The Use of Information and Communication Technology (ICT) by Lecturers in North-Western Nigeria

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Abstract
Information and communication technology (ICT) encompasses all forms of technology deployed in information dissemination in contemporary societies. Several types of ICT products that can be found and having application to education, such as teleconferencing, audio conferencing-mails, video lessons(TVs), radio broadcasts, interactive radio counselling, interactive audio response system, audiocassettes ,whatsapps and CD ROMs, etc. are being used in education for many purposes. This paper determined the level of ICT usage among lecturers of federal universities in North-western Nigeria. A sample of 350 lecturers was randomly selected through a multi-stage cluster paradigm. Data was collected through online survey of adopted ICT perceive ease of use Questionnaire (IPEUQ) with a return response rate of 85.7%. The data was analysed using IBM SPSS software. Findings indicate that lecturers have personal commitment to acquire ICT skills in developing their competence, to the extent that they bear the cost of training without any intervention from the authorities. The paper therefore, concludes that, insufficiency of ICT facilities and highly trained personal in the universities leads to the low level ICT competence among lecturers.
Keywords: ICT usage, lecturers, North-Western Universities

Introduction
Information and communication technology (ICT) usage in tertiary institutions of learning plays a vital role in enhancing lecturers' competence and also facilitate global context across the globe in terms of research and other academic activities. The incorporation of ICT usage in teaching and learning has gained much attention from both academics and development partners, however in Nigerian Universities faced with myriad of challenges, the usage among the lecturers is highly sympathetic as some has reached the rank of Professor but without a basic knowledge of operating a computer (Ehikhamenor, 2002). According to (Daniels, 2002) ICTs have turned out to be, within a short time, one of the necessary tools of modern fellowship. Many countries now consider knowledge of information and communication technology (ICT) as well as mastery of the essential sciences, technology including concepts of ICT as one the critical basis of education, beside reading, writing and arithmetic. Even though, there seems to be a misconception with respect ICTs generally by referring it to 'computers and computing associated activities'. This is fortunately not the right, although the use of computers and their applications is a significant component in the contemporary information management, other systems and/or technologies also form part of the phenomenon that is generally regarded as ICTs (Law, Pelgrum, & Plomp, 2008).

In addition, in the 1980s, the name 'computers' was replaced by information technology (IT) showing a change of centre of attention from computing technology with the capability of storing and retrieving information. The two were kept in company by the first emergence of the term Information and communication technology (ICT) BY 1992, during which the use e-mail began to grow with the general public (Pelgrum & Law, 2003). UNESCO (2002) clearly stated that ICT encompasses all forms of technology deployed in information dissemination in contemporary societies. Several types of ICT products that can be found and having application to education, such as teleconferencing, audio conferencing-mails, video lessons(TVs), radio broadcasts, interactive radio counselling, interactive audio response system, audiocassettes ,whatsapps and CD ROMs, etc. are being used in education for many purposes (Hattangdi & Ghosh, 2008) Major difference between ICT use

concerning those that regards computer as a subject from the technological viewpoint, and those that see the use of computers as an educational tool to teach other subjects (Baylor & Ritchie, 2002). Some studies focused on the technological viewpoint give attention to the extent to which teacher use specific software and hardware in the classroom instruction (Makki & Makki, 2011). However, according to Tondeur, Valcke and Van Braak (2007) giving attention on the usage of software alone does not make clear the educational use of ICT. He emphasized that computers can be incorporated in many ways and manner and must be approached from a more useful/functional viewpoint. Based on this, they classify three ICT into three types: Use of ICT as an information tool; Use of ICT as a instructional tool; and Use of ICT to understand basic ICT skills.

