Information and Communication Technology Readiness in Technical Colleges in Bauchi State, Nigeria

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ABSTRACT

This study examines the role of ICT in Technical Colleges in Bauchi State. It investigates the level of availability of ICT facilities in technical colleges, the capacity for using ICT facilities for teaching, the perceived benefits of using ICT and the problems facing the use of ICT in Technical Colleges. The population of the study (196 teachers) comprises all the technical college teachers in Bauchi State. Proportionate systematic simple random sampling is used to draw 94 participants (teachers) for the study. Three research questions were formulated to guide the study. The instrument used for data collection is a structured questionnaire. The validity and reliability of the instrument were established and the statistical mean is used to analyse the data. The study reveals that ICT facilities are lacking in technical colleges and teachers and students are to a little extent exposed to the use of ICT. It is therefore recommended that government should increase the funding of the education sector with emphasis on ICT infrastructural development. There is need also for periodic training of teachers in computer and ICT skills acquisition.
Keywords: ICT Readiness, technical colleges, ICT facilities, technical college teachers

INTRODUCTION

For any institution to integrate technology as learning and teaching medium successfully, some level of readiness in human and materials is required. Many countries now have the believe that understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy. It is in line with this that Daniel (2002) asserts that information and communication technology has become, within a very short time, one of the basic building blocks of modern society. However, there appears to be a misconception that ICT generally refers to computers and computing related activities. This is not absolutely the case, although computers and their applications play a significant role in modern information management, other technologies and/or systems also contributed to the effectiveness of the phenomenon that is commonly regarded as ICT.

Olorunsola (2007) states that near the end of the 1980s, the term 'computer' was replaced by 'Information Technology' (IT) signifying a shift of focus from

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computing technology to the capacity to store and retrieve information. This was followed by the introduction of the term 'ICT' (Information and Communication Technology) around 1992, when electronic mail started to become available to the general public (Selwyn, 1997). According to Yaro and Ishaku (2015), ICTs cover internet service provision, telecommunication equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centers, commercial information providers, network-based information services, and other related information and communication technology (ICT) may be regarded as the combination of 'Information technology' with other related technology, specifically communication technology. The various kinds of ICT products available and having relevance to education, such as teleconferencing, email, audio and video conferencing, television lessons, radio broadcasts, interactive radio counseling, interactive voice response system, audiocassettes and CD ROMs and so on have been used in education for different purpose other than lesson delivery (Olorunsola, 2007).

There are ICT facilities in some schools such as computer sets, projectors, DVDs, tape recorders, scanners, photocopiers and slides which have not been put to use due to lack of readiness. Hannafin, Hall, Land and Hill (1994) cited in Yaro and Ishaku (2015), posit in their paper "Technology in Schools: Education, ICT and the Knowledge for Society" that ICTs have been utilized in education ever since their inception, but they have not always been massively present in lesson delivery thus this form the bases of the research.

Information and Communications Technology (ICT) in Education
Information and communications technology sometimes called information, communication and technology (ICT), is often used as a synonym for information technology (IT) but is usually a more general term that stresses the role of unified communications and the integration of telecommunication gadgets such as telephone lines and wireless signals, intelligent building management systems and audio-visual systems in modern information technology (Yaro and Ishaku, 2015). In fact, ICT consists of all technical means that are used to handle information that aid communication, including computer and network hardware, middleware as well as software. According to Nawaz and Kundi (2010) ICTs refer not only to modern hi-tech computers and networks rather. There are old and new ICTs. Radio, television, telephone, fax, telegram, and so on are now old, while computer-networks, internet, e-mail and mobile learning are new tools (Hameed, 2007).

The term applied to computers and all the connecting devices like scanners, modems, telephones, and satellites that are tools for information processing and communication across the globe that it is all about teaching, and, more particularly, learning, and the way that all these technologies that is grouped under the acronym ICT can transform schools as is currently known. ICT have already impacted on

the economies of all nations and on the fabrics of societies at every level within which teachers and students live (Yaro and Ishaku, 2015). In so far as ICT have the potential to impact on other institutions, it can have impact on every aspect of the life of a school. At the same time, e-Learning technologies are burgeoning in terms of hardware, software and a variety of applications in education for teachers, students and school administrators. Educational technologies can come in many forms (Yaro and Ishaku, 2015), however, computers, networking and hypermedia are the core paradigms for different roles of e-Learning (Ezziane, 2007).

The use of ICT for enhanced Learning Environment
ICT presents an entirely new learning environment for students, thus requiring a different skill and for its successful deployment. Critical thinking, research, and evaluation skill are given importance nowadays as students have increasing volume of information from a variety of sources to grapple with (Babajide and Bolaji, 2003). Also, they further posit that ICT is changing processes of teaching and learning by adding elements of vitality to learning environments including virtual environments for the purpose (Bryer (2004). ICT is a potentially powerful tool for offering educational opportunities. It is difficult and may be even impossible to imagine future learning environments that are not supported, in one way or another, by information and Communication Technology (ICT). When looking at the current widespread diffusion and use of ICT in modern societies, especially by the young people, the so-called digital generation then it should be clear that ICT will affect the complete learning process today and in the future. Authenticity is important issue which should be addressed in the design and development of learning environments (Amutabi and Oketch, 2003).

