

THE CHALLENGES OF INFORMATION AND COMMUNICATION TECHNOLOGY IN NIGERIA UNIVERSITIES: THE WAY FORWARD

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ABSTRACT

Information and communication Technology (ICT) for more than a decade have played a key role in both economic growths and the improvement of educational standard in Nigerian Universities. The increase efficiency provides access to educational research, article publications for the development of knowledge, skills and provision of enabling environment for innovations and building of human capacity. But the challenges that comes with it are also numerous. This paper seeks to highlight these challenges and suggest a way forward in addressing them. The study also investigates faculty and undergraduate students' attitudes and anxiety about ICTs which includes the gender differentiations in their attitudes and anxiety. This study applied the Need Assessment Approach (NAA). The NAA was used to determine the Challenges of Information and Communication Technology in Nigeria Universities, the causes of these Challenges, and to propose a way forward on how to eradicate them where one exists. This approach measures the discrepancies between the current and desired result or the differences between the current situation and the ideal. One-Way analysis of variance (ANOVA) set at $p < 0.05$ was employed to test if significant differences exist in the opinions of the respondents from the two universities used for the study. The data obtained was computed and the results show that no significant differences exist in opinions across the two universities

KEYWORDS: Challenges, Information, Technology, Communication, Gender, Anxiety, Attitudes.

1.0 INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Information and communication technology is a tool used in the 21st century to faster learning activities in the school. According to Omatseye (2000), "the school is a social institution established by members of the society for the purpose of transmitting their culture from one generation to another". It improves the culture by producing generations of people who are more refined and enlightened than their parents or forefathers. Naturally, the teacher and the education system in which the teacher operates cannot stand aloof from the society.

They are part and parcel of it and are both an embodiment and a reflection of culture, traditions, yearnings and aspirations of the people. Information and communication technology (ICT) through the use of computer network system, telecommunication devices, internet facilities. According to World Bank, (2002) ICT cover any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form. It consists of hardware, software, networks and media for collection, storage, processing, transmission and presentation of information (Voice, data, texts and images).

Dev-Net, (2003), information and Communication Technologies are integral in

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human society. Before the advent of technology in human society, people communicated using various instruments and codes such as: talking drums, flutes, gongs, town criers and village square meetings. The use of writing materials transformed the type and context of recorded history and communication on a universal scale became possible through the use of books, newspapers, magazines and radio. Education, according to Coombs (2006) consist of two components. He classified these two component into inputs and outputs. According to Coombs (2006), inputs consist of human and material resources and outputs are the goals and outcomes of the educational process. Both the inputs and outputs form dynamic whole and if one want to investigate and asses the educational system in order to improve its performance, effects of one component on the other must be examined. Instructional resources which are educational inputs are of vital importance to the teaching of any subject in the school curriculum.

Wales (2005) is of the opinion that the use of ICT as an instructional material makes discovered fact glued firmly to the memory of students.

Savoury (2007), also added that a well planned and imaginative use of visual aid in lesson should do much to banish apathy, supplement inadequacy of books as well as arouse students interest in giving them something practical to see and do. And at the same time, helping to train them to think and do things right by themselves.

Georgia (2004) clearly maintains that the selection of materials which are related to the basic contents of the course or a lesson helps bring about in-depth understanding of such a lesson by the student in that, they make the lesson attractive to them. It is also very vital to have sufficient and adequate human resources in terms of quality for the teaching of all subjects, most especially for the technical subjects.

Instructional material should be provided for the benefit, and the outcome of the lesson, for them to achieve their education goals.

Knezeqich (2005) had stressed the importance of having appropriate personnel and adequate physical facilities to support educational effort. Unfortunately, most subjects especially auto-mechanical were not being taught with use of instructional material in most school. Student have been hearing the names, that the teacher will mention like engine block, crawl-shaft,

key starter, alternator etc., and this is majorly as a result of poor instructional material used in classroom delivery of lesson, also student who are good with the use of instructional material in lesson delivery, they will not achieve that goal.

