Extension) can predict 40%.
- The call for a modified model gave birth to UTAUT Model by Venkatesh et al, 2003.

UTAUT Model

The Unified Theory of Acceptance and Use of Technology (UTAUT) has condensed the 32 variables found in the existing eight models(TRA, TAM, TPB, C-TAM-TPB, MM, MPCU, IDT and SCT) into four main constructs and four moderating factors. The combinations of the constructs and moderating factors have increased the predictive efficiency to 70%, a major improvement over previous TAM model rates.

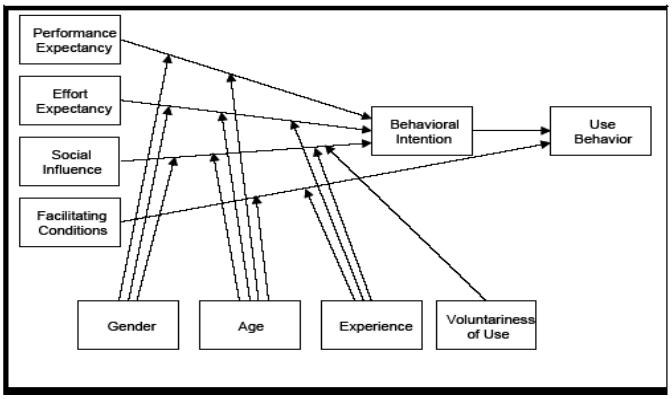

Figure 4 : UTAUT Model

- PE - is the extent an individual believes the system will help them do their jobs better.(PU)
- EE - relate to how ease an individual believes the system is to use.(PEOU)
- SI - relate to whether or not important others' influence an individuals' intention to use the system.
- FC - whether individual have the personal knowledge and institutional resources available to use the system.
- UTAUT- Unified Theory of Acceptance and Use of Technology

UTAUT also addresses how individual differences determine the acceptance and use of technology. Precisely speaking, the connection between PU, PEOU, and intention to use can be moderated by age, gender, and experience For instance, the strength between PU and intention to use varies with age and gender such that it is more significant for male and young workers. Again the effect of PEOU on intention is also moderated by gender and age such that it is more significant for female and older workers, and the effect decrease with experiences. The UTAUT model accounted for 70% of the variance in usage intention, better than any of TAM studies alone.

Objective of the Study

(i) To Determine the level of awareness of ICT by the respondents

(ii) To determine the level of adoption of ICT by the respondents

(iii) To measure the most influential factors for the acceptance and use of ICT by the respondents.

Methodology

This study was conducted at the university of Jos Plateau state, Nigeria as a pilot study. One hundred questionnaires were administered and collected, containing 23 UTAUT survey questions and 9 demographic statements totaling 32 questions. In addition, 57% were male and 43% were female. The expectations are that the survey will provide

evidence of the acceptance and use of ICT by the university academicians. The respondents are the university academicians. The survey tool presented modified questions based on UTAUT model. The UTAUT model theorizes that four constructs have a significant determination on user acceptance of IT innovations (Venkatesh, Davis, Morris, & Davis, 2003) as seen in Figure 4.

To achieve Objective (i), which is, "to determine the level of awareness of ICT by the respondents"? By using the pilot study questionnaire part of the demographic statements, we are able to answer the questions (i) Is ICT mandatory or Voluntary at your institution? (ii) What are the greatest barriers to using ICT to you as an academician? By using SPSS version 15 we have the following results.

Result and Discussion

Table 1.

ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MANDATORY	89	89.0	89.0	89.0
	VOLUNTARY	11	11.0	11.0	100.0
	Total	100	100.0	100.0	

Table 2

GREATEST BARRIER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TIME	42	42.0	42.0	42.0
	TECHNICAL SUPPORT	20	20.0	20.0	62.0
	COST	4	4.0	4.0	66.0
	TRAINING	31	31.0	31.0	97.0
	DOES NOT FIT MY PROGRAM	3	3.0	3.0	100.0
	Total	100	100.0	100.0	

Demographic Question (30)

Is ICT mandatory or voluntary at your institution? Table1 shows that the majority of the full-time lecturers (89%) responded that ICT is mandatory. However, the survey revealed that most of the part-time lecturers ticked the use of ICT as voluntary. Some of these part-time lecturers in the cadre of professors, responded to

Q32 as (do not fit my program). Actually in their dispensation, lecturing was done using the chalk board only. Therefore, some of them fill that it is too late to embark on the use of ICT as they are already in the process of pulling out of academic completely.

