

Information and Communications Technologies (ICT) Facilities for Effective Instructional Delivery in Tertiary Institutions

Olusesan A. Adelabu¹ and E.O. Adu²

¹*Department of Microbiology, Faculty of Education, University of Fort Hare, South Africa*
E-mail: ¹<201409080@ufh.ac.za>, ²<eadu@ufh.ac.za>

KEYWORDS ICT Facilities. Availability. Utilization. Impact. Competency. Effective. Instruction. Delivery. Lecturers. Tertiary Institutions

ABSTRACT The study investigated the degree of availability and utilization of information and communications technologies (ICT) facilities for effective instructional delivery in tertiary institutions in Oyo State. 300 lecturers were selected for the study using simple random sampling. A questionnaire titled Availability and Utilization of ICT tools for effective instructional delivery in tertiary institutions in Oyo State was the only instrument used for data collection (*ICTFEIDQ*). The questions were statistically analyzed using simple percentage. The results obtained revealed that availability and utilization of ICT facilities for effective instructional delivery is significantly low. Cyber Cafes, Internet connectivity and use of laptops is a common phenomenon among institutions and lecturers, while competency among lecturers in the usage of ICT facilities is discouraging. However, lecturers from University of Ibadan differed significantly with their counterparts from the Polytechnic, Ibadan and Emmanuel Alayande college of Education, Oyo in terms of utilization and competence of ICT facilities.

INTRODUCTION

Information and Communication Technologies (ICT) is increasingly becoming more widespread throughout University education worldwide, which is in line with UNESCO's policy paper for Change and Development in Higher Education, which urges Higher Education institutions to make greater use of the advantages offered by the advancement of communication technology to improve the provision and quality of their education (Bonk et al. 2009). Many universities around the world are turning to the use of ICT (Adu et al. 2014). Information and Communication Technologies (ICT) have become key facilities in educational methodology and curriculum delivery globally. It has been identified as an indispensable tool for the development of quality teaching and learning in the education system. ICT is fundamental for the preparation of students in meeting the innovations in the global arena (Adu et al. 2014). Hence, culture and society have to be adjusted to meet the challenges of the knowledge era. The emergence of ICT has brought about rapid technological, socio-economic and political transformation, which has eventuated in the network society organized around ICT (Akawu 2009). The field of education has also been influenced by potency of information and communication technology.

ICT has the potential to enrich and accelerate skills, motivate and engage students in learn-

ing; it helps to create economic viability for workers, helps to relate school experiences to work practices, contributes to radical changes in school, fortifies teaching and provides opportunities for connection between the school and the world (Adelabu and Adu 2014). Undoubtedly, information and communication technology has impacted the quality and quantity of teaching and learning through its dynamic, interactive and engaging content, and it provides real opportunities for individualized instruction. In research, ICT provides opportunities for schools to communicate with one another through email, mailing lists and chat rooms. It also provides quicker and easier access to more extensive and current information. ICT can be used to do complex mathematical and statistical calculations. It also provides researchers with a steady medium for information dissemination of research outcomes and findings (Onassanya 2004). The utilization of ICT in instructional service delivery among lecturers in Nigeria universities has been more of a departmental affair, rather than institutional and these departments are in sciences, medical and computer sciences where the synergy between research and teaching (Akuegwu et al. 2011), the essential infrastructure for course development and delivery were most accessible (Bassey et al. 2009).

Bamiro and Liverpool (2002) observed that the computer and ICT generally has already invaded and dominated universities in the devel-

oped world. In Nigeria, it has been painfully slow. Akin to this is the report that no real effort has been made in ICT development, both at the individual and corporate levels, and that most universities still process results manually (the Guardian Editorial 2006).

