

PERCEIVED USEFULNESS OF INFORMATION AND COMMUNICATION  
TECHNOLOGIES AMONG COLLEGE OF EDUCATION  
LECTURERS IN NIGERIA

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**Abstract**

*The influence of availability and attitude on the use of Information and Communication Technology has been extensively studied. However, little or no attention is given to the usefulness of ICT among College of Education Lecturers. This study investigated perceived usefulness of information and communication technologies among college of education lecturer in Nigeria. In this study, three research questions were raised to understand the lecturers' perception of application, proficiency in usage and the influence of teachers' age, educational qualification, gender, ICT training, teaching experience and ICT usage skills. The study adopted a descriptive survey research type. The population of the study consisted of college of education lecturers in south west, Nigeria. 200 lecturers were randomly sampled from the randomly selected five Colleges of Education in South West, Nigeria. The instrument for data collection was a 30 items self developed likert scale questionnaires, where respondents were asked to rate their perception of the application of ICT, proficiency level in the usage of ICT software packages in teaching and the relationship of teachers' age, educational qualification, teaching experience, gender, ICT training and ICT usage skill. The instrument titled: "CLICTAP" was validated by experts opinion. A Cronbach Coefficient Alpha was used to obtain the reliability coefficient value of 0.75. Percentage counts and Pearson's product moment correlation (PPMC) statistical methods were used to analyze the data collected. The result on perceived usefulness of ICT revealed that majority of respondents agreed that ICT can improve teaching and learning process. The result also revealed that most lecturers are highly proficient only in the use of word processing, e-mail and search engines, but are lowly proficient in other software packages e.g. statistical and graphic. The result of the correlation matrix showed significant relationship among teachers' gender ( $r = 0.278, P < 0.05$ ), educational qualification ( $r = 0.261, P < 0.05$ ) teaching experience ( $r = 0.129, P < 0.05$ ) and training on ICT ( $r = 0.461, P < 0.05$ ) and ICT usage skill. Based on the findings of this study, it was recommended that more training and capacity building on ICT should be provided by the management of the institutions and support should be provided by the government and other relevant agencies to equip the staff of these institutions with the needed ICT equipment in other to improve their application and usage proficiency level.*

**Keywords:** Information Technologies, Perception of Application. Proficiency, Management, National Policy on Education

**Introduction**

Information and Communication Technology (ICT) has become essential tool in man's daily lives and educational system. The Federal Government of Nigeria (2013) is very clear in the National Policy on Education which stipulates that the goal of education is the development of

appropriate skills, mental, physical and social abilities and competencies to empower the individual to live in and contribute positively to the society. To this end, there is a growing demand on educational institutions to use ICT in teaching the skills and knowledge students need for the 21<sup>st</sup> century (Okoli, 2005). Realizing the effect of ICT on the workplace and everyday life, today's educational institutions try to restructure their educational curricula and classroom facilities in order to bridge the existing technology gap in teaching and learning. This restructuring process requires effective adoption of technologies into existing environment in order to provide learners with knowledge of specific subject areas, to promote meaningful learning and to enhance professional productivity (Tomei, 2005). In fact, some universities in Nigeria are placing technology competency requirement upon teachers and their graduates (Olori, 2008). The inclusion of ICT in our education and the National Policy on Education is highly necessary as we target the millennium development goals of 2015.