Demographic Question (32)

What are the greatest barriers to using ICT to you as an academician? Question Q32 which talk about barriers to use of ICT, have the majority of the respondents (42%) said that their problem is time; on the other hand (31%) said that the problem is training. Others respondents (4%) said that cost are their problem, another group (20%) said that they need compensation and the final group (3%) said that, it does not fit their programme. ICT development programme among academic staff of educational institutions especially at the tertiary level is faced by number of obstacles. Prominent among them is the lack of training opportunities for staff. The same problem is recurring in this study again. In a study by (Archibong & Effiom, 2009), lack of interest, limited access to ICT facilities and lack of training opportunities were among the obstacles to ICT usage among academic staff. (Ijeoma, Joseph, & Franca, 2010) opined that inadequate ICT facilities, excess workload and funding were identified as major challenges to ICT usage among academic staff in Nigerian universities.

To respond to objectives (ii) and (iii) we are going to use the UTAUT model. The UTAUT model theorizes that four constructs have a significant determination on user acceptance of IT innovations (Venkatesh et al., 2003) as seen in Figure 4.

Table 3a **Reliability**

Case Processing Summary

		N	%
Cases	Valid	100	100.0
	Excluded[a]	0	.0
	Total	100	100.0

a. List wise deletion based on all variables in the procedure.

Table 3b. **Reliability Statistics**

Cronbach's Alpha	N of Items
.786	23

Table5a contains the measures of scale reliabilities for the constructs. Generally reliability numbers greater than 0.6 are considered acceptable in technology acceptance literature. (Zhang, Li, & Sun, 2006). As summarized in the table 5b, a reliability analysis was conducted, for the 23 items using Cronbach's Alpha. The UTAUT constructs appears to have a good degree of reliability of above .70.

Results and Discussions

Descriptive Analysis

A descriptive statistical analysis is described in this section in order to provide a broad understanding of the academician's view of ICT acceptance and use for teaching and learning. Participants were asked to rate their level of agreement with each statement or Question with appropriate responses on a five item Likert scale. Where (1) is "Strongly Disagree", (2) is "Disagree" (3) is "Neither Agree nor Disagree", (4) is 'Agree", and (5) is "Strongly Agree".

Table 4: Summary of survey Responses (N= 100)

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Performance Expectancy	1	2	3	4	5
Q1(PE1) I find the ICT offered at my institution useful in my job	0.0% (0)	0.0% (0)	10% (10)	49% (49)	42% (42)
Q2(PE2) Using the ICT available enable me to accomplish task more easily	0.0% (0)	0.0% (0)	3% (3)	73% (73)	24% (24)
Q3(PE3) Using the ICT available increases my productivity	0.0% (0)	0.0% (0)	21% (21)	50% (50)	30% (30)
Q4(PE4) If I use the current ICT, It will increase my chance of getting a rise	0.0% (0)	4% (3)	18% (18)	48% (48)	30% (30)

Performance expectancy had a mean response of 4.32 and standard deviation of .665 for (PE1). The construct was significantly correlated with BI at the 0.05 level (2tailed). Responses to performance expectancy questions (Q1-Q4) are related to the extent an individual believes ICT helps them to do their job better. The overall results for these series of questions associated to the perceived usefulness of ICT to the University academic staff were positive. This implies that the university ICT system make task more easily accomplished, thereby making them more productive. The result from the survey shows that 86.5% agree. Hence this determines the level of expected adoption of ICT by the respondents. Among the four UTAUT constructs, performance expectancy exerted the strongest effect. Therefore Performance expectancy is the most influential factor for the acceptance and use of ICT by the respondents. When one looked at questions Q1,Q2,and Q3 the notable thing with these question group is that nobody disagree with the usefulness of ICT, thus the disagree rate is 0%. Again responses to Q4 have 78% agreeing rate believing that using ICT in the job would increase their chance of getting a raise (promotion). The 78% agreement is suggesting that there is perceived monetary reward incentive linked with ICT usage and a future prospect of getting a better job with higher pay.