More so, most university lecturers are yet to acquire the requisite ICT skills, even when the opportunities exist according to Akuegwu et al. (2011) for them to do so they shun them because of the ICT phobia they have developed. Perhaps, this explains why Okogie (2008) declares that most university lecturers are incompetent and this will lead to production of incompetent graduates. This is why Aginam (2006) said the quality of lecturers' instructional service delivery cannot be separated from their utilization of ICT facilities in the universities, hence, most Nigerian universities have little or no infrastructure for cyber cafes, and computer equipped classrooms or high speed internet.

In most cases, there are no funds to implement such infrastructures on their own. The problems include lack of regular power supply, Internet connectivity, telephones' dysfunctional nature, and no specific policy for ICT in education, are among others. What looks like a ray of hope is the fact that the federal governments have introduced Universal Mandatory Information Technology Training (UMITT), which is being embraced by universities. In the same vein, the Oyo State Ministry of Education is mandatorily acquiring laptops computers for all her primary and secondary schools teachers for effective instructional delivery and competency. The development in ICT in recent years shows that lecturers have access to wide variety of ICT facilities, materials and texts to improve their content knowledge and instructional pedagogy (Akuegwu et al. 2011). Hence, the impact of this development is yet to be seen on the quality of lecturers' instructional service delivery.

Research Objective

With this background, this study aims to investigate the availability, degree of utilization and the level of competence of teachers in the use of ICT facilities for effective instructional delivery in tertiary institutions in Oyo State.

Research Questions

1. Are ICT facilities available for use in the delivery effective instruction?

2. What is the degree of utilization of ICT facilities for effective instructional delivery?
3. What is the level of competence among lecturers in the use of ICT facilities for effective instructional delivery?
4. What are the problems affecting ICT utilization? (Motivators / Inhibitors)

Literature Review

ICT facilities are the use of computer system and telecommunication equipment in information processing (Ayo 2001). It is made up of different basic components namely, electronic processing using the computer transmission of information with telecommunication equipment, and dissemination of information in multimedia. ICT facilities can simply be defined as the acquisition, processing, storage and dissemination of vocal, textual, pictorial and numerical information, by micro-electronic-based combination of computers and telecommunication. It is seen as the product of the union between computer technology (essentially for information acquisition storage and processing) and telecommunication technology, which is for information distribution. ICT utilization is the presentation and distribution of instructional content through web environment (e-teaching) to support learning and communication (Yusuf 2005). Some of the examples of ICT facilities are computer laptops, video machines, multimedia projectors or power points, digital cameras, Internet facilities, computer network and telephones.

METHODOLOGY

Research Design

The study was conducted in Oyo State, which is an inland state in southwestern Nigeria, with its capital at Ibadan. The design of the study was a descriptive type using the survey method. The sample population was lecturers in tertiary institutions in Oyo State.

Sample and Sample Technique

Three (3) tertiary institutions were selected for the study and they included, University of Ibadan, Ibadan U.I. (a federal university), the polytechnic, Ibadan (a state polytechnic) and Emmanuel Alayande College of Education, Oyo

(a state college). Random sampling technique was used to select 300 lecturers from the three (3) tertiary institutions with U.I. 150, IBA-POLY 100 and EACOED 50 lecturers.

Instrument

The instrument for data collection was a questionnaire titled ICT facilities for effective instructional delivery questionnaire (ICT.F.E. I.D.Q.). The instrument was divided into four (4) parts. Part 1 sought information on the available ICT facilities for effective instructional delivery. The responses to the ten (10) ICT facilities included, 'Available' and 'Not Available'. Part 2 dealt with the degree of utilization of some of the ICT facilities mentioned in Part 1. The responses were ranked as 'very frequently', 'frequently' and 'not at all'. Part 3 considered the level of competence of ICT utilization among lecturers. Responses included 'very competent', 'competent' and 'not at all'. The last part (part 4) investigated the motivators and inhibitors to the utilization of ICT facilities for effective instructional delivery. Motivators included six questions, while inhibitors also had six question items. The responses to this were "yes" or "no".