In most Nigerian schools according to Nwagbo (2001), lecturer lack the pivotal skill and knowledge to impact the needed knowledge to the student, since they have nothing to give in classroom delivery, the students end up taking nothing home. ICT being one of such teaching aids (Tools) is considered in this study.

The advancement in technology has created so many ICT tools that are necessary and useful in the development process. These new technologies are central to contemporary societies and therefore, referred to this age as information technology age driven by known economy. (Adams and Wagner, 1986).

LITERATURE REVIEW

Information and Communication Technology (ICT) creates impact on resource-based learning and access to real world information through the Web, ICT improves poor language skills through word processing, ICT helps to provide reference materials for research work, ICT provides publisher the opportunity to learn from other publisher all over the world, Enables collaborative learning with little indication of the isolated learner, Develops communication skill sand awareness of different audiences and gives students more control (Education 2013).

Challenges of Information and Communication (ICT) in Nigerian Universities.

There are many challenges of Information and Communication (ICT) in Nigerian universities such as Problem of referencing articles, text books and other research work leading to academic crime known as plagiarism. In Nigerian schools, students indulge in the act of using mobile phones and laptops with supportive applications to browse seminar topics, research materials, class assignment and other academic work without acknowledging the publisher and the authors of such works. This is an academic crime punishable by law known as plagiarism. Lack of well equipped computer laboratories with epileptic nature of power supplied in schools. The Nigerian schools are faced with epileptic nature of power supply and lack of well equipped computer laboratories. Network Problem. Nigerian schools are faced with epileptic nature

of Network System for browsing and carrying out of research work by students (Obasanjo 2012). Sometimes there is no network to carry out any practical work. High Cost of Computer Equipment. The exchange rate of dollars, Euro, Pound and Nigerian currency (Naira) hinder schools with poor turn over in school fee payment and Parents Teachers Association contribution's in the purchase and supply of computer system in Nigerian schools. Some private schools go into HIGHER PURCHASE METHOD (HP) to acquire computer system for their computer laboratory.

Computer virus is a destructive programme that is capable of destroying both programme and document files in the computer system. Students corrupt the computer system in the laboratories with this virus. According to Vikas (2008), there are thousands of virus variations, most fall into one of the following six general categories, each of which affect the computer system differently; Book sector virus, file virus, macro virus, multipartite virus, polymorphic virus and stealth virus. Also worm and Trojan Horse like a virus, is a program that harms the computer and destroys data stored in it.

Poor Maintenance Cultures. Every computer system as a sequence of booting (starting) and shutting down (putting off). If the computer operator fails in the process of carry out the proper sequence, it may corrupt the operating system and can even cause damage to the hard disk which is the major storage device in a computer system.

Poor information dissemination and high cost of license fees imposed by government on ICT operative is another challenge faced by ICT operative in Nigeria. There is also insufficient legislation in general and very high licensing fees in particular, are key constraints for community radio stations. Appropriate community radio legislation includes, A legal framework providing a three-tier system for broadcasting: public, commercial, and community radio, Government support and policies that clearly recognize and promote the special role of non-profit community broadcasting for, by and about the community, including them in their own communication strategy and allocating funds accordingly, Open and participatory decision-making processes for ensuring a fair allocation of the frequency spectrum for broadcasting uses and Scope for community radio to have recourse to commercial advertising.

Finally, lack of Information and Communication Technology Supervisor or Inspectors are also challenges faced by ICT operative in Nigeria universities. Supervisors and inspectors are usually Ministry of Education or Education Board officers specially assigned to access the level of compliance of school instructional activities with approved government standards (Obasanjo 2012). Unfortunately, this category of staff is usually in short supply due to the large number of government schools and teachers. The consequence of this shortage of supervisory personnel is that most of the time, a lot of unprofessional practices are carried out in Nigerian schools to the detriment of the students' academic performance on Information and telecommunication technology.

RESEARCH QUESTIONS

1. To what extent do the impact of instructional technology, Poor Information Dissemination and Plagiarism Influence Academic Performance of students in Nigeria Universities?
2. To what extent do lacks of well equipped computer laboratories with epileptic nature of power supply hinder academic performance of students in Nigeria Universities?
3. To what extent do Computer Virus and Network Problem Influence Academic Performance of students in Nigeria Universities?

