

APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) GOALS IN SELECTED TERTIARY INSTITUTIONS IN BORNO STATE, NIGERIA

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ABSTRACT

This study examines the implementation of Information and Communication Technology (ICT) goals for quality education among the tertiary institutions in Borno State of Nigeria. It aims at finding out the extent to which implementation of ICT objectives for qualitative education in the state has been possible and unveils the problems as well as the possible extent to which these problems could be eliminated so that ICT will contribute effectively towards qualitative education in the state. It utilised both primary and secondary methods of data collection. The survey elicited information from 75 respondents randomly sampled from a population of five (5) tertiary institutions in Maiduguri, Borno State. The sampling of these five (5) institutions was purposive. The data collected were analysed and cross tabulated and descriptive statistics of simple percentage. It was discovered that the ICT goals for qualitative education in Borno has not been implemented effectively and that major constraints are; epileptic power supply, insufficient ICT infrastructure, inadequate training and poor maintenance culture among others. The study recommends the need for improve power supply, provision of basic ICT infrastructure, regular training on emerging technologies and good maintenance culture as strategies for accomplishing qualitative education for sustainable development in Borno state; if Borno State desires to keep with other states in Nigeria in terms of use of ICT for qualitative education.

Keywords: Technology, Education, Implementation, Development

INTRODUCTION

The goal of Information and Communication Technology (ICT) for attaining higher and qualitative education is the clarion call of every developing nation and Nigeria is not an exception. The extent of implementation of this goal varies among states in Nigeria. Borno has been one of the educationally less developed states in Nigeria. Therefore, effective and timely implementation of ICT goals in the state is imperative. The advent of computer as one of the tool of Information Technology (IT) has changed the ways of business in all spheres of life. Indeed, we continuously find more areas of applications of ICT in advancing the course of education and research and development the world over.

ICT has helped institutions to utilise and deliver learning in a variety of ways. It provides higher accessibilities to both teaching and learning outcomes. Of course, ICT is increasingly draining away the prominence of conventional learning system. The walls of the learning become slimmer but enhancing greater opportunity for both teachers and learners exploring educational resources within and outside their vicinity. In most tertiary institutions of learning the world over today, ICT have undoubtedly, impact on the learning scenario. The applications of ICT in the educational sector, such as; research and development, education planning, administration, educational technology, evaluation of learning outcome, teaching aids and multimedia, are worthy of note.

The basic objectives that outline ICT goals are:

- ☐ ICT literacy for all
- ☐ Personal Computer (PC) per teacher
- ☐ Attained minimum levels of ICT infrastructure in all institutions of learning
- ☐ To provide training and retraining of personnel at all levels in emerging technology
- ☐ To provide periodic maintenance of installed facilities, etc.

The objectives of this study includes; finding out the extent to which the implementation of the ICT goals have been achieved among the tertiary institutions in Borno state; to find out the actual implementation constraints of ICT goals among tertiary institution in the context of Borno State and to recommend ways of eliminating the constraints for the attainment of appreciable level of ICT development in education in Borno state.

To achieve these objectives, this paper is structured in five sections namely: Literature Review; Methodology of the Study; Data Presentation and Analysis; Discussion of Findings and Recommendations.

LITERATURE REVIEW

Onyekwelu and Eberechukwu (2008), while absorbing the ideas of Obayi (1999) described the term ICT as the use of electronic means of collecting data, process it, store or retrieve it and make available any type of Information subject to any professional seeking to get or use it any time.

Hamafyelto and Zira (2007), pointed out that Information and Communications Technology has greatly penetrates every aspects of human existence today; in that the use of computers in the processing and distribution of data have made work relatively easier, economical and accurate. Similarly, Deba, Babawuro and Abdulhamid (2007) opined that AICT has undoubtedly opened new avenues for increased numbers of learners; it has also opened new areas of research focusing on the role of pedagogical processes when using new technologies and their impact on cognition. Such research, they said, has strengthened the learning scenario in higher institutions. Adding to this, Ajibola (2000) observed that most modern approaches to communication and use of information require that computers be linked together for the exchanging of message and information. Agbonifo and Adewale (2009) while aptly engrossing Russel (1999) stated that, there is significant difference with respect to the learning effectiveness when ICT is employed.