Reliability and Validity of Instrument

The instrument was face-validated by experts in education, test and measurement (Measurement and Evaluation). The reliability was tested using the split-half method. Here the responses on the items are pooled and split into their odd and even numbers and are correlated and a reliability coefficient value of 0.89 was recorded

Data Administration and Analysis

The questionnaires were administered with the help of research assistants with a one hundred percent return rate. All the data was analyzed using descriptive statistics of percentages.

RESULTS AND DISCUSSION

Research Question 1

Are ICT facilities available for effective instructional delivery in tertiary institutions in Oyo state?

Results in Table 1 showed that database and cyber cafés are available fifty percent of the time, respectively, followed by multimedia projector with thirty-six percent, laptops at thirty-three percent, while email and Internet facilities have thirty-one percent and thirty percent availability, respectively. Radio and TV projectors as well as e-libraries are not available. Video and still cameras have twenty-two percent and twenty-nine percent availability, respectively. The observation here is that the availability level of ICT is high on two items while it is low for the other eight items. The implication is that the availability of ICT facilities for effective instructional delivery is relatively low.

Research Question 2

What is the degree of utilization of ICT facilities for effective instructional delivery?

Results in Table 2 showed that cyber cafe facilities and e-mails were very frequently utilized as indicated by the number of lecturers and

Table 1: Availability of ICT facilities

S. No.	Items	U.I (150)		IB.POLY (100)		EACOED (50)		% (100)	
		A	NA	A	NA	A	NA	A	NA
1	Cyber café	150	-	-	100	-	50	50	50
2	Data base	150	-	-	100	-	50	50	50
3	Multimedia projector	100	50	5	95	2	48	36	64
4	Lap tops	90	60	5	95	3	47	33	67
5	E-library	-	-	-	-	-	-	-	100
6	Still/Digital camera	80	70	4	96	3	47	29	71
7	TV/Radio projector	-	-	-	-	-	-	-	100
8	Video recorder	60	90	3	97	2	48	22	78
9	Internet facility	90	60	-	100	-	50	30	70
10	E-mail	80	70	10	90	3	47	31	69

Total number 300; Available (A), Not Available (NA)

Table 2: Degree of utilization of ICT

S.No.	Items	Very frequently		Frequently		Not at all		%
		Lecturer	%	Lecturer	%	Lecturer	%	
1	Cyber café	50	16.7	150	50.0	100	33.3	100
2	Data base	100	33.3	150	50.0	50	16.7	100
3	Multimedia projector	30	10.0	80	26.7	190	50.0	100
4	Lap tops	50	16.7	100	33.3	150	50.0	100
5	E-library	-	-	-	-	-	-	100
6	Still/Digital camera	50	16.7	100	33.3	150	50.0	100
7	TV/Radio projector	-	-	-	-	-	-	-
8	Video recorder	30	10.0	70	23.3	200	40.0	100
9	Internet facility	100	33.3	80	26.7	120	40.0	100
10	E-mail	90	30.0	100	33.3	110	36.7	100

Total Number = 300

the corresponding percentages. Database, cameras, and email were also seen to have been frequently used. The under-utilized ICTs include the multimedia projectors, cameras, Internet facilities, video, and laptops showing fifty percent, fifty percent, forty percent, forty percent and fifty percent utilization, respectively as indicated above. It obvious that laptop computers, email, and Internet transactions (cyber cafes) are seen to grow among lecturers in terms of utilization but relatively is still low, but institutional level of utilization of some of the ICT is encouraging especially in the area of database, multimedia projectors, Internet and computer connectivity. However, e-library and TV or radio projectors are yet to emerge.

Research Question 3

What is the use of competence among lecturers in the use of ICT facilities for effective instructional delivery?

Results in Table 3 showed that sixty-four percent of lecturers are not ICT literate in EACOED, followed by U.I with a percentage of 53.3. It is observed that the competency level is high in U.I and IBA-Poly compared to EACOED. From the table IBA-Poly forty percent of the respond-

ed claim to be 'very competent' and forty percent are 'competent', closely followed by U.I with responded at twenty percent 'very competent' and 26.7 percent 'competent', while EACOED has sixteen percent responses as 'very competent' and twenty percent 'competent'. The implication is that the level of competence is low.

