AVAILABILITY AND INSTRUCTIONAL USE OF INFORMATION AND COMMUNICATION TECHNOLOGY RESOURCES IN COLLEGES OF EDUCATION IN KANO STATE, NIGERIA

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Abstract

The study explored the availability of information and communication technology (ICT) resources for instruction in selected colleges of education based on institutional ownership in Kano State. The study used a survey research design. A researcher-designed questionnaire and an adapted checklist from the National Commission for Colleges of Education, Minimum Standard (2012) for data collection. Mean and simple percentages were used to analyze the research questions. A total of 286 lecturers were proportionately sampled from Federal College of Education, Kano and Sa'adatu Rimi College of Education, Kumbotso, Kano, which were purposively selected for the study. A reliability value of 0.72 was obtained for the frequency of utilization instrument using Cronbach Alpha. The findings revealed that the two Colleges of Education have almost all of the ICT resources required by National Commission of Colleges of Education (NCCE) in Nigeria. The findings also revealed that lecturers' frequency of use of ICT resources for instruction was not fully encouraged. The study concluded that Colleges of Education in Kano state have basic ICT resources as required by NCCE. The study therefore recommended, among others, that government and school management should provide an enabling environment, such as provision of infrastructure facilities, internet connectivity, and stable power supply, among others.

Keywords: ICT resources, Colleges of Education; Frequency of Utilization
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Introduction

Integrating Information Communication and Technology (ICT) in the teaching-learning process has demonstrated the productive changes in the educational system of the twenty-first century. Given the above, there is an increasing demand on institutions of higher learning to use ICT for teaching-learning process. Moreover, understanding the outcome of ICT in modern educational system is continuously repositioning instructional resources in order to close the prevailing technology gap in the teaching-learning process. This reformation necessitates the adequacy in the availability and utilization of ICT resources for ethical practice of teaching-learning process and improving students' academic performance in all Colleges of Education and other institutions of higher learning in Nigeria. According to National Commission for Colleges of Education (NCCE, 2012), one of the missions of Teacher Education in Nigeria is to produce specialists who can syndicate the use of conventional teaching approaches and developing ICT to impact knowledge, attitudes and skills.

Amosa, Ogunlade, Ogunlade and Obielodan (2016) submitted that the use of information and communication technology resources for instruction is the application of innovative technologies for effective teaching-learning process. Hence, Alassaf (2014) stated that lecturers have positive attitude towards the utilization of ICT resources for instructional purpose. This is as a result of availability of ICT resources and lecturers' awareness of basic ICT skills. Successful integration of ICT into the school system depends largely on the availability, competence and the attitude of teachers towards the role of modern technologies in teaching and learning. Several research findings have shown that most Colleges of Education have either insufficient or no ICT tools to cater for the ever-increasing population of students in the colleges. Even where ICT tools are available, they are not accessible to lecturers that are not in the unit or department were the resources are available (Chattel, 2002; Chang, 2003; Chiemeke, 2004).

Statement of the Problem

ICT is capable of providing vast knowledge and modern teaching skills to a large number of teachers and provides different approaches and techniques used for teaching and learning. With the fast changes in the approach to teaching method, the availability and utilization of ICT resources become an important issue to discuss. The conventional teaching method is tremendously difficult to meet the pressing socio-educational needs, especially in the developing countries like Nigeria, where a wide gap exists in ICT for instruction. These challenges are addressed include: the extent to which curriculum reformation of ICT policy takes into consideration the rapid technological changes in Nigerian education system kinds of policy goals need to be pursued; being pursued implementation strategies and preferred approach; finally, the main issues and challenges that need to be considered when formulating national policies for ICT.

Purpose of the Study

The main purpose of this study was to explore the availability and utilization of ICT facilities for instructional purposes in Federal and State colleges of education in Kano State. Specifically, the study:

1. took inventory of available of ICT resources in Federal College of Education, Kano and Sa'adatu Rimi College of Education, Kumbotso, Kano

2. investigated lecturers' frequency of utilization of ICT resources in Federal College of Education, Kano and Sa'adatu Rimi College of Education, Kumbotso, Kano

Research Questions

1. What are the available ICT resources in Federal College of Education, Kano and Sa'adatu Rimi College of Education, Kumbotso, Kano?

2. How frequent do lecturers utilize ICT resources in Federal College of Education, Kano and Sa'adatu Rimi College of Education, Kumbotso, Kano?

