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## The Availability of Information and Communication Technology Facilities in South-Eastern Nigerian Universities

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### Abstract

*This paper investigates the availability and adequacy of Information and Communication Technology Facilities in South-Eastern Nigeria Universities. It was a descriptive survey. A sample of 1568 was selected from a population of 31, 352 through stratified proportionate representation. A 38-item, 4-point rating scale instrument titled Information Communication Technology Questionnaire (ICTQ) was used to collect data for answering 2 research questions and testing 2 null hypotheses. The instrument was validated by experts from the Department of Educational Administration, University of Port- Harcourt. Test re-test method was used to establish reliability coefficient using Pearson's' Product Moment Correlation that yielded the reliability of 0.76. Simple mean was used to answer the research questions; z-test used to test hypotheses at 0.05 level of significance. Findings were that computer; Internet, CD-Rom, Fax Machine and DVD-RW were adequate and available and concluded that there is awareness of ICT in South-Eastern Nigerian Universities. It was recommended among others that ICT facilities should be adequately provided in the South-Eastern Nigerian Universities.*

### Background to the Study

The term Information Communication Technology (ICT) evolved from Information Technology (IT) when the processing of information with electronic

technology integrated with telecommunication technology. Information Communication Technology as it is popularly known is defined as the totality of technological electronic means, tools and resources used for collecting, storing, processing, managing, communicating and presenting information to end-users in support of their activities. Nwachukwu (2008) observed that ICT came into existence in Nigeria in early 1963. Its facilities include computer system, office systems, consumer electronics; network information infrastructure that involves GSM phones, Internet, Smart Boards, Web cam, Cam coders, CD RW, Visual Library, Multimedia and projector.

The need for integrating Information and Communication Technology into University education need not be over-emphasized. The success of ICT in University classroom would depend on the extent to which the needs of the students are met during preparation. As a starting point, one would expect a proper comprehensive structure to be in place when we talk about ICT resources or facility allocation. One of the proper and comprehensive structures expected in the University is the center for educational technology. The center services lecturers to package audio-visual based pedagogy. This is actualized with existing audio-visual lecture rooms. The facilities contained in audio-visual lecture rooms should be hardware (e.g. Web Cam, Visual Library, Smart Board, multi-media projector, ipod, Computer and Cam coders) and software (e.g. CD R, DVD RW loaded with instructional contents.)

Mackinnon (2002) believed that lecturers need to make informed choices relating to pedagogical approach, students' needs and learning objectives. It is based on this that technology can be successful. According to this authority, two different models of teaching and learning are relevant when integrating ICT pedagogically. These are directed instruction (drill, practice and tutorials) and construction (problem-solving, multimedia and telecommunication). It is implied that technology worthiness in a given lesson is crucial.

When integrating ICT into student training, the questions are: Are all the stakeholders clear on the term integration and better skill? What is the position of practicing University teachers concerning ICT's in Nigerian University classrooms? Paramount to this shift is how effective teaching and learning can be delivered in these institutions.

With the general view that teachers continue to teach the way they were taught, any change expected in classrooms should start with the lecturers' re-orientation. Lecturers use of ICT facilities are inevitable for effective teaching and learning. According to Hoy & Miskel (1982), an organization like the university is effective if the observable outcomes of its activities meet or even exceed organizational goals. All

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efforts at innovation and change are motivated by the desire for effectiveness. Quite often, organizations, particularly educational organization resist change because of the fear of the unknown. Change is an inevitable aspect of life, without change life will become static and boring. Educational change relates to any alterations in the existing trends whether in terms of goals input or processes or in terms of policies, practices and procedures. By and large, most change in education are in terms of adaptation, that is, the adoption of the old ideas and practices that fit new age, new circumstances, new demands and new society. A change may be positive or negative, desirable or undesirable. Much depends on the efforts to plan and direct the change. Thus, the direction and rate of change must always be controlled for it to lead to the ultimate effectiveness.

Technology has advanced devices for improving information processing and meaningful communication between teacher and learner with less stress. Much of the applications encompass devices like video, computer, micro computer, interface laboratory equipment, internet services, and so on. While UNESCO (2002) is attempting to harness new ICTs to help achieve Education for All (EFA) goals, it is also timely to examine how much of ICT literacy and support are posed by teachers of ICT who train university students in the use of ICT facilities.