Learning environments need to reflect the potential uses of knowledge that pupils are expected to master, in order to prevent the acquired knowledge from becoming inert (Bandele, 2006). In addition, teachers should stimulate pupils to engage in active knowledge construction. These call for open-ended learning environments instead of learning environments which focus on a mere transmission of facts (Amutabi and Oketch, 2003). ICT contributes to creating powerful learning environments in numerous ways. ICT provides opportunities to access an abundance of information using multiple information resources and viewing information from multiple perspectives, thus fostering the authenticity of learning environments. ICT also makes complex processes easier to understand through simulations that, again, contribute to authentic learning environments. Thus, ICT functions as a facilitator of active learning and higher-order thinking (Alexander, 1999).

The advent of ICT in our world today is one of the blessings of humanity, the first world countries are benefiting immeasurable from it and recently the Third world countries like Nigeria is taking advantage of the ICT in the industry and the various sectors of the economy. The education sector is not left out, hence,

it relevance in education that this study seeks to uncover the ICT readiness in Technical Colleges in Bauchi State. Specifically the study will seek to determine:
1.   The availability of the ICT facilities in Technical Colleges in Bauchi State.
2.   The usability of the ICT facilities in Technical Colleges in Bauchi State
3.   The challenges facing the adoption of ICT in Technical Colleges in Bauchi State.

Base on the above, the following questions were formulated to guide the study:
1.   To what extents are the ICT facilities available for teaching in Technical Colleges in Bauchi State?
2.   To what extents do teachers and students utilize ICT facilities in Technical Colleges in Bauchi State?
3.   What are the challenges facing the adoption of ICT in Technical Colleges in Bauchi State?

METHOD

This study adopts the survey research design. The population of the study consisted of all technical college teachers in Bauchi State. These are: Azare Government Technical College, Bauchi Government Technical College, Gamawa Government Technical College, Gumau Government Technical College, K/Madaki Government Technical College, Jamare Government Technical College and Tafawa Balewa Government Technical College. On the whole, one hundred and ninety six teachers are available in the colleges. This information was obtained from Bauchi State Ministry of Education. The researcher used all the colleges and employed proportionate systematic simple random sampling to draw the sample size of ninety four (94) teachers in the technical colleges in the State. A questionnaire was designed to gather information about technical college teachers' perceptions of ICT readiness in technical colleges in Bauchi State.

The suitability and clarity of the instrument were assessed through a pilot test with 15 teaching staff of Government Technical College Kumo in Gombe State. Internal consistency and reliability was assessed using the pilot test. A useful standard is that the coefficient of reliability should be at least 0.50 to 0.60 and preferably higher. Cronbach's alpha reliability coefficient of the instrument was found to be 0.67 which is within the acceptance range. Data are analysed using statistical mean.

RESULTS AND DISCUSSION

Appraising the question one which sought to know the extent to which ICT facilities are available for teaching in Technical Colleges in Bauchi State, table 1 shows that ICT facilities like computers, radio (tape recorders), television sets, video disc players, bulletin boards were available in schools, while some facilities like projectors, electronic notice board, internet facilities, and film strips are not

available in schools. Considering research question two: To what extent have teachers and students utilized ICT facilities in technical colleges in Bauchi State? Table 2 shows that the respondents did not agree that there were functional internet facilities for browsing in the schools and the teachers do not use ICT in teaching. The analysis also indicates that the respondents did not agree that there were enough ICT facilities for use by the teachers and the students (2.08). They did not agree also that there was periodic training for teachers in the use of ICT likewise the periodic training for students on the use of ICT.

The question three sought to know the challenges facing the adoption of ICT in Technical Colleges in Bauchi State? From table 4, it is shown that the major challenge facing the adoption of ICT in technical colleges is irregular power supply. Other challenges facing the adoption of ICT are lack of fund in schools. Inadequate facilities to support the application of ICT and teachers are very reluctant to adapt to use of ICT in teaching-learning process in the school.

This study reveals that there are no interactive boards, computer room, projectors, slides, electronic notice board and internet facilities in the colleges for teaching and also the ICT facilities for teachers to use are not adequate, This is a justification of some literatures, there are ICT facilities in some schools but not being put into use. Hannafin, Hall, Land and Hill (1994) cited in Yaro and Ishku (2015), posit that ICTs have been utilized in education ever since their inception, but they have not always been massively deployed in lesson delivery. The menace will definitely jeopardize the lesson delivery in this technology era. This could be as a result of inadequate funding of the schools by the government. This finding has grave consequences on the resourcefulness of the teachers. Even if these teachers are willing to learn and use ICT on their own, the non-availability of the facilities will hinder them. The study also revealed that there is no functional internet facility, teachers do not use ICT in teaching, there is no periodic training of teachers on ICT and there is no form of training of students on ICT. This is a pointer to the low level of application in the teaching-learning in colleges. The implication is that most of the teachers are still fond of the old method of chalk and blackboards, the practice which will make them lag behind in the world of ICT.