Statement of Problem

A number of issues may hamper educational institution and teachers in their endeavour to fully benefit from these windows of opportunities. They may not be able to buy the equipment's, they may not have internet service available, or appropriate materials might not be translated in their language. However, a fundamental issue is whether teachers can use ICT effectively in their classroom instruction." In Nigeria, many researches have been conducted that studied ICT usage in tertiary institutions (Ololube, Amaele, Kpolovie, Onyekwere, & Elechi, 2012) (Ololube et al, 2009). Olalube et al, (2009) assessed instructional technology in tertiary institutions, focusing on how efficiently and effectively lecturers can use ICT in teaching and learning. Their findings discovered many obstacles such as lack of ICT facilities and ineffective policy implementation. Similarly, Akuegwe et al. (2011) explores ICT Use for quality instructional delivery among university lecturers, paying attention on federal and state own institutions in Akwa Ibom state. The investigation showed that low availability of the facilities and usage of ICT by lecturers. It also revealed that, there are differences between state and federal universities in the level of usage and availability of the ICT facilities. Considering the importance of ICT in national development and the possible consequences that may result if a country allowed itself to be left out, Nigeria also cannot survive if we don't respond to the fundamental way in which the world is changing in ICT usage in teaching and learning in our educational institutions. It is, therefore, the study intends to establish the level of ICT usage among lecturers in North-western Nigeria.

Objectives of the Study

From the researchers observations it has been apparent that use of information and communication technology in the midst of lecturers in instructional activities is not encouraging in the study area. This informed the need for the study. Therefore, the present study aimed at:
1. Determine the level of lecturers' perception towards ICT usage in teaching and learning process in Federal University in North-western Nigeria.
2. Determine the level of perceive ease of use; perceive usefulness and barriers towards the use of ICT for instructional purpose among lecturers in Federal Universities in North-western Nigeria.
3. To determine the level of ICT Usage base on qualification
4. Determine the relationship between perceive ease of use; perceive usefulness, barriers and usage of ICT for instructional purpose among lecturers in Federal universities in North-western Nigeria.
5. Determine the influence of ICT usage on lecturers perceive ease of use; perceive usefulness and barriers in instructional activities in Federal Universities in North-western Nigeria.

Research Questions
1. What is the level of lecturers' perception towards ICT usage in teaching and learning process in Federal Universities in North-western Nigeria?
2. What is the level of perceive ease of use; perceive usefulness and barriers towards the use of ICT for instructional purpose among lecturers in Federal Universities in North-western Nigeria?
3. What is the level of ICT Usage based on qualification?
4. What is the relationship between perceive ease of use; perceive usefulness, barriers and usage of ICT for instructional purpose among lecturers in Federal universities in North-western Nigeria?
5. What is the influence of ICT usages on lecturers perceive ease of use; perceive usefulness and barriers in instructional activities in Federal Universities in North-western Nigeria.

Research Hypothesis
1. **H1:** There is no significant relationship between ICT usage and perceived ease of use in teaching and learning process.
2. **H2:** There is no significant relationship between ICT usage and perceived usefulness in teaching and learning process.
3. **H3:** There is no significant relationship between ICT usage and barriers in teaching and learning process.

Methodology

This study used descriptive research designed. The universities located in North West were utilized in the conduct of the survey. A total sample of 350 lecturers was drawn from an accessible population of 1,350 through simple random sampling technique. For the avoidance of confining the sampling to few faculties in isolation of others, the survey used online response method in the study. The questionnaires was adopted from Nahid (2012) with validity and reliability of .70, with 42 items in Likert type scale was sent online to 350 lecturers, only 215 was completed and received back for analysis with 85.7% rate of return. Available figure shows that, 120 were from Kano, 70 from Sokoto, 60 from Katsina, 30 from Kebbi while 20 kaduna. The 215 respondents consisted of females 18 and 197 males. The respondents comprised of 61 Bsc holders, 81 Msc/Med holders and 73 PhD holders. The research instrument tagged 'ICT perceive ease of use Questionnaire (IPEUQ) has 4 sections. Section A requires demographic information on age, gender, level and working experience. Section B has 14 items concerning to perceive ease of use, barriers and ICT usage. Section C comprises 14 items measured in a 5 point Likert-like scale from 'Strongly Disagree to 'Strongly Agree' measuring lecturer's proficiency in using ICT for instructional purposes.

Results

The results of the study is extensively discussed below to show the evidences and have valid conclusions

1. Level of lecturers' perception towards ICT utilization of instructional purposes

Focusing on the utilization of ICT as an excellent source of information, the sixth item (6) of the questionnaire in section D revealed highest mean score *(M= 4.46, SD = .789)*. Therefore, the respondents used internet and different social media in teaching and learning process. However, the result showed that the twelfth item (12) of section D recorded lowest mean score *(M= 3.9023, SD= 1.06987)*, which sought to know whether the use of ICT make students to communicate in various format and voices. Therefore, the result showed that students do not make use of ICT effectively.

