



# Technophobia and Use of ICT Tools in Teaching and Learning: Academic Staff of Nigerian Universities in Focus

## KEYWORDS

Technology Acceptance, Technophobia, Resistance to Technology, TAM, ICT, Nigeria

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## ABSTRACT

This paper x-rays the importance of ICT as a tool for teaching, learning and research that is dramatically changing the landscape of educational development since the last two decades. The incorporation of ICT in educational sector is rendering plethora of opportunities for higher institutions to integrate ICTs in teaching, learning and research. The findings of the study indicates a significant relationship between availability, perceived usefulness, perceived ease of use, and intention to use, whereas, ICT anxiety, mediated the relationship. The study concludes that technophobia has been the major problem hindering academic staff to effectively use ICT for teaching and learning process, thus, it is hoped that the study will open more gaps for future researches that would enhance efforts in educational development, thus, bridging the digital divide in the country.

## 1 Introduction

The recent technology infusion causes presentation of instruction and methods of communication in our traditional university classrooms to have changed (Masrom, 2007). Information technology widens opportunities for teachers to integrate the technological tools into the teaching-learning process in order to improve the system. These advances create new opportunities for collaboration, sharing, and interaction in learning (Suleiman 2011). However, Suleiman (2009) asserts that the digital divide is today one of the wide-ranging encumbrance among people and countries in this present digital era. It is the inequality of access to information technology.

## Statement of Problem

Academic staff perceptions of computer technology were areas needing investigation. Another research gap, which requires attention, is that the academic staff are part of an interactive social system; the educational system which, they are a part of, shapes them as they shape it as well.

## Objectives of the Study

The broad objective is to examine a wide range of both objective and subjective factors that influence the academic staff's attitude toward use of technology in their assignments of teaching especially for class preparation.

Nine null hypotheses were developed based on the research objectives. These are adopted from diffusion of innovations theory. The hypotheses are as follows:

- $H_{10}$ : There is no significant relationship between Usefulness and Anxiety
- $H_{20}$ : There is no significant relationship between Ease of Use and Anxiety
- $H_{30}$ : There is no significant relationship between Intention and Anxiety
- $H_{40}$ : There is no significant relationship between Availability and Anxiety
- $H_{50}$ : There is no significant relationship between Anxiety and Attitude
- $H_{60}$ : There is no significant relationship between Attitude and Acceptance
- $H_{70}$ : No significant difference in terms of Gender in the Anxiety and Attitude relationship
- $H_{80}$ : No significant difference in terms of Designation in the Anxiety and Attitude relationship
- $H_{90}$ : No significant difference in terms of Institution in the Anxiety and Attitude relationship

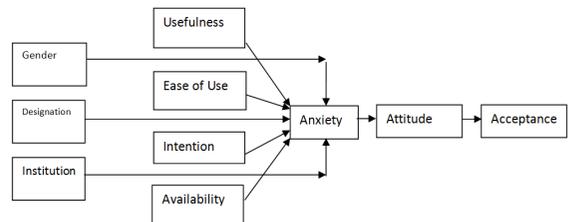


Figure: 1. The Proposed Research Model

This study will help policymakers and school administrators to identify the relative importance of various impediments to the academic staff's use of ICT and educational technology tools in general and in their particular university. This study as well noted the methodological and data analysis limitation which is basically on TAM and Quantitative respectively. The scope area and limited unit of analysis i.e. academic staff were also obvious.

## ICT Use in Education in Nigeria

Information Communication Technology (ICT) is the processing and maintenance of information, and the use of all forms of computer, communication, network and mobile technologies to mediate information. Communication technologies include all media employed in transmitting audio, video, data or multimedia such as cable, satellite, fibre optics, wireless (radio, infra-red, Bluetooth, Wifi). Network technologies include personal area networks (PAN), campus area network (CAN), intranets, extranets, LANs, WANs, MANs and the internet. Computer technologies include all removable media such as optical discs, disks, flash memories, video books, multimedia projectors, interactive electronic boards, and continuously emerging state-of-the-art PCs. Mobile technologies comprises mobile phones, PDAs, palmtops, etc. (Iloanus & Osuagwu, 2010).

ICT Use in Education in Nigeria Computer applications in education are common to reserve a classroom teaching and learning activity, which is universally agreed by education practitioners. The advancement in computer technology has enticed various types of learning activities in the classroom environment. For instance, students with computer simulation technologies could learn complex science topics just as much enjoyable as they could have them literally understood.

