



**ASSESSMENT OF TRAINING LEVEL AND ACCESS TO ICT FACILITIES ON ICT
COMPETENCY OF BUSINESS EDUCATION LECTURERS IN COLLEGES OF
EDUCATION IN NORTH EAST NIGERIA**

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Abstract

The study assesses the training level and access to ICT facilities on ICT competency of business education lecturers in colleges of education in North East Nigeria. A quantitative survey method was employed, using a cross-sectional research design. The population of the study comprised 146 business education lecturers and the entire population was used in the study. The data was collected through self-administered questionnaires from 146 respondents. The study indicated that ICT is a transformational tool that has promoted the shift to a learner centered environment. It has assisted in improving the quality of education and training by increasing learners' motivation and engagement, facilitating the acquisition of basic skills. The study employed the multiple regression method; the findings indicated that level of ICT training and access to ICT facilities has a significant positive relationship with the ICT competency of business education lecturers in colleges. The conclusion provided some limitations and offer suggestions for future research directions.

Keywords: Level of ICT training, access to ICT facilities, ICT competency, Business Education Lecturers

Introduction

Information and Communication Technology (ICT) has been a catalyst for economic growth in most developed countries (Greenberg, 2005). As a result, it is seen as an important feature for sustainability and advancement of developing countries (Olakulehin, 2007). It has improved efficiencies in governance, communication, travelling, buying and selling as well teaching and learning (Kramer 2007; Hameed 2007; Wentz 2008). Nowadays, ICT plays an important role in the education sector, rapid developments in ICT in recent years have resulted in significant changes in the way the world operates and communicates (Sultana & Haque 2018). This in turn has had an impacted on educational and training needs, both in terms of the content and the delivery of educational and training services (Ogbomo, 2011). The development of ICT into the Nigerian educational system has come to stay; its importance has been translated into huge potentials in terms of positive outcomes, although investments in ICTs in Nigerian's education system have not yielded much when

compared to similar investments made in other sectors (Atureta, 2011). ICT has been described as electronic technologies used for information storage and retrieval (Adomi & Kpangban, 2010). ICT involves a process of creating, processing, storage, retrieval and dissemination of information and data using computers and telecommunications (Akpan, 2014). ICT encompasses a range of applications, communications and technologies which aid information retrieval, research, communication and administration; these include online databases, library services and online services and fax machine (Scott, 2002).

In education, ICT involves the application of digital equipment to all aspects of teaching and learning, thus, it encompasses a combination of technologies for collecting, storing, processing, communicating and delivering of information related to teaching and learning processes (Johnson, 2007). Hence, ICT has made impact on the quality and quantity of teaching, learning and research (Kwacha, 2007). In Nigerian educational system, ICT has helped to increase



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access to and improving the relevance and the quality of education. It greatly facilitates the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems, improve policy formulation and execution and widen the range of opportunity for business and the poor (Agyeman, 2007). This new communication tends to reduce the sense of isolation, and open access to knowledge because ICT provides access anytime and anywhere by making possible asynchronous learning (Adgbetuyi & Oluwatayo, 2012).

Furthermore, ICT enhances access to remote learning resources. Teachers and learners no longer have to rely solely on physical media housed in libraries for their educational needs. With the internet and world wide web, a wealth of learning materials in almost every subject and in a variety of media can now be accessed from anywhere at any time of the day by an unlimited number of people (Ghavifekr & Rosdy, 2015). This is particularly significant for many schools in developing countries and developed countries that have limited outdated library resources (Adgbetuyi & Oluwatayo, 2012).

In Nigerian educational system, ICTs are also a transformational tool that has promoted the shift to a learner centred environment (Adegbeji, 2013). It has assisted in improving the quality of education and training by increasing learners' motivation and engagement, facilitating the acquisition of basic skills. The use of ICT tools such as videos, television and multimedia computer software that combine text, sound and colourful moving images are used to provide challenging and authentic content that engages the students to be more involved (Akpan, 2018). Similarly, Haddad and Draxier (2002) argued that ICT has contributed to effective learning through expanding access, promoting efficiency and improving the quality of learning and improving management systems. According to Obeng (2004), ICT is now regarded as a utility such as water and electricity; hence it has a major role in learning and research.