Literature Review

Information and Communication Technology (ICT) is a means of accessing or receiving, storing, transferring, processing and sending ideas, perception or information through computers and other communication facilities (Ojeniyi & Adetimirin, 2013). Broadly, ICT refers to any scientific innovation that could simplify the process of handling a task and also to bring a group of people together (Eseyin, Igoni & Uchendu, 2014). It is evident that ICT has permeated the entire educational sector and this positive development has transformed the entire method of teaching and learning from the traditional teacher-centered to the learner-centered methodology. Information and Communication Technology has contributed positively to enhance effective teaching and learning, sharing of information, creation of conducive learning environments, supporting change and extending existing teaching practices, facilitating self-learning in subject matter among teachers.

Furthermore, ICT has equipped teachers with necessary tools to enable them to face the challenges of the 21st century. Information and Communication Technology has also yielded a wider flow of information in teaching which has brought drastic changes in the educational needs of the individuals and society at large and which has direct positive impact on the higher demands for more specialization in learning (Peter, Udo & Akpan, 2012).

Information and Communication Technology has tremendously transformed the entire educational system globally. It has significantly changed the approach and technique of teaching and learning in the classroom. This transformation has been extended to higher institutions of learning (Achimugu, Oluwagbemi & Oluwaranti, 2010). This implied that ICT could be an electronic technology used for accessing, processing, gathering, manipulating, presenting and communicating information anywhere regardless of time, location. Within a short period of time different information could be sent and retrieved with the use of ICT and above all at low cost.

Jude and Dankaro (2012) investigated ICT resources utilization, availability and accessibility by teacher educators for instructional development in College of Education Katsina Ala, Benue State. Similarly, Diris (2009) studied the availability and utilization of ICTs in a College of Education Minna, Niger State. The findings of these studies revealed that ICT resources were not available in colleges of education for instruction. The studies further indicated that the unavailability of these ICT resources and other factors such as lack of awareness, motivation and skills among lecturers in the Colleges of Education affected the effective utilization of these facilities.

Onasanya (2014) stressed that teaching and learning should go along with relevant instructional materials which will cater for the higher demand of more quantitative and qualitative knowledge to be learnt by students, and to make learning easier. Ololube (2005) posited that teachers' quality is indispensable in determining students' learning outcomes in any country. The integration of ICT resources is crucial to research and instruction; it is therefore pertinent for the lecturers to embrace ICT resources utilization for teaching and learning in their different institutions of learning. Using ICT resources will enhance effective teaching, learning and research.

Considering the fast changes in the approach to teaching method, the availability and utilization of ICT resources become an important issue to discuss. Ojo and Kayode (2006) noted that teaching is becoming more complex due to the higher demand of knowledge; therefore, there is need for teachers to be equipped with new approaches as well as technological skills, so that they can cope with increasing demands of the 21st century.

The hardware instructional materials are spelt out in National Commission for Colleges of Education (NCCE, 2012) as minimum requirements for ICT resources in Colleges of Education are as follow: Closed circuit television (CCTV), CCTV Monitors (television sets with remote controls), Video camera with accessories, Video player/recorder, Editing/dubbing machine, Public address system with accessories, Slide projectors with accessories, Opaque projectors with accessories, Overhead projectors with accessories, Audio projectors, Amplifiers, Microphones, Photographic camera with accessories, Tripod stand for video and photographic cameras, Trolley for equipment, Floodlights, Projection screens, Loud speakers, Duplicating machines, Photocopying machines, Voltage stabilizers, Power extension box, White board, Computer equipment with printers, Magnetic chalkboards, among others. In a bid to enhance teaching-learning process in colleges of education, NCCE recommended ICT facilities would be fully integrated in schools for instruction. These recommended facilities would provide needed guidance to facilitate, augment and enhance the teaching-learning process. Therefore, its integration should lead to a speedy transformation of teaching, learning and research.

Methodology

The population for this research consisted of all lecturers in two of the three Colleges of Education in Kano State. Two Colleges of Education were purposively selected and these colleges are Federal College of Education, Kano and Sa'adatu Rimi College of Education, Kumbotso. The two are conventional Colleges of Education in the state. The instrument for this study was achieved through research questions, which were answered using mean and standard deviation. The research instrument was validated and subjected to pilot test to determine the reliability; Cronbach Alpha was used to determine the reliability coefficient value of 0.72 on the utilization level. The research instrument for this study was a researcher-designed questionnaire consisting the list of required minimum standard for ICT resources as spelt out in the National Commission for Colleges of Education (NCCE, 2012).