2. Level of perceived ease of usage of ICT facilities, perceived usefulness of ICT and barriers that leads to the utilization of ICT among lecturers' in instructional processes

Accordingly, findings shows that most of the lectures believe that interacting with ICT required a lot of mental effort. Thus, item five (5) in section A recorded highest mean of *(M= 3.29, SD = 1.17)*. This inferred lectures used more effort in using ICT. However, the results also found out that item three (3) in section A recorded lowest mean score *(M= 2.13, SD = .968)*. This shows that most of the lecturers enjoy use of ICT. Likewise, results indicate that highest mean score *(M= 4.17, SD = 1.11)* of item twelve (12) in section B was recorded and revealed that using ICT increases lecturers productivity.

Furthermore, lowest mean score *(M= 3.21, SD = 1.29)* of item one (1) in section B shows that lectures cannot do their job effectively without internet, computer and other ICT devices. However, item sixteen (16) in section C recorded highest mean score *(M= 3.32, SD = 1.21)*. These inferred lectures have sufficient time to prepare materials on ICT. Results also revealed lowest mean score *(M= 2.40, SD = 1.25)* in section C item nineteen lecturers have enough time in teaching.

Table 1.1 Level of ICT Usage base on qualification

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Bsc or Bed	61	4.0574	.87844	.11247	3.8324	4.2824	1.00	5.00
Msc or Med	81	4.1636	.66005	.07334	4.0176	4.3095	1.00	5.00
PhD	73	4.1963	.55249	.06466	4.0674	4.3253	3.25	5.00
Total	215	4.1446	.69652	.04750	4.0509	4.2382	1.00	5.00

Table 1.2   Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
1.088	2	212	.339

Descriptive

There were 73 respondents who are Msc/Med holders with the highest mean ICT Usage (M= 4.19, SD= .550) followed by 81 respondents who are PhD holders (M= 4.16, SD= 660) and 61respondents who are Bsc holders (M= 4.05, SD= .878).

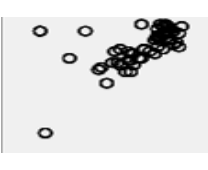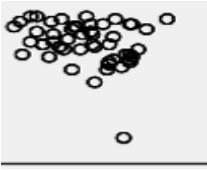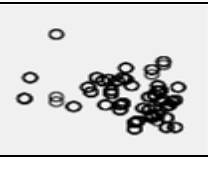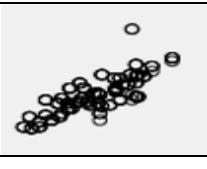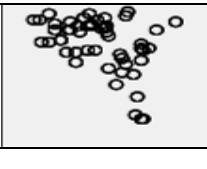| ANOVA					
Table 1.3					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	.689	2	.344	.708	.494
Within Groups	103.130	212	.486		
Total	103.819	214			

Multiple Comparisons						
Table 1.4 Dependent Variable: IU_MEAN						
(I) Qualification	(J) Qualification	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	95% Confidence Interval	
					Lower Bound	**Upper Bound**
Bsc or Bed	Msc or Med	-.10620	.11824	1.000	-.3915	.1791
	PhD	-.13897	.12099	.756	-.4309	.1530
Msc or Med	Bsc or Bed	.10620	.11824	1.000	-.1791	.3915
	PhD	-.03277	.11256	1.000	-.3044	.2389
PhD	Bsc or Bed	.13897	.12099	.756	-.1530	.4309
	Msc or Med	.03277	.11256	1.000	-.2389	.3044

Findings

The one way ANOVA shows there was no significant difference in the ICT Usage based on qualification f (2, 212)= .708, p=.494.

3. **Relationship between perceive ease of use; perceive usefulness, barriers and ICT usage among lecturers**

Table 1.5 correlation matrix

Variable	IU_MEAN	PE_MEAN	PU_MEAN	BR_MEAN
IU_MEAN	.69652			
PE_MEAN	-.291**	.75168		
PU_MEAN	.517**	-.294**	.92904	
BR_MEAN	-.271**	.799**	-.440**	.88232

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

In determining relationship between ICT Usage and perceive ease of use, perceive usefulness and barriers Pearson correlation analysis was conducted.