Indeed, ICT has transformed the educational system from the conventional classroom system to integration of technology to achieve high quality of teaching and learning. According to Fafunwa (1983), Awe are living in a world where education have become the integral parts of the world=s culture and any country that over looks this significant truism, runs the risk of technological backwardness. Adding to this, Ebeniro (2002) sees technology as the mean or activity by which man seeks change or

manipulates his environment. In the words of Obi (2008) the educators themselves must be current with progressive trend of knowledge in the profession especially in Information Technology. Therefore, the need to equip people with tools and skills needed to face the challenges of modern realities. Aligned with this truism, Asor and Onyejebu (2009) said the collaborative e-learning environment is a perfect environment for equipping people with both practical and theoretical knowledge. Suffice to say therefore that improving technology means improving the quality of education.

Adeola, Alese and Adewale (2009), observed that tertiary institutions in Nigeria are still far from implementing the ICT goals effectively. They maintained that, the conventional universities in Nigeria are still far behind in taking advantage of huge opportunities of recent revolution in ICT in general and e-learning in particular. Onyekwelu and Eberechukwu (2008) said Nigeria is a country of proposals. It proposes so many policies without implementation. This means there is prevalence of constraints hindering the effective implementations of ICT goals in our education sub-sector. To unearth the avalanche of constraints hindering effective implementation of ICT in Nigeria, Idowu, Alu and Adagunodo (2002) identified erratic power supply and poor communication system as the major constraints. In similar vein, Daud and Waziz (2007) agreeing with Chibuike and Andrew (2001) said, lack of basic infrastructure like; electricity, telecommunications, and security, translate in high cost of adopting information technology in Nigeria. However, Glenna and Melmed (1996) outlined the following points as the factors that help technology succeed in schools:

- Evidence of a detailed technology plan and such a plan should consider funding, installation and integration of equipment, ongoing management of the technology. In addition, the plan should express a clear vision of the goals of the technology.
- Teachers training and continuing education; teachers should know how to operate the technology and how to integrate it into the curriculum.
- Support from government; adequate funding and appropriate policy making can help to assure that technology is accessible to all schools on an equal basis.

METHODOLOGY OF STUDY

This study uses questionnaire as the instrument for the survey. Five (5) institutions were purposively selected within Maiduguri Metropolis and those with large population and ICT drive were selected for the study. The

design of the questionnaire was structured with the use of a four-point Likert-type scale (>Very True=, >True=, >Somehow True= and Not True). Consequently, the responses were scored as follow: very true (4), true (3), somehow true (2) and not true (1). The resultant responses in this study were scaled in a percentage (%) AYes@ and ANo@ respectively in order to conserve space in the Data Presentation section. The sample comprised 75 respondents randomly sampled in the selected institutions. These institutions are:

- ☐ University of Maiduguri, Maiduguri
- ☐ Ramat Polytechnique, Maiduguri
- ☐ Kashim Ibrahim College of Education, Maiduguri
- ☐ Federal Training Centre, Maiduguri
- ☐ Borno State College of Agriculture, Maiduguri

The responses emanating from questionnaire were complemented with observation/interview guides. Due to the restricted nature of the research area, only members of the ICT department and those with appreciable ICT literacy responded to the questionnaire and interview.

The method of administration of the questionnaires returned 73 out of the total of 75 responses appropriately filled. The resultant data were presented and analysed with cross tabulation and descriptive statistics of simple percentage.