Table 5: Effort Expectancy (N= 100)

Effort Expectancy	1	2	3	4	5
Q5(EE1) My interaction with the ICT available is clear and understandable	0.0% (0)	0.0% (0)	20% (20)	70% (70)	10% (10)

Q6(EE2) It is simple for me to use the existing ICT technology	0.0% (0)	0.0% (0)	4% (4)	86% (86)	10% (10)
Q7(EE3) Whatever ICT I come across, it will be simple to operate	0.0% (0)	0.0% (0)	28% (28)	66% (66)	6% (6)
Q8(EE4)The knowledge of using ICT is simple for me.	0.0% (0)	0.0% (0)	11% (11)	84% (84)	5% (5)

Effort expectancy construct had a mean response of 3.87 and standard deviation of .562. EE was significantly correlated with BI at the 0.01 level (2-tailed). Responses to effort expectancy questions (Q5-Q8) are related to how easy an individual believes the ICT system is to use. Overall results for this series of questions were perceived as being positive with individual ability to easily use and understand the current ICT, which are always user friendly. The result shows that, 84.3% agreed that they could use ICT. EE has the highest correlation with BI, all the constructs were significantly correlated with BI but the strongest correlation was Q6(EE2), which states that : 'It is simple for me to the use existing ICT technology.'

Table 6: Social Influence (N= 100)

Social Influence	1	2	3	4	5
Q9(SI1)People who influence my action suppose that I apply ICT technology.	0.0% (0)	3% (3)	83% (83)	6% (6)	8% (8)
Q10(SI2) People who are important to me think I should use the ICT	0.0% (0)	3% (3)	55% (55)	41% (41)	1% (1)
Q11(SI3) The senior management of this institution has been helpful in the use of the ICT	0.0% (0)	4% (4)	10% (10)	65% (65)	21% (21)
Q12(SI4)In general, the organization has supported the use of ICT	0.0% (0)	2% (2)	12% (12)	64% (64)	22% (22)

Social Influence had a mean of 3.03 and a standard deviation of .300. This construct was significantly correlated with BI with a correlation coefficient of .096. Responses to social influence questions (Q9-Q12) are related to whether or not important others' influence an individual's intention to use the ICT system. Overall results for this series of questions were perceived as being slightly positive with regard to personal and institutional support, and other's influence on their ICT system use. Correspondingly, 57% agreed with these sentiments and 3% disagreeing with 40% neither agreeing nor disagreeing. In general, senior officials would support the use of technology for teaching and learning. Q11 (SI3) had an over whelming positive response with 86%of the respondents "agree" or "strongly agree".

Table 7: Facilitating Conditions (N= 100)

Facilitating Condition	1	2	3	4	5
Q13 (FC1) I have the resources necessary to use the current ICT	0.0% (0)	8% (8)	12% (12)	80% (80)	0.0% (0)
Q14(FC2) I have adequate ability to operate ICT technology.	0.0% (0)	0.0% (0)	8% (8)	90% (90)	2% (2)

Q15(FC3) The technology did not match the ICT I operate	0.0% (0)	80% (80)	16% (16)	4% (4)	0.0% (0)
Q16(FC4) Some people are present to help me with ICT problems.	8% (8)	5% (5)	35% (35)	52% (52)	0.0% (0)
Q17 (FC5) I could finish the work of ICT ... when nobody is available to assist.	0.0% (0)	8% (8)	92% (92)	0.0% (0)	0.0% (0)
Q18(FC6) I could complete the job or task using the ICT …if I could call someone for help if I got stuck	0.0% (0)	0.0% (0)	14% (14)	58% (58)	28% (28)
Q19 (FC7) I can finish the work with ICT if I have enough time.	0.0% (0)	0.0% (0)	9% (9)	56% (56)	35% (35)
Q20 (FC8) I could complete the job or task using the ICT ...if I had just built-in help facility for assistance	0.0% (0)	0.0% (0)	34% (34)	60% (60)	6% (6)

Facilitating Condition had a mean of 3.75 and standard deviation of .592. FC was significantly correlated with BI at the 0.05 level (2-tailed). Responses to facilitating condition questions (Q13-Q20) asks if individual's have the personal knowledge and institutional resources available to use the ICT: Overall results for this series of questions were perceived as being slightly positive with respondents stating that they possess the knowledge to use the ICT systems and that their institution's have a support structure available to users, should they need assistance. There was one notable exception in this group regarding the negative wording of Q15 that will necessitate reverse scoring for this item to get a true indication of the responses. As a result 58.9% agree with these sentiments and 13.5% disagrees while 27.5% neither agreeing nor disagreeing. Q17 (FC5) had a negative result, probably the question need to be reframed to be clearly understood.