Hence, the use of ICT becomes imperative for tertiary education teachers to carry out their job

efficiently and effectively especially in this age of knowledge-based technology and globalization (Yusuf, Afolabi & Loto 2013). Interestingly, tertiary institutions all over the world are rapidly incorporating ICT into all facets of teaching, research and management (Carlson & Gadio, 2000). Teachers who succeed in making use of ICT in their work processes do not only contribute to improved learning outcomes in their students, but also benefit personally from enhanced work productivity (Carlson & Gadio, 2000). Similarly, colleges of education lecturers have various tasks to accomplish and these range from teaching, research and publications, marking of tests and examinations, supervising students' research activities, supporting students through advisory roles, attending conferences, providing community services; and for them to be effective and efficient, they need to acquire an appreciable level of ICT competence (Akpan, 2018).

Daniel (2002); Yusuf (2015) reported that overwhelming majority of teachers in Europe and other advanced countries use ICT to plan lessons more effectively and more efficiently because their competencies in ICT are beyond commendation. However, in Nigeria the level of ICT application in teaching particularly, among college of education lecturers is far from impressive because the ICT competencies of most of the college of education lecturers is below expectation (Akpan, 2018). In addition, Yusuf (2015) argued that, in Nigerian college of education, available ICT resources are rarely utilized for teaching, learning and research activities because the lecturers do not possess the required ICTs' competencies needed to use the available resources for their teaching and research activities. Several studies maintained that teachers' competencies in ICT may enhance by level of ICT training and access to ICT facilities (Archibong, Ogbiji, & Franca, 2010; Catarina, 2012; Daramola, 2014; Felistas, 2016). However, no published study was found to investigate the relationship between level of ICT training, access to ICT facilities and ICT competencies of lecturers. Hence, the current study aims at examine the impact of level of ICT training and access to



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ICT facilities on ICT competency of business education lecturers in colleges of education in North East Nigeria.

Research Objectives

The main purpose of this study is to assess the training level and access to ICT facilities on ICT competency of business education lecturers in colleges of education in North East Nigeria. The specific objectives are:

1. To determine the influence of level of ICT training on ICT competencies of business education lecturers in colleges of education.
2. To determine the influence access to ICT facilities on ICT competencies of business education lecturers in colleges of education.

Research Questions

The following research question were formulated to guide the study:

1. What is the influence of ICT training on ICT competencies of business education lecturers in colleges of education?
2. What is the influence of access to ICT facilities on ICT competencies of business education lecturers in colleges of education?

Literature Review

Concept of Information and Communication Technology (ICT)

ICT refers to the range of technologies that are applied in the process of collecting, storing, editing, retrieving and transfer of information in various forms. Ogechukwu and Osuagwu (2010) stated that ICT is the processing and maintenance of information, and the use of all forms of computer communication, network and mobile technologies to mediate information. According to UNESCO (2012) ICT may be regarded as the combination of 'informatics technology' with other related technology, specifically communication technology. Informatics refers to the science dealing with the design, realization, evaluation, use and maintenance of information processing systems, including hardware, software, organizational and human

aspects, and the industrial, commercial, governmental and political implications of these. Informatics Technology on the other hands is defined as the technological applications (artifacts) of informatics in society.

Curtin (2002) stated that ICT is a set of activities that are facilitated by electronics means; the capturing, storage, processing, transmission, and display of information. Nigerian National Policy for Information Technology (2001) defined ICT as computers, ancillary equipment, software and firmware (hardware) and similar procedures, services (including support services) and related resources. It is also defined in the same document as "any equipment or interconnected system or subsystem of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission or reception of data or information. Anderson and Baskin (2002) stated that ICT is used for accessing, possessing, gathering, manipulating and presenting or communicating information. These could include software, hardware, and even connectivity.