In spite of the fact that it is government policy that teaching shall be practical, activity-based, and experimental and IT supported, the integration and adoption of technology into instruction is one of the challenges confronting university and colleges of education lecturers in Nigeria. Okebukola (1995) and Ololube (2006) added that this view is reinforced by several recent studies of the faculty use of ICT in instruction, which indicate that many lecturers do not use it in any systematic or curricular way. It is believed that if teachers perceived technology application as neither fulfilling their needs nor their students' needs, it is likely that they will not integrate the technology into their teaching and learning (Czerniewicz & Brown 2005; Payal & Monika, 2007). Donna (2000) opined that requiring a set of skills or technology competencies for college lecturers do not insure technology will be used in the classroom or that it will be effectively applied. Implementing technology competencies policy may be a catalyst, but effective use of it in the classroom will require adequate information on perception of application, training for proficiency and technical support by the management of the institution (Umunadi, 2012). The International Society for Technology in Education (ISTE), a professional education organization, and the CEO Forum, a think tank comprised of education leaders in Washington D.C are responsible for recommending guidelines for accreditation to the National Council for Accreditation of Teacher Education (NCATE). The CEO Forum has recommended that teachers' competency in the use of technology is a mandatory component of licensure by 2002 (CEO Forum, 1999). According to the Forum, teachers in the United States are undertrained on using the instructional technologies available to them. The Forum estimates that schools spend roughly \$88 per student on computer equipment, but only \$6 per student on training teachers to use the technology. Many teachers are unable to integrate the technology into their lessons because of lack of perceived usefulness of application and lack of proficiency skill. The Forum observed that only 20% of teachers were comfortable using computer technology in the classroom. Recognising the significant of technology in education, Mishra and Koehler (2006; 2008) introduced a conceptual framework on TPACK by adding the technological knowledge elements to the Shulman (1987) Pedagogical content knowledge (PCK) framework. Mishra and Koehler (2006) argued that teachers need to develop technological pedagogical content knowledge (TPACK) in order to be successful users of technology in their teaching. Adebajo (2010) observed that despite all the benefits associated with ICT, in Nigerian tertiary institutions, there is lack of adequate and suitable ICT equipment, and this has greatly affected lecturers' productivity.

How does this affect higher education? Teacher educators' perception, their use of, and attitude towards educational technology can have significant impact on pre-service and in-service teachers' implementation of technology in the classroom. Since teacher training institutions are

saddled with the responsibility of producing technology competent teachers, that competencies have to be placed on the instructors who are themselves not just able to apply the technologies, but also proficient (Donna,2000). The question remains whether a University Faculty of Education or College of Education can expect teacher trainers not to possess the same technology skill required of its graduates? Since education requires inputs from the fast changing information technology environment, it becomes imperative for teacher trainers to use information technology tools such as internet-mail, e-library, interactive video, interactive board, Mp3, power point, multimedia, computer games and blended learning to enhance learning outcomes. The planning of learning activities will be easier, less time consuming and expanded in scope with the availability of instructional technologies and their skills in drawing from it will improve their teaching ability (Ololube, 2006). The decisions made by the teachers about the use of information and communication technologies in the classroom is likely to be influenced by multiple factors such as age, educational background, accessibility to ICT resources, experience in use of instructional technology, training, consultation, mentoring, technical support, reward and recognition for following the desired behaviour, attitude, gender, ability, perception about usefulness, perception of application, proficiency level, creativity in the faculty members and the students, number of years of existence of the institute and ease of use (Samuel & Bakar, 2006).

With the present day computerization of activities in education, the focus is now on application of ICT in schools at all levels (Folayan & Ibrahim, 2000). Ekweremadu (2001) stated that when computer is properly integrated and applied into educational programme, it would help to improve the academic training for science and technology education and holds out the opportunity to revolutionize pedagogical methods and expand access to quality education. There is need to brace up to the new challenges and systems of education through the development and application of instructional technologies in colleges of education. Okoli (2005) noted that in order to use technology in the classroom effectively, teachers' perception on application should be positive and should be trained in using the modern technologies in the field of education. Recent studies indicate that teachers' perception on the application of information technology have significant implications for their behaviours in its use for teaching (Charles Buabeng-Andoh, 2012). For successful adoption and integration of ICT into teaching, teachers must perceive the application of technology as better than previous practice, consistent with their existing values, past experiences and needs. (Donna, 2000).

The three levels of information technology application are: (a) personal productivity aids, (b) enrichment add-ins, and (c) paradigm shift (Massy & Zemsky, 1995). Personal productivity aids are applications that allow teachers to effectively use word processing and spreadsheets for instruction. Enrichment add-ins allows teachers to inject video, e-mail, listservs, web pages, power point, multimedia and simulation. The paradigm shift is where faculty members and their institutions reconfigure teaching and learning activities to take full advantage of new technologies. Many teachers are hesitant to change an existing programme to something they only know through discussion and reading and not through observation. The key factor in the studies is teachers' perception towards application of technology or intentions to use technology in their classrooms. If teachers have negative perception toward technology, providing them with excellent ICT facilities may not influence them to use it in their teaching (Ololube, 2006). Therefore, teachers need to be assured that technology can make their teaching interesting, easier, more fun for them and students, more motivating and more enjoyable.