Table 8: Behavioral Intention (N= 100)

Behavioral Intention	1	2	3	4	5
Q21 (BI1) I guess I can operate ICT in three months.	0.0% (0)	0.0% (0)	67% (67)	33% (33)	0.0% (0)
Q22(BI2) I predict I will use the ICT in the next three months	0.0% (0)	3% (3)	56% (56)	41% (41)	0.0% (0)
Q23(BI3) I plan to use the ICT in the next three months	0.0% (0)	0.0% (0)	58% (58)	42% (42)	0.0% (0)

Behavioral Intention had a mean of 3.31 and standard deviation of .465. Responses for behavioral intention questions (Q21-Q23), is grounded in the theoretical relationship between several technology acceptance and use models incorporating intention to use a given technology with the actual usage of that technology. Thus, if a person's

intention is to use ICT, it is theorized that they will likely do so as intention is a good predictor of usage. The overall results for this series of questions were perceived as being negatively responded to, as 38.7% agreed that they intend to use ICT within the next 3months and only 1% stated that they did not intend to use ICT with 60.3% neither agreeing nor disagreeing that they intended to use ICT. The notable fact in this group is that the disagreeing rate is extremely very low that is 1% and that of "neither agree nor disagree is very high which is 60.3%. When we consider the responses on Behavioral Intention for all the three items, less than half of the participants responded "agree" or "strongly agree" to the statement, thus we have 33%, 41% and 42% respectively for Q21, Q22, and Q23. These results indicate that the majority of the participants are not quite confident of their intention to use ICT. No wonder we have 60.3% of participants responding to "neither agreeing nor disagreeing" that they intended to use ICT.

Table 8:Correlations

		FacilitatingCondition	PerformanceExpectancy	EffortExpectancy	SocialInfluence	BehavioralIntention
FacilitatingCondition	Pearson Correlation	1	-.057	.045	-.053	.209*
	Sig. (2-tailed)		.570	.657	.604	.037
	N	100	100	100	100	100
PerformanceExpectancy	Pearson Correlation	-.057	1	.576**	.659**	.223*
	Sig. (2-tailed)	.570		.000	.000	.026
	N	100	100	100	100	100
EffortExpectancy	Pearson Correlation	.045	.576**	1	.674**	-.382**
	Sig. (2-tailed)	.657	.000		.000	.000
	N	100	100	100	100	100
SocialInfluence	Pearson Correlation	-.053	.659**	.674**	1	.096
	Sig. (2-tailed)	.604	.000	.000		.340
	N	100	100	100	100	100
BehavioralIntention	Pearson Correlation	.209*	.223*	-.382**	.096	1
	Sig. (2-tailed)	.037	.026	.000	.340	
	N	100	100	100	100	100

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

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

Correlation Analysis

Facilitating conditions is not significant to Performance expectancy, with r = -.057 and p-value .570. The correlation reveals that facilitating condition (that is whether individual have the personal knowledge and institutional resources available to use the system) has no significant relation with performance expectancy (which is the extent an individual believes the system (ICT) will help them do their jobs better). This negative relation shows that high education institution should encourage the use of ICT by making resources and training opportunity available.

Performance expectancy is significant to Effort expectancy, with r = .57 and p-value .000. The correlation reveals that performance expectancy (which is the extent an individual believes the system (ICT) will help them do their jobs better) has significant relation with effort expectancy (which is related to how easy an individual believes the system (ICT) is to use). This strong relationship shows that, since the academic staff believes that ICT will help them do their job better, they also believe that it will not be difficult to use.

Effort expectancy is highly significant to Social influence, with r = .67 and p-value .000. The correlation reveals that effort expectancy (which is related to perceived ease of use) has very high significant relation with social influence (which is related to whether or not important others influence an individuals' intention to use the system). This relation is a true strong relation. The government and the higher education institution managers should improve the quality of ICT infrastructure, facilities and internet services, so that academic staff can accept and use ICT for teaching and learning.

Social influence is significant to Performance expectancy, with r = .65 and p-value .000. The correlation reveals that social influence (which is related to whether or not important others influence an individuals' intention to use the system) has significant relation with performance expectancy (which is the extent an individual believes the system will help them do their jobs better). The financial commitment placed on the awareness, adoption and ICT innovation by the managers of HEIs has a strong relation on the perceived usefulness of ICT in HEIs by its academic staff.

The correlation of Behavioral intention with Effort expectancy shows that, the value of r is -0.38 and is highly significant with p-value .000. BI (behavioral intention) and effort expectancy (which is related to perceived ease of use of the ICT system). In Nigerian HEIs, there are no guideline or government policies that fully support the behavioral intention of academic staff to accept ICT innovations. This strong negative relation shows that the university administrators should give priority to acquiring ICT facilities, infrastructure, increase the access to internet services and power supply. Most importantly they should embark on staff training and re-training. These will motivate the intention of the academic staff to accept and use ICT.