HYPOTHESES

The following research hypotheses were formulated to guide the study

- Ho: There is no significant difference between the impact of instructional technology, Poor Information Dissemination, Plagiarism and Academic Performance of students in Nigeria Universities.
- Ho: There is no significant difference between lacks of well equipped computer laboratories, epileptic nature of power supplied, Poor maintenance cultures of computer laboratories and Academic Performance of students in Nigeria Universities.
- Ho: There is no significant difference between Computer virus, Network problem and Academic Performance of students in Nigeria Universities.

METHODOLOGY

This study applied the Need Assessment Approach (NAA). The NAA was used to determine the Challenges of Information and Communication Technology in Nigeria Universities, the causes of these Challenges, and to propose a way forward on how to eradicate them where one exists. This approach measures the discrepancies between the current and desired result or the differences between the current situation and the ideal.

In this case, the Need Assessment Approach was used to examine the effectiveness of ICT in higher institutions in relation to the role and usage of ICTs, its effectiveness in faculty teaching and its impact on student learning in two Universities namely; University of Calabar, Calabar and Cross River University of Technology. The two Universities are located in Calabar South Local Government in the Southern Senatorial District of Nigeria. The Local Government was created from the former Calabar Municipal Government with headquarter at Anantigha. The two Universities were labeled University 1 and University 2. The assessment sought to ascertain the causes of Challenges confronting Information and Communication Technology in Nigeria Universities and to propose a way forward on how to eradicate them and improve Academic Performance of students in Nigeria Universities.

The study also investigates faculty and undergraduate students' attitudes and anxiety about ICTs which includes differentiations in gender, their attitudes and anxiety. In this paradigm, attitudes involve the predisposition of a person to respond positively or negatively towards computers (Nwachukwu et al 2009). User's attitudes towards the use of computer affect what they do with computer related courses in school. Its also reflects the experiences the user has had with technology, and is a determining factor of the user's future behavior towards computers. The user's computer attitude also provides the user with a framework within which to interpret the effect and the integration of computers in the user's life. Computer-related anxiety is a state of fear or tension of imminent contact with a computer that might be inconsistent with the actual danger presented to computer users (Ajibero 2000). One hundred and twenty five ($n = 125$) respondents participated in the study (60 [48%] from University 1 and 65 [52%] from University

2). Forty-five faculty 45 (36%) and 80 students (64%) were randomly selected. The faculty was between 35 and 61 years of age, while the students were between 22 and 35 years old. Seventy-five (60%) were female, and 50 (40%) were male (see Figure 2). A self-designed questionnaire, that employed benchmarks from similar studies conducted in the West, was used to collect data for this study and the instrument was validated with the assistance of experienced faculty and university researchers. To further validate the instrument, a pre-test for this study was performed in the first three weeks, and responses from participants were used to make changes and modifications. The post-test was conducted in the last week of April 2008. The data collection instrument was made up of 25 items and employed a four point Likert-type scale response pattern. The scale consisted of: strongly agree, agree, disagree and strongly disagree. These answer options were weighted 4, 3, 2 and 1 respectively. The researchers conducted a Cronbach's alpha coefficient measurement to appraise the reliability of the research instrument, and the instrument was found to have a reliability coefficient of 0.843. The data collected was analyzed using simple percentages, t-test and chi-square of the Statistical Packages for Social Sciences (SPSS) version 17.

Data analysis, results and discussion

Hypothesis 1

Chi-square analysis was employed to test if significant relationships exist in respondents' opinions on the impact of instructional technology, Poor Information Dissemination, Plagiarism and Academic Performance of students. The results of the chi-square analysis for the five variables tested are as shown in Table 1. The table demonstrates that there are significant relationships between the impact of instructional technology, usage of instructional technology, Poor Information Dissemination, Plagiarism and Academic Performance of students. Consequently, the null hypothesis is rejected. The findings of this study revealed that ICT, when applied to education, enhanced effective knowledge delivery, enhanced access to knowledge, produces richer learning outcomes, encourages effective critical thinking and generally improves the quality of teaching and learning. The results show that there is a positive and significant correlation between instructional

technology and its effectiveness in augmenting educational offerings in higher education. The results thus confirm the observation made by

Oketunji (2000) that ICT-aided teaching assists in effective delivery of knowledge and reaching educational goals in less time.