Research Question 4

What are the problems affecting the use of ICT facilities in the delivery of effective instruction (Motivators and Inhibitors).

Table 4a showed that items 2, 3, 4, 5 and 6 have the highest percentage, while item 1 has only twenty percent, lecturers are motivated to use ICT based on items 2, 3, 4, 5 and 6. Results in Table 4b showed that items 1, 3, 4 and 6 are the inhibitors for the lecturers' utilization of ICT.

DISCUSSION

The results of research question one show that the availability of ICT for effective instructional delivery in tertiary institutions in Oyo State is relatively low, except for University of Ibadan that has effective database, cyber café,

Table 3: Competence in the use of ICT

S. No.	Institution	Very competent		Competent		Not competent		Total
		Lecturers	%	Lecturers	%	Lecturers	%	
1	U.I	30	20	40	26.7	80	53.3	150
2	IBA-POLY	40	40	40	40	20	20	100
3	EACOED	8	16	10	20	32	64	50

Total Number = 300

Table 4(a): Motivators No. 300

S. No.	Motivators	Yes	%	No	%
1	Technical support provided by the institution	60	20.0	240	80.0
2	Opportunities to improve teaching/learning	260	86.7	40	13.3
3	Personal motivation to use ICT	180	60	120	40
4	Opportunities personal innovation	200	66.7	100	33.3
5	Over all job satisfaction/professional prestige	200	66.7	100	33.3
6	Intellectual challenges	250	83.3	50	15.7

Table 4(b): Inhibitor No. 300

S. No.	Inhibitors	Yes	%	No	%
1	Lack of grant for ICT	285	95	5	5.0
2	Lack of awareness	60	20	240	80
3	Lack of interest	150	50	150	50
4	Concern about work load	50	16.7	150	83.3
5	Lack of technical background	180	60	120	40.0
6	Lack of technical support	280	93.3	20	6.7

Internet facilities, multimedia projectors and laptops. Hence, at the College of Education, cyber cafés and database are under construction, but at the departmental levels, cameras, video recorders and multimedia projectors are available. This means that these facilities are available in such a way that lecturers in Oyo state tertiary institutions can utilize them to enhance effective instructional delivery. This is in support of Adelabu and Adu (2014) who said that ICT facilities are generally low in most of the tertiary institutions in Nigeria as a result of the poor state of infrastructure.

The reason for the high presence of ICT in U.I is that it is a federal university and the premier university with a good financial base, ICT grants and collaboration with international organizations, but even with this, the utilization level of ICT is low among the lecturers. In the case of the Polytechnic, Ibadan, the availability of ICT is a result of the willingness of the management and the support from the state government to see that the college produces graduates that can compete with their contemporaries after graduation and also to equip the staff to improve their efficiency and productivity, even with the lean resources available. Hence, e-libraries and TV/radio projectors are yet to spring up in the tertiary institutions in Oyo state. This corroborates the study carried out by Adelabu et al. (2014) that succinctly described the utilization of Internet for email purposes as the most rampant among lecturers and teachers.

The result of research question two, which has to do with the degree of utilization, showed that it is not significantly low because acquisition of laptops, multimedia projectors within the department and the institutional levels is an encouraging signal. The result of research question three that investigated the level of competence in the use of ICT among lecturers is a cause for concern. This is because the competence observed among few lecturers is due to their personal motivation, intellectual or academic challenges, and professional prestige. But for the lecturers with no competence, it could be because of lack of awareness, lack of interest, concern about workload, lack of technical background, lack of support from institutions, and lack of grant for ICT utilization. This finding is in line with that of Akuegwu et al. (2011), Yusuf (2005), and Adu et al. (2014) on the ICT utilization, wherein higher education for sustainable development in Nigeria has been found to be very low.