Several studies have been conducted on factors that influence teachers' proficiency in the use of ICT in the classroom. Balanskat, Blamire, and European Schoolnet (2007), categorized the factors that influence teachers' ICT use as teacher level, school-level and system-level barriers. Teacher-level barriers include lack of teacher ICT skills; lack of teacher confidence; lack of pedagogical teacher training; lack of follow-up and lack of differentiated training programmes. The school-level barriers comprise absence of ICT infrastructure; old or poorly maintained hardware; lack of suitable educational software; limited access to ICT; limited project-related experience; lack of ICT mainstreaming into school's strategy and the system-level barriers include rigid structure of traditional education systems; traditional assessment; restrictive curricula and restricted organizational structure. Yildirim (2007) conducted a survey and reported that the major use of technology by teachers was to prepare lesson notes and assessments instead of improving students' performances. The research revealed that barriers to teachers' proficiency in the use of technology include congested classes, insufficient training, teachers' age, qualification, teaching experience, gender, inadequate technical and pedagogical support, rigid school syllabi, inadequate motivation, lack of strong leadership and inadequate cooperation among teachers. Okoli (2005) viewed that teachers' age has no relationship with the extent to which they utilise ICT in the school. Slaouti and Barton (2007) also claimed that lack of access, time pressures, lack of mentors and opportunities for training have effect on teachers' proficiency in the use of ICT in teaching and learning. Likewise, Peralta and Costa (2007) collected and analyzed data on teachers' confidence and proficiency in the use of ICT in teaching. The quantitative and qualitative research randomly sampled 20 teachers from Greece, Italy, Spain, Portugal and the Netherlands. The findings revealed that lack of teachers' time to learn new skills, old ICT equipment, large classes, number of computers available for pupils' use, lack of technical and pedagogical support and lack of collaboration among teachers were constraints to teachers' confidence and proficiency in the use of ICT. Understanding the extent to which these barriers affect tertiary institutions in Nigeria may help in deciding how they can be tackled.

This study seeks to investigate the perception of Nigerian College of Education Lecturers towards the usage of information and communication technology (ICT) in teaching and learning. It determines to find out proficient level of the college lecturers in the usage of ICT as a better mode of teaching. This study will determine the lecturer's perceptions of the application of ICT in teaching. It will identify the ICT skills that could be used in enhancing lecturers' performance. The result of the study will help the government and managements of the various colleges of education to be more proactive in implementing information technology policy as stipulated in the National Policy on Education.

#### Statement of the Problem

Despite the global understanding that ICT usage is an essential skill for 21<sup>st</sup> century teachers, it is worrisome that tertiary institutions in Nigeria mainly use it for administrative purposes such as pay roll, inventories, order forms and attendance records. In these institutions, lecturers may not be provided with adequate facilities that will make them to adopt and integrate ICT in their instruction. This barrier is likely to have significant influence on the staffs' perception and proficiency level. Therefore, there is need to investigate the perceived usefulness of information and communication technologies among college of education lecturers in Nigeria.

#### Research Questions

The following research questions were generated and tested:

- (i) What are the lecturers' perceptions of the application of ICT in teaching?
- (ii) What are the lecturers' proficiency levels in the usage of ICT software packages in teaching?
- (iii) Is there significant relationship between lecturers' gender, age, educational qualification, teaching experience, ICT training and ICT usage skills?

### Methodology

This study adopted descriptive survey research design type to study the College of Education lecturers' ICT application and proficiency level. All the College of Education lecturers in Southwest part of Nigeria constitute the population for the study. Multistage sampling method was used. Proportional sampling method was used to select 3 (50%) out of the 6 states in southwest, Nigeria. The sample for the study comprised of 200 lecturers that were randomly sampled from five Colleges of Education in three (3) states in Southwest, Nigeria. Forty (40) lecturers were randomly selected from each college of education. The instrument used for the study was a self developed 30 items questionnaire titled "College lecturers' ICT application and usage proficiency "(CLICTAP). Section A covered teachers' bio-data such as age, qualification, teaching experience, gender and ICT training. Section B is a 3 section likert- type option, where lecturers were asked to rate their perception of application of ICT in teaching, proficiency in the use of software packages and the ICT usage skill.