The researcher sampled 286 respondents, which were 132 lecturers from Federal College of Education, Kano and 154 lecturers from Sa'adatu Rimi College of Education, Kumbotso, Kano out of 940 lecturers from the two colleges of education. The disparity between the two colleges education, i.e 132 lecturers against 154 lecturers was due to the disparity in the number of lecturers in each institution, therefore, State College of Education's lecturers outnumbered the Federal College of Education lecturers.

List of Selected Colleges of Education in Kano State, Lecturers' Population and Samples Size by Colleges

S/No	Name of Selected Colleges of Education for the Study	Lecturers Population	Sample Size
1	Federal College of Education, Kano	433	132
2	Sa'adatu Rimi College of Education, Kumbotso, Kano	507	154
	Total	940	286

Results

Research Question One: What are the available ICT resources in Federal College of Education, Kano and Sa'adatu Rimi College of Education, Kumbotso, Kano

The result of available ICT resources in Federal College of Education, Kano and Sa'adatu Rimi College of Education, Kumbotso, Kano is presented in Table 1

Table 1: Mean of the Available ICT resources in Colleges of Education in Kano State

S/No	Available ICT resources	Available	Available Not Function	Not Available	Mean
1	Closed Circuit Television (CCTV)	156	40	73	2.2
2	CCTV monitors (television sets with remote control)	116	75	78	2.1
3	Video Camera with Accessories	88	102	79	2.1
4	Video Player/Recorder	75	81	112	1.7
5	Editing/Dubbing Machine	93	69	107	1.8
6	Public Address System with Accessories	119	65	85	2.1
7	Slide Projector with Accessories	98	94	77	2.1
8	Opaque Projector with Accessories	110	75	84	2.1
9	Multimedia Projector	96	61	112	1.8
10	Audio Projectors	116	42	111	1.8
11	Photographic Cameras with Accessories	66	34	169	1.1
12	Duplicating Machines	54	49	166	1.1
13	Photocopying Machines	169	58	42	2.5
14	Whiteboard	188	51	30	2.7
15	Computer System with Printers	211	41	17	2.8
16	Magnetic Chalkboards	241	21	7	2.9
17	Cable Satellite Facilities	145	59	65	2.3
18	Digital Camera	101	38	130	1.6
19	Scanner	179	44	46	2.5
20	I pad/Androids	83	49	137	1.5
	Grand Mean				2.04

Table 1, indicated that the sampled institutions have the grand mean score of 2.04 with benchmark of 2.0, this benchmark remarked that the two colleges of education have almost all the ICT resources indicated in the document of National Commission for Colleges of Education (NCCE) 2012. By implication, the institutions possess nearly all ICT resources required by NCCE, as earlier spelt out in this study.

Research Questions Two: How frequent do lecturers utilize ICT resources in Federal College of Education, Kano and Sa'adatu Rimi College of Education, Kumbotso, Kano

Table 2: Mean of the Respondents on the Frequency of ICT resources Utilization among Colleges of Education Lecturers in Kano State

S/No	Available ICT resources	Frequently Used	Seldomly Used	Not Used	Mean
1	Closed Circuit Television (CCTV)	42	44	183	1.0
2	CCTV monitors (television sets with remote control)	54	61	154	1.3
3	Video Camera with Accessories	54	60	155	1.3
4	Video Player/Recorder	65	53	151	1.3
5	Editing/Dubbing Machine	76	41	152	1.3
6	Public Address System with Accessories	78	94	97	1.9
7	Slide Projector with Accessories	83	79	107	1.8
8	Opaque Projector with Accessories	24	46	199	0.8
9	Multimedia Projector	55	69	145	1.4
10	Audio Projectors	82	65	122	1.7
11	Photographic Cameras with Accessories	66	38	165	1.2
12	Duplicating Machines	66	78	125	1.6
13	Photocopying Machines	155	48	66	2.3
14	Whiteboard	42	53	174	1.1
15	Computer System with Printers	114	47	108	1.8
16	Magnetic Chalkboards	98	65	106	1.8
17	Cable Satellite Facilities	69	80	120	1.7
18	Digital Camera	42	65	162	1.2
19	Scanner	56	59	154	1.3
20	I pad/Androids	71	75	123	1.6
					Grand Mean
		969	795	1733	1.49