DATA PRESENTATION AND ANALYSIS

For ease of presentation and analysis, we have coded the resultant responses as A% yes@ and ANo@ respectively in this study. The rationale for using descriptive statistics of simple percentages is partly depicted by the constraint imposed by lack of space to present the facts in the form they appeared in the questionnaire and to enhance comprehension by non-technical readers.

Table1: Frequency distribution of responses on the need for ICT goals among tertiary institutions in Borno State.

<i>Measurement</i>	% Yes	% No
ICT goal is important to tertiary institutions	89	11
ICT is needed to meet the challenges of modern technology	84	14
ICT is needed to boost the image of institutions	09	91
ICT goals have been effectively implemented in the state	07	93
Source: Field Data, 2009		

The analysis on >Table 1= shows that about 89% of the respondents proved awareness in ICT development by commenting positively on the importance of ICT goals to educational institutions and 84% further maintained that ICT goals will help institutions meet challenges of modern realities. The percentage of respondents disagreeing are however negligible. From the presentation above it is evident that the extent of implementation of ICT goals very low in the state. 93% of the respondents disagree on the effective implementation of ICT goals in the state.

Table2: *Frequency distribution of responses on the availability ICT infrastructure and PC per teacher among tertiary institutions in Borno State.*

<i>Measurement</i>	% Yes	% No
There is adequate ICT infrastructure in my institution	13	87
All teachers have their personal PC in my institution	35	65
Source: <i>Field Survey2009</i>		

The figures on >Table 2= reveal that low level of ICT infrastructure constitutes a constraint to successful implementation of plan objectives of ICT in education programmes in Borno State in particular; this is evident with 87% agreeing to this assertion as against 13% who actually disagreed. Similarly, 65% of the respondents said there is insufficient Personal Computer per user among the institutions sampled. However, about 35% disagreed to this assertion. The disagreement here show that there are existence of ICT infrastructure in the tertiary institutions in the State.

Table3: *Frequency distribution of responses on the constraints to effective implementations ICT goals among tertiary institutions in Borno State.*

<i>Measurement</i>	% Yes	% No
There is inherent inadequacy of ICT infrastructure and Personal Computers to users	71	29
Lack of funding of ICT department on the part of government a constitutes constraint	63	37
Lack of training of users on emerging ICT tools also a constitutes constraint	68	32
There are poor implementation plans for ICT strategic goals in Nigerian=s tertiary institutions	58	42
Most of the institutions face inadequate and epileptic power supply	95	05

Source: *Field Survey, 2009*

Displayed on >Table 3=, is the frequency distribution of responses on what constitute constraints to the effective implementations of ICT goals in Borno state. About 71% of respondents agreed that there is inherent inadequacy of ICT infrastructure and that Personal Computers (PC) per users are inadequate, while 29% disagreed. Similarly, about 63% cited poor funding as major factor against the implementation of ICT goals in Borno state, while 68% agreed that the problem is lack of training of users. Again, 58% agreed that the problem is that there is no proper implementation plan for realising ICT goals in the area, but 42% disagreed. Undoubtedly, the major constraint is poor and epileptic power supply as ICT is power driven; 95% of respondents confirmed it and barely 5% disagreed.

Table4: *Frequency distribution of responses on the level of maintenance culture of the installed ICT facilities among tertiary institutions in Borno State.*

<i>Measurement</i>	% Yes	% No
Poor maintenance culture of installed ICT facilities constitutes a constraint	80	20
Most institutions lack prompt upgrading of ICT facilities	67	33

Source: Field Survey, 2009

The frequency distribution in table 4 shows the responses on the maintenance attitudes to installed ICT facilities among institution of higher learning in Nigeria. About 80% agreed that there is poor attitudes towards maintenance while 20% think otherwise. Similarly, 67% agreed that ICT infrastructure lacks prompt upgrading and 33% think otherwise.