Internet and mobile telecommunication has changed in the way we live, work and interacts with each other. In Nigeria, the story of ever evolving affairs has been the same. The feel-

ing of dislike for technology, has led to lower patronage for technology devices and services. The universities teachers' culture and collective practices each plays a crucial role in enhanced technology-based teaching and learning. In order to incorporate ICT with their teaching practices, the academic staff of the universities need to change their everyday practices seeking and working with modern knowledge. It may span through several years, but should not hamper the teachers' effort to start using ICT intensively in preparing and conducting their teaching activities. Working within a collaborative community is likely to provide overlapping zones of proximal development that smooth professional development (Vygot-sky, 1962). Educators taking active part in using ICT are likely to belong to community of networked practices. It is asserted that teachers have the reported the benefits of on-line networking as the ways to sharing knowledge, expressing and receiving collegial and emotional support, and an opportunity to air frustration and to learn new things.

The ICT in Nigeria experiences some evolutionary measures. Government had been trying a lot to intensify ICT in Nigeria right from primary to tertiary education. This is through various means in form of training, provision of facilities and sponsoring various projects and researches. This trend suggests that the level of technophobia among Nigerian academic staff of universities has been slowing drastically vis a vis the level of ICT usage which is growing significantly. Government has been committing to many efforts through agencies such as National Communication Commission (NCC) and Tertiary Education Trust Fund (TETFund) in provision and enhancing ICT tools and services in tertiary institutions. The establishment of ICT centres and Centres for Educational Technology (CET) had been done in most institutions. Provision of e. libraries, and enhancing staff development on capacity building had been on the epoch all over the tertiary institutions in the country for the last half decade.

**Technophobia**

Technophobia can be seen as fear or dislike of an advanced complex device like computers or the technology in general. It generally refers to the sense of an irrational fear, but others contend fears are justified. It is the opposite of technophilia or technophile the love for technology.

The presence of computers in the classroom is seen as a means which students would thrive in a modern learning environment They become motivating factors as they allow students' access to several information and they promote a greater understanding by allowing the students to learn in various ways unimagined previously (Rubin, Fernandes, Avgerinou & Moore 2010). Computer and Internet in classroom has steadily become part of that educational landscape. Growing use of computers in education has substantial benefits to their integration in the curriculum. Olaniyi (2006); Okon, Chika and Emmanuel (2007) identified factors influencing digital divide and negative attitude towards ICT in Nigeria as:

- Expensive devices
- Poor access
- Poor skills to use
- Inadequate financial capacity
- Poor internet services and low teledensity
- Poor of power supply
- Poor level of awareness
- Poor technical assistance and maintenance culture
- In appropriate ICT policies
- Poor implementation of the policies
- Population explosion
- Government negative attitude toward rural areas
- Low government commitment to education
- People attitude and fear towards technology

**II Methodology**

The study is descriptive research and survey research tech-

nique. The researchers collected data by distributing questionnaires to the sample of the accessible population.

The population comprised all the academic staff in the universities in Northern Nigeria. (Table 1) This population was chosen for the fact that the university's academic staff had been involved in provision and using ICT tools in their service delivery in the country

Data were collected through the use of questionnaire which comprised two sections. The first section deals with the demography information on the respondents, example: Gender, Designation, and Institution. The second part assessed the availability of ICT facilities, usefulness of ICT facilities, ease of use, intention to use, anxiety in using, attitude toward and acceptance of ICT technology. This section comprised seven items structured on a Likert (1932) five point scale ranging from strongly agree to strongly disagree. Four hundred copies of the questionnaires were distributed to the respondents. The respondents were contacted physically (in person) who were urged to complete the questionnaire. A total of 200 copies of the instruments were required, the 200 copies were duly completed and returned thus, were the ones used for the analysis.

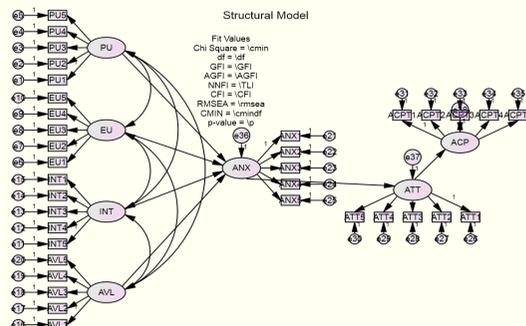
For testing the instrument validity copies of the modified instrument were vetted for content validation by two experts. Reliability was ascertained by piloting the instrument on 30 staff in Bayero University Kano. The overall Cronbach Alpha score of .809 was obtained for internal consistency. The obtained data were analyzed using Amos SEM and SPSS version 18.0.