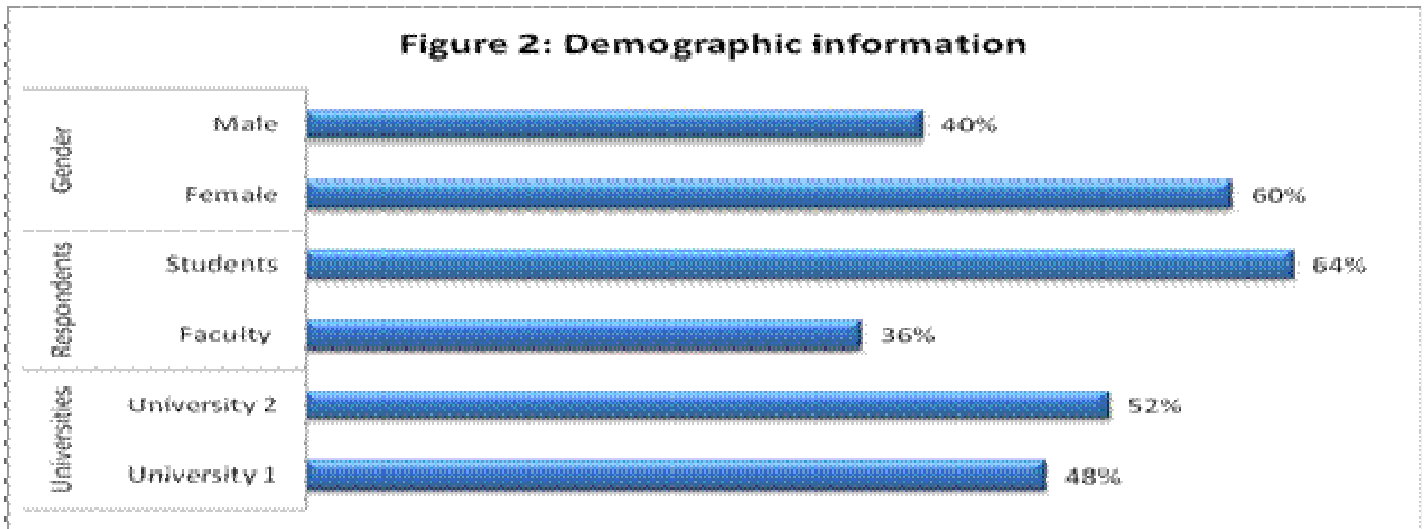


Table 1: Effectiveness of Information and Telecommunication in Nigeria Universities

Variables	N	SD	Mean	X2	DF	Sig. (2-tailed)
Poor Information Dissemination, Plagiarism and Academic Performance of students	125	.69912	2.94400	27.080	3	.000
Lacks of well equipped computer laboratories, epileptic nature of power supplied, Poor maintenance cultures of computer laboratories and Academic Performance of students.	125	.83882	2.50400	33.375	3	.000
Computer virus, Network problem and Academic Performance of students	125	.62238	3.08800	45.473	3	.000
ICT Encourages critical thinking	125	.62816	3.02400	33.823	2	.000
ICT Quality of teaching and learning	125	.71238	3.02400	37.460	3	.000

Hypothesis 2

The findings of this study also suggest that faculty and student attitudes and anxiety towards

ICT in teaching and learning relate to prior experience received during early years of school education. Lacks of well equipped computer

laboratories, epileptic nature of power supplied, Poor maintenance cultures of computer laboratories and Academic Performance of students. This data is in line with the findings of Oketunji (2000), who suggest a correlation (85.2%) between the unpleasantness of prior experience and current attitudes and anxiety toward ICT usage in instruction. The result shows a positive relationship between prior experience with ICTs, attitude, anxiety and Lacks of well equipped computer laboratories, epileptic nature of power supplied, Poor maintenance cultures of computer laboratories and Academic Performance of students. Faculty and students with early access to ICTs do not have significant technology phobias. In general, female faculty and students (63%) had more negative attitudes and greater anxiety than did male faculty and

students (37%) (see Figure3). This is in line with the studies of Ajayi (1998).