The instrument was subjected to face and content validity by experts in educational technology and educational evaluators, after which it was found to be above 85% in agreement with experts' opinion. The instrument was trial tested on 30 lecturers who were not part of the main study and Cronbach Coefficient Alpha was used to obtain the reliability coefficient value of 0.75. The five colleges of education involved in this study were visited by the researcher and upon being granted permission by the management, administered the instrument. These institutions were visited in different days and with the help of a research assistant, all the questionnaires administered were completed and returned to the researcher. The data obtained were analysed with Percentages Counts and Pearson Product Moment Correlation (PPMC).

### Results

Research Question 1: What are the lecturers' perceptions on ICT application in teaching?

Table I: Percentage distribution of lecturers' perception on ICT application in teaching

S/N	Variables	SA(%)	A (%)	D (%)	SD (%)
1	ICT can improve teaching and learning process.	82.00	18.00	0.0	0.0
2.	ICT can enhance students' critical thinking skill.	66.00	34.00	0.0	0.0
3.	ICT can enhance students participation	56.00	42.00	0.0	2.0
4.	ICT can enhance collaboration among students.	42.00	56.00	2.0	0.0

5.	ICT can enhance lecturers and students interaction.	52.00	46.00	2.0	0.0
6.	Internet application can provide access to educational resources	69.00	31.00	0.0	0.0
7.	ICT tends to increase students' learning motivation.	42.00	55.00	3.0	0.0
8.	ICT can enhance students' language writing skill	29.00	54.00	16.0	0.0
9.	ICT application will encourage teachers' creativity	53.00	47.00	0.0	0.0
10.	ICT application will enhance effective teachers' communication	62.00	38.00	0.0	0.0

\*Figure within parentheses are presented in percentages

The lecturer's perception on the application of ICT as shown in the table 1 below revealed that majority of the respondents i.e 82% strongly agreed that ICT can improve teaching and learning process, 66% strongly agreed that ICT can enhance students' critical thinking skill, 56 % strongly agreed that ICT can enhance students participation, 69% strongly agreed that internet application can provide access to educational resources, 53% strongly agreed that ICT application will encourage teachers' creativity and 62% strongly agreed that ICT application will enhance effective teachers' communication, Also, majority of the respondents i.e 56% agreed that ICT can enhance collaboration among students, 55% agreed that ICT tends to increase students' motivation to learn and 54% agreed that ICT can enhance students' language writing skill.

Research Question 2: What are the lecturers' proficiency levels in the usage of ICT software packages in teaching?

Table 2: Percentage Distribution of Respondents According to Proficiency level in the Usage of ICT Software Packages

S/N	Software Packages	Very High Proficiency	High Proficiency	Moderate Proficiency	Low Proficiency	No Proficiency
1	Word processing	44 (22.0%)	62 (31.0%)	78 (39.0%)	16(8.0%)	(0.0%)
2	Spreadsheet	40 (20.0%)	24 (12.0%)	72 (36.0%)	50(25.0%)	14 (7.0%)
3	PowerPoint	28 (14.4%)	58 (29.9%)	70 (36.1%)	30 (15.5%)	4(4.10%)
4	Data Base	18 (9.30%)	48 (24.7%)	80(41.2%)	36 (18.6%)	12 (6.2%)
5	Search engine	62 (31.0%)	72 (36.0%)	38 (19.0%)	24 (12.0%)	4 (2.0%)
6	E- mail	76 (38.0%)	86 (43.0%)	18 (9.0%)	20 (10.0%)	(0.0%)
7	Graphic software	14 (7.0%)	20 (10.0%)	60 (30.0%)	50 (25.0%)	56 (28.0%)
8	Encyclopaedia	26 (13.0%)	50 (25.0%)	68 (34.0%)	28(14.0)%	28 (14.0%)
9	Multimedia Package	28 (14.0%)	42 (21.0%)	72 (36.0%)	26 (13.0%)	16 (13.0%) 32 (16.0%)
10	Statistical package	20 (10.0%)	32 (16.0%)	72 (36.0%)	48 (24,0%)	14 (11.4%) 28 (14.0%)

\*Figure within parentheses are presented in percentages

The result of the findings in table 2 revealed that 22% of the respondents are very highly proficient in the use of word processing, 20% are very highly proficient in the use of spreadsheet, 14% are very highly proficient in the use of power point, 9% are very highly proficient in the use of database, 31% are very highly proficient in the use of search engine, 38% are very highly proficient in the use of e-mail, 7% are very highly proficient in the use of graphic software, 13% are very highly proficient in the use of encyclopaedia, 14% are very highly proficient in the use of multimedia packages and 10% are very highly proficient in the use of statistical packages.