ICT Usage and perceive ease of use were significantly correlated, r = .29, p < .01

ICT Usage and perceive usefulness were significantly correlated, r = .51, p < .01

ICT Usage and barriers were significantly correlated, r = .27 p< .01

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4. Influence of ICT usage among lecturers' perception on perceive ease of use of ICT, perceive usefulness and barriers of ICT in teaching and learning

Simple linear regression was conducted to determine the influence of ICT usage on lectures. The three predicting variables are: perceive ease of use, perceive usefulness and barrier. These are examined to find out the degree at which each of the predictors has significantly influence to ICT usage.

Table 6 model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.547[a]	.300	.290	.58707

a. Predictors: (Constant), BR_MEAN, PU_MEAN, PE_MEAN
b. Dependent Variable: IU_MEAN

The result produced by SPSS in table 1.6 showed that, only 30% of variance in ICT usage is indicated by the entire predictor variable entered into the regression model.

Table 7 ANOVA Summary of Multiple Linear Regression Model

Model	Sum of squares	Df	Mean square	F	Siq.
Regression	31.097	3	10.366	30.075	.000[b]
Residual	72.722	211	.345		
Total	103.819	214			

The ANOVA result in table 1.7 above depicts the multiple regression model of ICT Usage. The results of the multiple regression analysis as a whole (which includes perceive ease of use, Perceive usefulness, and barriers is significant $F_{(3,211)} = 30.075$, P= .000. This indicates that the slope test of the estimated linear regression model is not equal to zero because significant $F < \alpha$ which stands as an evidence that the model fits the data. Therefore fails to reject HA; it confirmed level of linearity that there were linear relationship between the ICT Usage and the predictor variables (p= .000).Conclusively, in all the models the variance in ICT Usage score can be explained by the predictor variables.

Discussion

Determining then level of lecturer's perception in using ICT in teaching and learning revealed some level of usage of available ICT facilities but could not effectively and efficiently put in to use in teaching and learning process. This is in agreement with (Pelgrum, 2001) which disclose limited training and ICT skill proficiency among lecturers, and usually in adequate. Acquisition of ICT technical expertise is just the initial step outside which many training programmes cannot be practicalize, hence for lecturers to be effective in using ICT, regular training and re-training should be emphasized.

The level of perceived ease of use, perceived usefulness and barriers in the use of ICT shows, most lecturers believe that utilization of ICT facilities requires high level of mental preparedness and concentration. This agrees with (Juwah & Northcote, 2002) which establish that the reasons put forward by lecturers for inadequate proficiency in basic ICT skills are non-availability of time to take part in training sessions due to other schedules, past un-pleasant experiences in ICT skill acquisition ,including anxiety due to technology. Limited access to facilities as well as training opportunities accounts for some impediments that affect ICT usage among lecturers.

The study further sought to establish relationship between perceived ease of use, perceived usefulness and barriers of ICT in teaching and learning which reveals that lecturers enjoy use of the facilities for enhanced productivity, lecturers are willing to integrate information technology in to teaching process, but this rarely occur. Jegade (2009) discovered majority of lecturers who went through organized ICT training are responsible for their individual expenses and even when trainings are initiated by the authorities' payments in many of the occasion are from their savings. The need for the integration of the ICT in to the teaching learning process encourages lecturers to participate at individual and group levels to become proficient.

Conclusion

This paper concludes the ICT usage among lecturers in Federal universities in North West Nigeria making it possible to identify level of ICT usage, level of perception, ease of use and barriers to the use of ICT which draws inference for the imperativeness of integrating ICT in the teaching learning process with particular emphasis on training and re training of lecturers, provision of adequate facilities to enhance efficiency and to address the challenges highlighted. Based on the findings of this study, it clearly reveals that lecturers have personal desire to acquire ICT skills in developing their competence, to the extent that they bear the cost of training without any intervention from the authorities, while acknowledging insufficiency of ICT facilities in their respective campuses which also retard level of competence of most lecturers which was found low in the study. In spite of the above mentioned challenges efforts were being made to utilize the existing ICT facilities in research, accessing mails and word processing. The study concluded that in sufficiency of facilities, lack of funding and lecturers work load are major hindrance to lecturers ICT usage in teaching and learning process in

the universities.

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