A t-test analysis was employed to test if there was a significant difference between female faculty/students and male faculty/students. The purpose of this analysis was to further verify the analytical information; the t-test analysis was aimed at determining if there are significant differences between respondents' means. The result shows that there are significant differences in male and female attitudes and anxiety towards ICTs across all the variables. SPSS version 17 displayed it as $p < 0.000$ significance levels. This does not, however, mean that the probability is 0. It is less than $p < 0.0005$. The t-value for female was 35.12 while that for male was 39.29, $Df = 124$, $p < 0.000$ (see Table 2).

Table 2: Two-tailed test of difference between female and male faculty and students

Demographic	SD.	Std. Error	T	Df	Sig. (2-tailed)
Variables		mean			
Female faculty and students	.87	.059	35.12	124	.000
Male faculty and students	.67	.057	39.29	124	.000

More than 80% of respondents demonstrated lower academic achievement (amongst both faculty and students) when compared with their counterparts in the West where ITC usage and integration has existed for decades; the causes of this are not difficult to understand. A chronic absence of ICT instructional materials, ineffective policy implementation and a lack of other resources (infrastructure) to aid teaching and learning are responsible for the marked disparities. In essence, the study revealed that experience makes it easier to study with and exhibit greater proficiency when using ICT

instructional material in the teaching and learning process.

Hypothesis 3

One-Way analysis of variance (ANOVA) set at $p < 0.05$ was employed to test if significant differences exist in the opinions of the respondents from the two universities used for the study. The data obtained was computed and the results show that no significant differences exist in opinions across the two universities. (see table 3 below for details)

Table 3: Analysis of variance for universities

Universities	Frequency	(%)	Mean	SD	F Ratio	Sig.
University of Calabar, Calabar.	61	48.8	1.9235	.654	1.59	.342

	64	51.2	2.0882	.671		
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THE WAY FORWARD TO THE CHALLENGES

Lecturers, teachers, and instructors in the universities, colleges, and schools should organize workshops, and conferences to educate students on how to reference any research materials browsed or used in carrying out any academic research work. Also punishment should be given to any student caught plagiarizing, ranging from suspension, conciliation of the assignment and expelling of such a student. Government should equip our schools with computers and a constant power supply and well trained man power to supervise instruct and maintain the school computer facilities. Government should lunch more sophisticated satellite into orbits in order to boost our network system. Also government should make policy that will compel international communication companies like MTN, Globacom and Airtel to provide Nigerian schools with network booster to schools located at their catchment areas as part of their social responsibility for free browsing.

Government should employ computer technicians or engineers to maintain or format and install updated anti virus such as Norton anti virus, Mc Afee, Smart Cop programmes to check the computer virus. Insufficient legislation in general and very high licensing fees in particular, reduce licensing fees in radios and television and telecommunication registration in the country to enable willing investor to invest in it. Computer user must learn computer sequence of booting (starting) and shutting down (putting off) of computer system. If the computer operator fails in the process of carry out the proper sequence of shutting down, it may corrupt the operating system and can even cause damage to the hard

disk which is the major storage device in a computer system.

CONCLUSION

In conclusion, the students and government should work hand in hand in order to build a better information and communication technology environment for learning.

RECOMMENDATION

1. Government should provide organized seminars for students through the help of teachers or lectures in order to check plagiarism.
2. Government should equip computer laboratories with constant power supply in schools.
3. Government should lunch more sophisticated satellite into orbits in order to boost our network system. Also government should formulate policy that will compelled international communication companies like MTN, Globacom and Airtel to provide Nigerian schools with network booster to schools located at their catchments area as part of their social responsibility for fee browsing.
4. Government should employ computer technicians or engineers to maintain or format and install updated anti-virus programmes to check the computer virus.

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