With Information Technology adequately mastered through the electronic university network, people throughout the country can enroll in credit courses and earn degrees without leaving their homes. Gunasekaran, Mcneil & Shaul (2002) suggested that emergence of digital technology has increased the internet I the computerized delivery of higher education which led to e-learning through electronic mail, internet, world wide web and multimedia. The universities should develop and continuously update instructional ICT policies in order to align educational and research objectives with the most appropriate technological and adequate financial and human resource. These policies as recommended by IAU should place quality in teaching and learning as well as in research at the center of ICT based on development at the institution.

Adaptation of ICT facilities in the universities serves as a means to initiate greater exchange opportunities with peers and engage in a new enriched interaction with students. It provide all members of the academic community and on academic staff with skills to use up-to-date ICTs. The facilities help safeguard a genuine cultural wider reach in education and research materials given the increasing globalization of higher education.

No one can dispute the fact that University education has become more complex and hence its management more demanding of managers. In Nigerian

university classrooms, the ratio of students to computer is 12 students to 1 computer while 1 lecture is to 10 students (UNESCO 2002). With the students explosion in Universities and the multiplicity of programmes, Universities are required to handle large volume of data which they must process speedily to provide information for their management decision making as well as meeting the information requirement of her various clientele, namely, the students, the parents, the government, the informational community and the general public.

Globalization quest for quality information, market competitiveness have posed more challenges to the management of Universities in recent time. In a bid to squarely face the problem of access and adequacy, attitude and choice of ICT facilities and be adjusted to the changing world overwhelmed with knowledge explosion, ICT becomes an indispensable part of higher educational administration. As the number of Colleges and Universities and students enrolment grow, the institution is being exhorted to integrate ICT facilities into their institutional and instructional activities. The ability of University management to achieve this has always determined the survival and development of such universities. Therefore, there is need for effective and efficient use of ICT to generate information for good decisions and productivity. And there should be state of the art ICT facilities in the universities. It is against this background that this study surveys the availability of these ICT facilities that will enhance effective teaching and learning in the Universities.

### **Statement of the Problem**

Teaching is the major function of every academic staff in tertiary educational institution. Effective teaching is *sine qua non* to effective learning. No effective teaching and learning can take place without facilities in tertiary educational institutions. Information Communication Technology (ICT) is gradually replacing the manual method of teaching and learning.

The Nigerian Universities in recent years have witnessed increased students enrolment most times, lecturers complain of high student-teacher ratio. Such increased enrolment requires facilities that will assist the lecturers as well as the students enhance and facilitate teaching and learning. The problem of this study therefore borders on the extent of availability of ICT facilities, extent of its adequacy and of its utilization and factors militating against its utilization in the universities in South-Eastern Nigeria.

### **Purpose of the Study**

The main purpose of the study is to find out the availability of ICT facilities in the universities in South Eastern Nigeria. Specifically, based on the issues raised in the statement of the problem, the purpose of this study is to:

1. Determine the extent of availability of ICT facilities in the Universities in South- Eastern Nigeria

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2. Find out the extent to which the ICT facilities are adequate for effective teaching and learning in Universities in the South -Eastern Nigeria.

### **Research Questions**

The following research questions were answered:

1. To what extent are ICT facilities available in Universities in South -Eastern Nigeria?
2. How adequate is ICT facilities in Universities in South Eastern Nigeria?

### **Research Hypotheses**

The following hypotheses were tested:

**H<sub>0</sub>1:** There is no significant difference between the mean opinion score of lecturers and students on the extent to which ICT facilities are available in Universities in South -Eastern Nigeria.

**H<sub>0</sub>2:** There is no significant difference between the mean opinion score of lecturers and students on the adequacy of ICT facilities in Universities in South- Eastern Nigeria.

### **Methodology**

The study was a descriptive survey design to investigate the availability an adequacy of ICT facilities in South-Eastern Nigerian Universities. All the 28916 final year students and 2436 lecturers giving a total of 31352 from 9 universities made up the population. A sample of 1446 final year students and 122 lecturers from 2 Federal and 3 State Universities were selected from 9 universities. This was through a stratified random sampling technique.