Table 2, revealed that item 13, Photocopying machines with mean of 2.3 ranked the highest, followed by item…….?, Public Address System with a mean of 1.9 of which the respondent they were of the opinion that they frequently utilize these ICT resources for teaching. Respondents also ranked 7, 15 and 16 with a mean of 1.8 each, implying that they seldom utilize Slide Projector, Computer System with Printers and Magnetic Chalkboards for teaching. However, item 8 ranked the least with a mean of 0.8 which implied that the respondents were not utilizing Opaque Projector with Accessories for teaching. Based on the grand mean score for the ICT resource utilization level among lecturers in Colleges of Education in Kano State was found to

be 1.49. With benchmark of 2.0, it was concluded that the utilization of ICT resources among lecturers in colleges of education in Kano State was weak.

Discussions of the findings

Based on the result of this study, the following findings were established: Most of the ICT resources as spelt out in the document of National Commission for Colleges of Education are available in two of the three Colleges of Education in Kano State. This was revealed in Table 1. It indicated that the sampled institutions have the grand mean score of 2.04 with benchmark of 2.0. Findings on the available ICT resources in Federal College of Education, Kano and Sa'adatu Rimi College of Education, Kumbotso, Kano showed that these institutions had the basic ICT resources as required by NCCE. The finding is similar with that of Egomo, Enyi and Tah (2012) whose study indicated that ICT resources are available in Colleges of Education in Nigeria in such a way that lecturers can utilize them to enhance effective instructional delivery. The finding was found to be contrary with that of Jude and Dankaro (2012) and Diris (2009), whose findings revealed that ICT resources were not available for instructions in Colleges of Education, Minna, and Katsina-Ala.

Data on Table 2 equally revealed low utilization of ICT resources among lecturers in Colleges of Education in Kano State was weak. This calls for serious attention so that ICT resources would be fully integrated into teaching-learning process. This finding agreed with the finding of Abdulmumuni and Antonia (2015) which revealed very low utilization of ICT facilities by the lecturers of Colleges of Education in north central Nigeria. The research further revealed that lecturers do not utilize ICT facilities regularly as 61.55% seldom/never use ICT facilities in the sampled colleges of education. The finding disagreed with the finding of Ubogu and Evarista (2012) and Alassaf (2014) whose findings revealed that lecturers in Colleges of Education have a positive attitude towards the effective utilization of ICT resources. In addition, Aduwa-Ogiegbean and Iyamu (2005) remarked that several developing countries, especially Nigeria, have low ICT integration and utilization. The fact remains that lack of integration of and poor access to ICT in Nigerian schools seem to be upsetting ICT utilization at all levels of education thereby endangering achievement and competitiveness globally.

Conclusion

This study has reviewed empirical evidence to support the availability and low utilization of ICT resources by lecturers in the in Federal College of Education, Kano and Sa'adatu Rimi College of Education, Kumbotso, Kano. Based on the findings as revealed by analysis of the data collected for the study, the following conclusions were drawan. First, the sampled Colleges of Education in Kano State have basic ICT resources as required by National Commission of Colleges of Education (NCCE). However, the usage of the available resources was found to be weak. By implication, how do lecturers bring the students to catch and expand the skills and knowledge through the ICT? Integration and utilization of ICT for instruction helps the teachers to ease management of the class and present the materials. The lecturers should therefore utilize the ICT for interactions with their students. Although the ICT is very important to be utilized, but their utilization by the lecturers is a priority concern.

Based on this, it is concluded that the proficiency of lecturers affects the utilization of ICT resources for instruction. In spite of the essential role and obvious need for the integration of ICTs in instruction, several factors establish restraints to its use at the college of education level in Nigeria. Such factors include epileptic supply of electricity throughout the country, limited and inadequate ICT facilities (Abolade & Yusuf, 2005).

Recommendations

Based on the findings of the study, the following recommendations were made: bv

1. The federal government, state government and colleges of education management should retain their efforts on sustaining the available recommended ICT resources for instruction. This would help to promote the use of ICT among lecturers in colleges of education in Kano State.
2. The federal government, state government and colleges of education management should create enabling environment to motivate lecturers to acquire further professional training to update their knowledge and skills for the utilization of available ICT resources in their colleges.

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