**Table: 2.Cronbach Alpha value on the main constructs**

SN	Construct	Cronbach Alpha
1	Availability 1-5	.13
2	Usefulness 1-5	.90
3	Ease of use 1-5	.78
4	Intention 1-5	.75
5	Anxiety 1-5	.83
6	Attitude toward technology 1-5	.71
7	Acceptance 1-5	.76

**III Result**

The result of this research is presented here according to the first six hypotheses tested. The measurement model was tested and presented with composite reliability. Both convergent and discrete validity were observed. The structural model (fig:1) was also used to test the formulated hypothesis. The quantitative result is presented in model fit (table 3) and the standardized regression weight. Other items observed were the estimates, CMIN, Regression Weights, Correlations, Goodness of Fit Index (GFI), Comparative fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), p value and chi-square values. It is as follows:



**Fig: 1: Structural Model on relationship between AVL, PUS, PEU, INT, ANX, ATT and ACP**

**Table 3: Model Fit Values**

Chi-square = 1131.9 (= 548) p<.05	
Chi Square = \cmmin	2.066
df	548
GFI	.763
AGFI	.727
NNFI /TLI	.761
CFI	.780
RMSEA	.073
CMIN	2.066
p-value	p<.05
Model	Supported

**Table 4:**

**Covariances: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
pu	<-->	pe	.337	.071	4.719	***	par_35
pu	<-->	int	.116	.037	3.153	.002	par_36
pu	<-->	av	.003	.003	1.025	.305	par_37
pe	<-->	int	.096	.034	2.804	.005	par_38
pe	<-->	av	-.002	.002	-1.155	.248	par_39
int	<-->	av	.000	.000	.385	.701	par_40

**Table 5: Correlations: (Group number 1 - Default model)**

			Estimate	
PU	<-->	PE	.509	Not Supported
PU	<-->	INT	.409	Not Supported
PU	<-->	AV	.228	Not Supported
PE	<-->	INT	.367	Not Supported
PE	<-->	AV	-.193	Supported
INT	<-->	AV	.037	Not Supported

**Table 12: T-Test in terms of Attitude between gender**

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff	Std. Error Diff	95% Confidence Interval of the Difference		
										Lower	Upper
ATT	Equal var. assumed	.016	.901	.832	198	.406	.409	.491	-.560	1.378	
	Equal var. not assumed			.854	118.6	.395	.409	.478	-.539	1.357	

**Table 13: ANOVA on Anxiety and Attitude in terms of Designation**

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
ATT	Between Groups	120.637	7	17.234	1.745	.101
	Within Groups	1895.905	192	9.875		
	Total	2016.542	199			
AXY	Between Groups	1653.160	7	236.166	16.228	.000
	Within Groups	2794.180	192	14.553		
	Total	4447.340	199			

**Table 14: Difference in Bonferroni Tests on Attitude and Anxiety in terms of Institution**

ATT	UDUS	ABU	1.83333	.90712	1.000	-1.0405	4.7072
AXY	UNIJOS	ABU	2.04333	.90712	.712	-.8305	4.9172

**Table 6 CMIN**

Model	NPAR	CMIN	DF	p. value	CMIN/DF
Default model	82	1131.900	548	.000	2.066
Saturated model	630	.000	0		
Independence model	35	3250.474	595	.000	5.463

**Table 7: RMR, GFI**

Model	RMR	GFI	AGFI	PGFI
Default model	.119	.763	.727	.663
Saturated model	.000	1.000		
Independence model	.260	.407	.372	.384

**Table 8: Baseline Comparisons**

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.652	.622	.784	.761	.780
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

**Table 9: FMIN**

Model	FMIN	F0	LO 90	HI 90
Default model	5.688	2.934	2.469	3.438
Saturated model	.000	.000	.000	.000
Independence model	16.334	13.344	12.464	14.261

**Table 10 : RMSEA**

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.073	.067	.079	.000
Independence model	.150	.145	.155	.000