CONCLUSION

The findings of the study have clearly revealed that the availability and utilization of ICT facilities for effective instructional delivery in tertiary institutions in Oyo State is low. This phenomenon will definitely affect the quality of graduates (learners) from these institutions. Despite the awareness of the place of ICT facilities in instructional delivery, it is yet to record

the same impression among lecturers and institutions in Oyo State.

RECOMMENDATIONS

This study recommends among others that,

- ♦ ICT facilities should be made available by institutions.
- ♦ Lecturers should endeavor to acquire these facilities by themselves, since they are an integral part of instruction.
- ♦ Government at all levels should come up with appropriate ICT policies that will enhance teaching and learning.
- ♦ Workshop, training programs on the utilization of ICT facilities should be organized for teachers at all levels of education.

REFERENCES

- Adelabu OA, Adu EO 2014. Assessment of accessibility and utilization of information and communication technology (ICT) for effective teaching of biological science in secondary schools. *Mediterranean Journal of Social Sciences (MJSS)*, 5(23): 1439-1444
- Adu EO, Emunemu BO, Oshati T 2014. The role of ICT and higher education in sustainable development. *Journal of Communication (JC)*, 5(2): 181-190
- Adu EO, Adelabu O, Adjogri SJ 2014. Information and Communication Technology (ICT): The Implications for Sustainable Development in Nigeria. In: *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications*, pp. 35-43.
- Akuegwu BA, Ntukidem PJ, Ntukjidem EP, Jaga G 2011. Information and Communication Technology (ICT) facilities: Utilization for quality instructional service delivery among university lecturers in Nigeria. *Review of Higher Education in Africa*, 3(1): 33-53.
- Ayo CK 2001. *Information Technology Trends and Applications in Science and Business*. Lagos: Concept Publications.
- Akawu AB 2010. *Educational Communication Technology Media and Utilization*. Nigeria: University of Calabar Printing Press.
- Aginam E 2006. Nigeria Higher Education Has Less 5% ICT Application. From <<http://www.vanguardng.com/article/hmt>> (Retrieved on 2 February 2007).
- Bamiro O, Liverpool S 2002. ICT and university administration: The Ibadan and Jos examples. *The University Administrator*, 1(4): 29-39.
- Bassey SU, Okodoko D, Akpanumoh UD 2009. Information communication technologies in the management of education for sustainable development in Africa *African Research Review*, 3(3): 48-71.
- Bonk CJ, Lee MM, Reynolds T (Eds.) 2009. A Special Passage through Asia E- Learning. AACE. From <<http://www.editlib.org/p/32264>> (Retrieved on 7 October 2014).
- Enyi BI 2004. *An Assessment of Availability and Utilization of Resources for Distance Education in Nigerian Universities*. MEd (Edu-Tech.) Project. Dept. of CSET, Faculty of Education. Nigeria: University of Ilorin.
- Hailes S, Hazemi R 2002. *Universities, Dearing, and the Future. In the Digital University—Building a Learning Community*. London: Springer, pp. 7-25.
- Kreijns KP, Kirschner A, Wim J 2003. Identifying the pitfalls for social interaction in computer-supported collaborative learning environments: A review of the research. *Computers in Human Behavior*, 19(3): 335-353.
- The Guardian Editorial 2006. The NUC Verdict on Nigeria Universities. *The Guardian*, P. 16, August 1.
- Yusuf MO, Onasanya SA 2004. Information and Communication Technology (ICT) and Teaching in Tertiary Institutions. *Paper Presented at the Workshop on Teaching for Newly Recruited University Lecturers*, Organized by Faculty of Education, University of Ilorin, Nigeria.
- Yusuf MO 2005. Integrating ICTs in Nigeria tertiary education: The African Symposium. *Journal of African Educational Research Networks*, 5(2): 43-50.
- World Bank 2002. *Enhancing Learning Opportunities in Africa*. Washington D.C. International Bank for Reconstruction and Development.