A 2-part, 38-item questionnaire titled, “Information Communication Technology Questionnaire (ICTQ) was used to collect data using 4-point scale of very great extent – 4, great extent – 3, less extent – 2, no extent- 1 for research question 1. Very adequate – 4, adequate – 3, moderately adequate – 2 and inadequate – 1 for research question 2. The validity of the instrument was established by a team of experts from the Department of Educational Management, University of Port-Harcourt. The test re-test method was used to establish the reliability of the instrument using Pearson’s Product Moment Correlation Coefficient. A reliability index of 0.76 was established. The researchers administered the instrument, retrieved some on the spot and some were collected on an agreed date.

The simple mean were used to answer the research questions while the z-test was used to test the null hypotheses.

**Results**

**Research Question 1:** To what extent are ICT facilities available in the Universities in South Eastern Nigeria?

**Table 1: Means Scores of Lecturers and Student on the Availability of ICT Facilities in the Universities in South Eastern Nigeria**

		Students	Lecturers	
S/n	Availability of ICT Facilities	Mean	Mean	Remarks
1	Smart Board	1.55	0.50	Rejected
2	16 mm film	1.82	1.84	Rejected
3	Internet	2.73	2.64	Rejected
4	Computer	2.81	2.54	Accepted
5	Slide Projector	2.15	1.94	Rejected
6	Radio	2.54	2.12	Rejected
7	Television	1.90	2.07	Rejected
8	Digital Camera	2.50	1.85	Rejected
9	Virtual Library	1.80	2.32	Rejected
10	Fax Machine	2.69	2.94	Accepted
11	Camcorder	1.80	1.61	Rejected
12	Multimedia	1.83	1.85	Rejected
13	Language Library	2.25	1.73	Rejected
14	CD Rom	2.75	2.62	Rejected
15	CD Rw	2.18	2.41	Rejected
16	DVD Rom	2.18	2.46	Rejected
17	DVD Rw	2.76	2.58	Accepted
18	M. P. 9	2.21	1.66	Rejected
19	Audio Cassette Player	1.93	1.78	Rejected

Data in table 1 reveals that both lecturers and students accepted that only the computer is the only ICT facility that is available. DVD RW was only accepted by lecturers while the students rejected the availability of the facility.

**Research Question 2:** What is the adequacy of ICT facilities in the Universities in South Eastern Nigeria?

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**Table 2: Means and Standard Deviations of Students and Lecturers on the Adequacy of ICT Facilities in the Universities in South Eastern Nigeria**

S/n	Adequacy of ICT Facilities	Students	Lecturer	Remarks
		Mean	Mean	
1	Smart Board	1.99	2.33	Rejected
2	16mm film	2.14	2.18	Rejected
3	Internet	2.66	2.81	Accepted
4	Computer	2.81	2.66	Accepted
5	Slide Projector	1.94	2.16	Rejected
6	Radio	2.09	2.35	Rejected
7	Television	2.09	2.10	Rejected
8	Web Camera	2.09	2.14	Rejected
9	Virtual Library	2.24	2.10	Rejected
10	Fax Machine	2.59	2.66	Accepted
11	Camcorder	2.46	2.30	Rejected
12	Multimedia	2.08	2.27	Rejected
13	Language library	2.43	2.35	Rejected
14	CD Rom	2.67	2.73	Accepted
15	CD RW	2.34	2.26	Rejected
16	DVD Rom	2.67	2.73	Accepted
17	DVD RW	2.97	2.59	Rejected
18	M. P. 9	2.05	1.88	Rejected
19	Audio Cassette player	2.25	2.11	Rejected

Data in table 2 shows that computer; Internet, fax machine and CD Rom are the facilities that are adequate to some extent in the Universities in South Eastern Nigeria. This is because the mean scores are above 2.50 all other items are rejected because they fell below 2.50.

**Hypotheses**

*Hypothesis 1*

There is no significant difference between the mean opinion scores of lecturers and students on the extent to which ICT facilities are available in the universities in South Eastern Nigeria.