Conclusion

The study focuses on the awareness, adoption and acceptance of ICT innovation in higher education institutions. A pilot study was conducted at the University of Jos, Nigeria, to verify the objectives of the study. It was discovered that although the use of ICT is mandatory, however the level of adoption among the university academic staff is still low. The challenges to ICT usage among academic staff ranges from, lack of funds, no opportunity for training, lack of sponsorship by the school management, inability to acquire personal ICT facilities, no ICT facilities at workplace, poor electricity supply, lack of ICT knowledge, insufficient time due to workload, lack of interest in learning, and lack of time for practice. Recommendations made were that, all employed teachers in Federal, State and Private universities should undertake mandatory training and retraining on ICT programmes. This is to provide them with practical and functional knowledge of computer, internet and associated areas of ICT for improved effectiveness and efficiency. The government should develop ICT policies and guidelines that would support lecturers in their academic work and students in their learning. ICT tools should be made more accessible to both academic staff and students.

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Appendix

Pilot Questionnaire

Directions : Please rate each of the following on 1-5 scale, where (1) is "Strongly Disagree," (2) is " Disagree", (3) is" Neither Agree or Disagree", (4) is "Agree", and (5) is "Strongly Agree".

Performance expectancy (PE), Effort expectancy (EE), Social influence (SI), Facilitating condition (FC) and Behavioral intention (BI).

SECTION A: The UTAUT Survey

[1]PE1. I find the ICT offered at my institution useful in my job.[ ]

[2] PE2. Using the ICT available enables me to accomplish tasks more quickly [ ]
[3]PE3. Using the ICT available increases my productivity.[ ]

[4]PE4. If I use the current ICT, I will increase my chances of getting a raise. [ ]

[5]EE1. My interaction with the ICT available is clear and understandable.[ ]
[6]EE2. It would be easy for me to become skillful at using the current ICT.[ ]
[7]EE3. I would find whatever ICT available easy to use.[ ]

[8]EE4. Learning to operate an ICT is easy for me.[ ]

[9]SI1. People who influence my behavior think I should use the ICT. [ ]

[10]SI2. People who are important to me think I should use the ICT. [ ]

[11]SI3. The senior management of this institution has been helpful in the use of the ICT .[ ]
[12]SI4. In general, the organization has supported the use of the ICT.[ ]

[13]FC1. I have the resources necessary to use the current ICT.[ ]
[14]FC2. I have the knowledge necessary to use the ICT.[ ]
[15]FC3. The system is not compatible with other ICT systems I use.[ ]
[16]FC4. A specific person (or group) is available for assistance with ICT difficulties.[ ]
[17]FC5. I could complete the job or task using the ICT ... .if there was no one around to tell me what to do as I go.[ ]
[18]FC6. I could complete the job or task using the ICT ... .if I could call someone for help if I got stuck. [ ]
[19]FC7. I could complete the job or task using the ICT ... .if I had a lot of time to complete the job for which the software was provided.[ ]

[20]FC8. I could complete the job or task using the ICT ... .if I had just built-in help facility for assistance.[ ]

[21]BI1. I intend to use the ICT in the next 3 months.[ ]
[22]BI2. I predict I would use the ICT in the next 3 months.[ ]
[23]BI3. I plan to use the ICT in the next 3 months.[ ]

SECTION B

Demographic Information:

[24]Gender: 1=Male 2=Female.

[25]Age: 1= Under 30years, 2= 30-44 years , 3= 45years and above

[26]What is your job status: 1= Part-time, 2= Full-time.

[27]Work Experience: 1= 1-5years, 2= 6-10years, 3= more than 10years.

[28]What is your career rank? 1= Lecturer, 2= Senior Lecturer, 3= Ass. Professor, 5= professor

[29]What is your workload? 1= 0-1 course, 2= 2-3 courses, 3= 4-5 courses, 4= more than 5 courses.

[30]Is ICT use mandatory or voluntary at your institution?

1= Mandatory 2=Voluntary

[31]Technology (ICT) usage: 1= once or more a day, 2= once a week,

3= twice a month, 4= once a month, 5= Never

[32]If you had tom pick one issue that is the greatest barrier to using ICT, what would it be?

1= Time, 2= Technical support, 3= Cost, 4= Training, 5= Compensation,

6= Does not fit my program, 7= Others, please specify----------

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