It was also found that the major challenges facing the adoption of ICT in technical colleges are irregular power supply; the fund for purchasing computers in the schools is beyond the capacity of colleges. There are also inadequate facilities to support full application of the information and communication technology in colleges, teachers are very reluctant to adapt to the use of ICT in teaching-learning process in technical colleges and lack of fund hinders school from embracing ICT. The epileptic power supply is a national phenomenon that has a detrimental effect on all sectors of the economy. This can also be attributed to low level of funding in the schools system. If schools are well funded, the management of the school can always make provision for alternative power supply in the schools.

This finding supports Yusuf (2005) and Bhattachrya and Sharma (2007) who submitt that irregular power supply in the country is a major obstacle to the usage of ICT in all spheres of the economy. Based on the findings, the technical colleges lack the requisite environment of learning which reflect the potential use of knowledge that pupils are expected to master (Bandele, 2006). In addition, teachers lack the avenues to stimulate pupils to engage in active knowledge construction which may call for open-ended learning environments (Amutabi and Oketch, 2003). Base on the above, the findings from the study are as summarized below:

1. There are no interactive boards, computer room, projectors, slides, electronic notice board and internet facilities in the technical colleges for teaching.

2. There is no functional internet facilities, teachers do not use ICT in teaching, there is not enough ICT facilities for teachers to use, there is no periodic training of teachers on ICT and there is no form of Training of students on ICT

3. The major challenges facing the adoption of ICT in technical colleges are: (i) irregular power supply, (ii) the cost of purchasing computers in the schools is beyond the capacity of colleges, (iii) There are also inadequate facilities to support full application of the information and communication technology in colleges. (iv) Teachers are very reluctant to adapt to the use of ICT in teaching-learning process in colleges, and (v) lack of fund hinders school from embracing ICT.

Table 1: The Mean perception of the availability of ICT facilities for teaching in Technical Colleges in Bauchi State

Items	Mean	Decision
There is a Computer Room in our school	2.05	Not available
There are Computers in our school	3.04	Available
There are Radio Tapes in our school for teaching	3.23	Available
There are interactive Boards in our school for teaching	1.76	Not available
There are Projectors in our school for teaching	2.03	Not available
There are Televisions in our school for teaching.	3.33	Available
There are Videos in our school for teaching	2.57	Available
There are Slides in our school for teaching	2.08	Not available
There are educational CD Plates in our school for teaching	3.34	Available
There are Electronic Notice Board in our school for teaching	1.56	Not available
There are internet facilities in our school	2.03	Not available
There are Disc Player in our school	3.67	Available
There are Bulletin Boards in our school	3.76	Available

Source: Field Survey (2015)

Table 2: Mean Perception of the Exposure of teachers to the use of ICT

Items	Mean	Decision
There is functional Internet Facilities	1.79	Not Agreed
Teachers use ICT in Teaching	2.34	Not Agreed
There is enough ICT facilities for teachers to use	2.08	Not Agreed
Teachers are Knowledgeable in the use of ICT	2.56	Agreed
Students are interested in the use of ICT	3.01	Agreed
Periodic Training of Teachers on ICT	2.03	Not Agreed
Periodic Training of students on ICT	1.04	Not Agreed

Source: Field Survey (2015)

Table 4: The Mean Perception of the Challenges facing ICT in Technical colleges in Bauchi State

Items	Mean	Decision
Our school lack computer literate teachers	1.56	Not Agreed
There is lack of computer information technology in our school	2.02	Not Agreed
Irregular power supply hinders the use of computers in our school	3.09	Agreed
The cost of purchasing computers in the schools is beyond the capacity of our school	3.76	Agreed
There are inadequate facilities to support full application of the information and communication technology in our school	3.43	Agreed
Teachers are very reluctant to adapt to use of ICT in teaching-learning process in our school	3.34	Agreed
Lack of fund hinders school from embracing ICT	3.53	Agreed
There is fear of exposing important information of the school to the public	1.23	Not Agreed

Source: Field Survey (2015)

CONCLUSION AND RECOMMENDATIONS

This study examines the role of ICT in Technical Colleges in Bauchi State particularly the availability of ICT facilities, the utilization of ICT facilities for teaching and learning, the perceived benefits of using ICT and the problems facing the use of ICT in Technical Colleges in Bauchi State. The study was able to establish that there are no vital facilities (interactive boards, computer room, projectors, slides, electronic notice board and internet facilities) in the technical colleges for teaching and learning. It was also established that the teachers do not use ICT in teaching where available; there is also no periodic training of teachers on ICT.

Based on the aforementioned findings, it is recommended that Government and local communities should provide funds to supply the vital ICT facilities such as interactive Boards, Computer Room, Projectors, Slides, Electronic Notice Board and Internet facilities in the technical colleges for teaching and learning. Teachers should employ the use of ICT in lesson delivery. Government should have policy on training and retraining of teachers on ICT. The State Ministry of

Education should ensure that existing ICT facilities in schools are deployed. The colleges leadership should initiate ways of sourcing fund (such as ETF intervention) to provide and maintain the ICT facilities in the colleges.

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