**Table: 15 ANOVA on Anxiety and Attitude in terms of Designation**

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
ATT	Between Groups	11.829	2	5.915	.581	.560
	Within Groups	2004.713	197	10.176		
	Total	2016.542	199			
AXY	Between Groups	91.652	2	45.826	2.073	.129
	Within Groups	4355.688	197	22.110		
	Total	4447.340	199			

**Table: 16: Differences in Bonferroni Tests on Attitude and Anxiety in terms of Designation**

ATT	PROFESSOR	SENIOR	.29386	.49279	1.000	-.8960	1.4838
AXY	LECTURER 3-1	SENIOR	1.09614	.72638	.399	-.6578	2.8500

**Table: 17: Regression on relationship between AVL, PUS, PEU, INT, AXY, ATT and ACP**

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1 AVL	.047 <sup>a</sup>	.002	-.003	3.24496	.002	.440	1	198	.508
2 PUS	.231 <sup>b</sup>	.053	.044	3.16859	.051	10.659	1	197	.001
3 PEU	.249 <sup>c</sup>	.062	.047	3.16262	.008	1.745	1	196	.188
4 INT	.277 <sup>d</sup>	.077	.058	3.14543	.015	3.148	1	195	.078
5 AXY	.280 <sup>e</sup>	.078	.055	3.15057	.002	.364	1	194	.547
6 ATT	.470 <sup>f</sup>	.221	.196	2.90478	.142	35.220	1	193	.000

#### IV Discussion

The influence of this system and its effect on academic staffs' ICT tools acceptance cannot be overlooked. Therefore, university teacher's acceptance and use becomes an area of critical concern to the government as a measure of the successful of these efforts in encouraging the use of ICT tools in education.

In this paper it indicates that the proposed model had been supported with enough evident as fit model. The structural model (figure 2) output of Regression Weights, Correlations, Goodness of Fit Index (GFI), Comparative fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), p value and chi-square values suggest that the causal effect do exist in the relationship among the latent variables tested. The entire exogenous (independent) variables directly influence the endogenous (dependent) which is the acceptance. Thus, is translating the high level of technophobia and moderate level of ICT tools usage among the academic staff. At the same time, ICT tools acceptance has been an important research issue in information systems. It is revealed in this study that among the personal ICT competencies that lecturers need to develop, the highest scoring item is the development of the ability to use key ICT skills in developing and presenting information.

Another finding of this study is that the academic staffs need to develop competencies not only in selecting, developing, monitoring and evaluating ICT instruction but also in developing and maintaining educational website. This is to make it possible for learners to interact with the learning content anytime and anywhere. The need for the academic staff to develop competencies in the instructional integration of ICT in their areas across the curriculum is to ensure that ICT based education promotes the integration of diverse subject areas. It is quite interesting that all the respondents overwhelmingly agree that teachers need to develop competencies in using ICT as an instructive tool in the class as well as in developing learner's ICT capability. Using ICT as an instructive tool implies using it to establish dynamic and powerful instructional strategies and environment. Developing learner's ICT capability is an important aspect of instructional competencies and it requires that learners be

helped to understand the potentials of ICT and to have confidence and desire to use ICT. Educators with instructional competencies are far more in demonstrating confidence in making meaningful use of ICT than those who are not. It can therefore be affirm that such educators "enhance the richness of the learning experience but also encourage the development of information literacy in their own students."

#### V Conclusion

In conclusion, it is obvious that in this era of ICT, Nigeria as a nation will find it very difficult to cross the digital divide if concerted effort is not made to promote and continue to enhance ICT education. One of the strategies to be adopted in this regard is the production of academic staffs that have developed competencies for the instructional use of ICT. Academic staffs who do not possess these competencies cannot impart same onto the learners. Nonetheless, to ensure the development of academic staff ICT competencies the following recommendations are made:

1. More funds and allocation toward ICT in schools
2. ICT policy to make compulsory course for all lecturers
3. Lecturers should be helped empowered on competent in and receptive to ICT
4. ICT facilities be made available in all universities for easy access
5. The Federal Government should intensify the ICT development
6. ICT competencies set as a priority and targets be set for all long serving lecturers
7. Newly employed lecturer are expected to become ICT-literate as mandatory
8. It should ensure ICT integration into education across the curriculum in the country
9. NGO, Philanthropist individuals and Private companies needs to get involve in ICT
10. There is the need for policies on professional development designed to cover workshops and re-training of teachers to positively influence them in adoption of the use of the computer technology in their work.

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