DISCUSSIONS OF FINDINGS

This study reveals that much have not been achieved in terms of effective implementations of ICT goals in Borno State. This fact evidenced the situations represented in the study of Adeola et al (2009); which observed that tertiary institutions in Nigeria are still far from implementing the ICT goals effectively. The study maintained that, the conventional universities in Nigeria are still far behind in taking advantage of huge opportunities of recent revolution in ICT in general and e-learning in particular.

Drawn from various studies earlier reviewed, it suffices to say that Borno State education sector is fast growing in terms of utilisation of modern office technology. At least 35% of teaching staff in the state owns their Personal Computer. The facts on Table 2 above confirms this, however 87% percent of the respondents opined that the level of ICT infrastructure in the state is inadequate.

It was discovered also that the ICT goals for qualitative education in Borno have not been implemented effectively and the obvious constraints are:

Epileptic power supply; insufficient ICT infrastructure; inadequate training/retraining; poor maintenance culture; outdated Computer-education curriculum; inadequate funding of ICT department, and among others. This fact evidenced the situations represented in the studies of Idowu et al (2002), Daud and Waziz (2007) and Glenna and Melmed (1996) as earlier presented in the review section above.

RECOMMENDATIONS

The provision of modern training facilities as well as ICT infrastructures such as; internet gateways and backbones, IT centres, localised Internet Service Providers (ISP), modern telecommunication exchanges facilities, Satellite (i.e. Very Small Aperture Terminal (VSAT) system, for long distance electronic communication and Metropolitan Digital Services (MDS) for short distance electronic communication), Integrated Digital Systems Network (ISDN) in the country are imperative. These will go long way in the attainment of ICT goals at reduced cost and enhance higher and quality education not only in Borno State of Nigeria.

Personal Computers and printing devices can be provided to the staff of the tertiary institutions on soft loan basis. Similar project are under way in Ethiopia in collaboration with Microsoft Corporation, to provide PC with an in-built internet facilities, to all teaching staff from secondary to university levels. Nigeria and indeed other African countries can do same towards attaining higher education in the continent at large.

It suffices to say at this juncture, the need for collaboration among educational institutions in sourcing ICT infrastructure so as to provide a cost-effective approach to the problems and also to share research development via computer networks. This is obtainable in other part of advanced world; the like of Advanced Research Project Agency Network (ARPANet), European Academic and Research Network (EARN), Joint Academic Network (JANet), etc, where research findings were shared.

There is urgent need to boost up power supply from the main source in the country. In addition to the main supply, organised tertiary institutions should provide alternative power supply. Although, these alternatives are associated with increase overhead costs. These costs should be built into annual budget of each academic session.

In view of the important place computer occupies in the running of the modern day offices, there is urgent need to give special training and retraining of stakeholders on emerging ICT techniques among tertiary institutions in the state. Practical Training on such tools as Statistical packages, Adobe PageMaker among others is imperative. Practical classes on these packages should be scheduled from time to time for academic members of staff who may need them for research purposes. This will go along way to enhance local research expertise in Nigeria and Africa in general. Research findings can as well be made available to readers online. African researchers have contributed less to global research database; so training can enhance this.

There is urgent need also, to setup a curriculum review committee, to consider the existing curriculum and review it, in order to accommodate new development in ICT education in the state.

Governmental attitudes towards funding of education in general and ICT units in particular need urgent improvements, if realistic goals of millennium development objectives are to be attained. The task of funding education in the country should not be left in the hands of government alone. The organised private sectors and wealthy individuals should be called upon to assist in this direction. The task of national building is a joint responsibility of all and sundry.

Encouraging proper maintenance culture of installed ICT facilities among tertiary institutions in state. Institutions should encourage proper maintenance culture among ICT users through moral suasion and/or promulgation of maintenance by law of installed ICT facilities. Again, scheduled periodic or routine general maintenance culture should be encouraged. It is want thing, to acquire and install facilities and it is another, to properly maintain them. ICT facilities require good handling and regular maintenance. Lack of maintenance of installed ICT systems often leads to frequent breakdown.

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