**Table 3: z-test of Difference between the Mean Scores of Lecturers and Students on the Extent to which ICT Facilities are Available in the Universities in South Eastern Nigeria**

	N	$\bar{X}$	SD	P	z cal.	z-crit
Lecturers	127	39.2	10.4	0.05	1.86	1.96
Students	1446	41.2	10.2			

Legend SD = Standard deviation  
 z-cal = Calculated z value  
 z crit. = Critical or table z value

Table 3 indicates that the critical or table value of z for a two tail test at the 0.05 level of significance is  $\pm 1.96$ . Since the calculated value of z (1.86) is less than the critical value of z ( $\pm 1.96$ ), we fail to reject the null hypothesis which states that there is no significant difference between the mean opinion of the students and lecturers on the extent to which ICT facilities are available in their universities.

**Hypothesis 2**

There is no significant difference between the mean opinion scores of lecturers and student o the adequacy of ICT facilities in Universities South Eastern Nigeria.

**Table 4: z-test of Difference between the Mean Opinion Scores of Lecturers and Students on the Adequacy of ICT Facilities in Universities South Eastern Nigeria**

	N	$\bar{X}$	SD	P	z cal.	z-crit
Lecturers	122	43.5	8.4			
Students	1446	43.1	8.3	0.05	0.52	1.96

Table 6 indicates that critical or table value of z for two tail test at 0.05 level of significance is  $\pm 1.96$ . Since the calculated value of z (0.52) is less than the critical value z ( $\pm 1.96$ ), we also fail to reject the null hypothesis which states that there is no significant difference between the opinion of lecturers and students on the adequacy of ICT facilities in Universities South Eastern Nigeria.

**Summary of Findings**

Based on the data analyzed, the following findings were made:

1. The following ICT facilities are available in the Universities in South Eastern Nigeria: Computer, Internet, DVD RW, Fax machine and CD-Rom.
2. The ICT facilities that were found adequate in the South Eastern Nigerian Universities are computer, fax machine, CD ROM, DVD-RW and Internet.



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3. There was no significant difference between the opinion of lecturers and students on the extent to which ICT facilities are available in the universities in South Eastern Nigeria.
4. There was no significant difference between the opinion of lecturers and students on the adequacy of ICT facilities in the Universities in South Eastern Nigeria.

#### **Discussions**

Results indicate that ICT facilities available in the universities in South Eastern Nigeria are Computer, Internet, Fax machine, DVD-RW and CD-Rom out of 19 items for the study. This gave a clear indication that most ICT facilities are not available in the universities under study.

Contradicting the above finding, Nwachuwku (2008) observed that ICT came into existence in Nigerian Universities in the early 1963 and since then have been available for use to facilitate teaching / learning. In support of the above, Ajayi (2002), Ajayi (2002) & Tokuji (2009) are of the feeling that ICT have been available for use in teaching, learning, and researches in Nigerian Universities for a long time. They further stressed that ICT are available for use in content provision, administration, operational management, collection, dissemination and exchange of information, support for conduct and management research. Additionally, Bahrudin, Mohammad & Muhammad (2001) emphasized that the use and availability of ICT offer a wide array of choices and innovative ways that is now mostly absent in the traditional classroom. Morris (1996) expressed his view that the production of teaching materials could be enjoyed nation wide by academic staff participation, irrespective of their location.

Similarly, Ajayi (2002) maintains that ICT are available and used by lecturers to support traditional instruction. According to him, lecturers use ICT to enrich the curricula. He opined that ICT available are used for the development as a tool.

Findings reveal that the ICT facilities found adequate in the South-Eastern Nigerian Universities are Computer, Fax machine, CD Rom, DVD-RW and Internet.

#### **Conclusion**

Based on the results of this study, the use of ICT facilities are flourishing in the universities, there is awareness on the use of ICT facilities in the universities because of the fact that it speeds up administrative process, removes burden and increases output. Giving the above scenario, it is therefore necessary that the impediments be reduced more and up to date equipment acquired so that the purpose which informs the acquisition of these materials will be fully realized.

### **Recommendations**

Based on the results of this study, the following recommendations emerged:

1. Efforts should be made by the universities in the South East Nigeria to provide more ICT facilities. This will make studies more practical and result oriented
2. There should be general re-orientation of female students and lecturers on the use of ICT facilities.
3. The universities should encourage the constant use of facilities. This will help both students and lecturers perfect in the use of ICT facilities.

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