Research Question 3: Is there a significant relationship among lecturers' gender, age, educational qualification, teaching experience, ICT training and ICT usage skills?

Table 3: Summary of correlation matrix in the relationship among the variables

Variables	Mean	SD	1	2	3	4	5	6
Gender	34.42	15.3			1.00			
Age	32.12	11.5			-1.01	1.00		
Educational qualification	29.13	16.2				0.135	1.00	
Teaching experience	42.16	14.4			-0.110		0.128	1.00
Training on ICT	36.24	17.9		0.048	0.106	-0.022		
ICT usage skill	38.124	18.9	0.278*	0.049	0.261*	0.129*	0.461*	

\*: Significant ( $P < 0.05$ )

The results of the correlation matrix of ICT usage and independents variables in table 3 revealed that gender( $r = 0.278, P < 0.05$ ), educational qualification( $r = 0.261, P < 0.05$ ) teaching experience( $r = 0.129, P < 0.05$ ) and training on ICT( $r = 0.461, P < 0.05$ ) do significantly influence ICT usage skill.

#### Discussion

The result of table 1 showed that lecturers' perception of the application of ICT in their teaching and learning activities was positive. This was corroborated with the views of Okoli (2005) and Charles (2012) that for successful adoption and integration of ICT into teaching, teachers must perceive the application of technology as better than previous practice, consistent with their existing values, past experiences and needs, ease to use and can be experimented with.

The result of table 2 revealed that college lecturers' proficiency level in the use of the ICT software is still relatively low. This result is in agreement with Yildirim (2007); Slaouti and Barton (2007) who found teachers to be more proficient in the use of e-mail and word processing than other applications. Evidence revealed that teachers' mastery of ICT skills is critical in its successful integration to teaching (Peralta & Costa, 2007). The study also showed that integration of ICT into lecturing helps teachers to search for information and find instructional resources. This finding is consistent with the findings of Stavropoulos and Moschona (2007) that word processing software, CD-ROM reference software, and World Wide Web browsing software were the most commonly used applications by teachers regardless of the subject they teach.

The result of correlation matrix in table 3 revealed that that gender, educational qualification, teaching experience and training have significant influence on the usage of Information Communication and Technology in teaching. Olori (2007) and Charles Buabeng-Andoh (2012) study supported the result of this finding that teachers' gender, teaching experience, teachers qualification have significant influence on the use of ICT in teaching. However, the relationship between ICT usage and age of the respondents was not significantly correlated. This result corroborated the view of Okoli (2005) that teachers' age has no significant influence on ICT skill.

## Conclusion

The study has helped to reveal the level of usage of information communication and technology in teaching by the college of education lecturers. It shows that majority of the lecturers were moderately proficient in the use of word processing and the hardware use was mainly the computer. The respondents exhibited a positive response to the application of ICT in teaching. The correlation matrix also showed that there is a significant relationship between usage of ICT viz -a- viz: gender, educational qualification, teaching experience and training on information communication and technology.

## Recommendations

Based on the results of the study, the following far reaching recommendations were made:

- (i) The management of the colleges of education should provide regular in-service training for lecturers on educational technology skills.
- (ii) Adequate technological resources, technical support and administrative support should be provided to enable them successfully use information communication and technology (ICT) in the classroom.
- (iii) Incentives should be provided to the lecturers to acquire some ICT hardware that will enhance their teaching and learning.
- (iv) Regular capacity building workshop should be organized by the College Management to keep the lecturers abreast of the latest development in the information communication and technology (ICT) world.
- (v) The licence conditions for teaching professionals should include competency test on instructional technology.

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