Uses of ICT in Education

ICT is becoming an integral part of education in many parts of the globe (Curtin, 2002). ICTs are essential tools in any educational system. They have the potentials of being used to meet the learning needs of individual students, promote equality of educational opportunities, offer high quality learning materials, increasing self-efficacy and independence of learning among students, and improve lecturers' professional development. Furthermore, ICTs offer great potentials for revolutionizing school administration (Selinger & Austin, 2003). Likewise, The Milken Exchange on Educational Technology (1998) had noted that ICT under the right condition has the following potentials in education.

First, it has the potential to accelerate, enrich and deepen basic skills in reading, writing,



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mathematics, and the sciences. Second, it motivates and engages students in learning as they are encouraged to be more independent and responsible for their own learning. Third, it helps to relate academics to the practices of today's work as the influence of ICTs is pervasive in every field. Furthermore, it strengthens teaching as it provides powerful tool to lecturers' repertoires, thereby enabling them to meet individual learner's needs. ICTs allow for networking with other lecturers, thus lecturers are more connected with each other to exchange ideas, share resources and improve. In addition, ICTs provide opportunity for connecting schools to world, as learning is expanded beyond the classroom, thus, relevant real life contact can be established. Finally, student and lecturers can assess information and resources, and they can communicate with experts and peers and make useful contributions to knowledge through electronic publications. (Mikre, 2011).

In addition, Yelland (2000) argued that traditional educational environments do not seem to be suitable for preparing learners to function or be productive in the workplaces of today's society. Yelland (2000) claimed that organizations that do not incorporate the use of new technologies in schools cannot seriously claim to prepare their students for life in the twenty-first century. This argument is supported by Grimus (2011), who pointed out that by teaching ICT skills in schools the students are prepared to face future developments based on proper understanding. Bransford (2012) reported that what is now known about learning provides important guidelines for uses of technology that can help students and lecturers develop the competencies needed for the twenty-first century. ICT can plan various roles in learning and teaching processes.

Technology can play a part in supporting face-to-face teaching and learning in the classroom. Many researchers assert use of new technologies can help lecturers enhance their pedagogical practice; they can also assist students in their learning.

ICT Competency among Business Education Lecturers

ICT competence refers to the ability of lecturers to make use of the various ICT tools such as e-mail, facsimile, internet, world wide web, intranets, extranets, online databases and other networking technologies in the performance of their job (Algozzine, Bateman, Flowers, Gretes, Hughes, & Lambert, 2011; Tinmaz, 2004; Toker, 2014)., Moreover, there are two cluster of ICT competencies: (1) basic competencies are represented by entry-level skills related to basic computer operation and the use of an array of software that supports and enhances professional productivity; (2) advanced competencies extend the application of basic competencies to teaching, administration, and counselling and to other professional activities. On the other hand, according to Adelsberger, Collis, and Pawlowski (2002), rapid changes are occurring in ICT and colleges of education lecturers will need ICT competencies to function effectively in the changing situation.

Use of ICT in Planning Lecture Delivery

A lesson is a structured period of time where learning is intended to occur. It involves one or more students being taught by a teacher or instructor. A lesson may be either one section of a textbook (which, apart from the printed page, can also include multimedia) or, more frequently, a short period of time during which learners are taught about a particular subject or taught how to perform a particular activity. Lessons are generally taught in a classroom but may instead take place in a situated learning environment. In a wider sense, a lesson is an insight gained by a learner into previously unfamiliar subject matter (Wikipedia, 2013).

Teachers usually have a lesson plan, which indicates the structure of the teaching. A group of lessons may be linked together in a unit plan or scheme of work. The detail of the plan may vary with some being a simple list of what is going to be taught in a lesson with others working including much more detail, such as a time plan and the learning aims and objectives. Teachers are usually advised to put



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a great amount of detail into the written plan. This ensures that the plan will be cohesive, that all the components of a successful lesson are taken care of and that one has a checklist to ensure that practicalities are taken care of the plan.

Alexander, (2002) stated that using ICT in the planning process, teachers most often use ICT for routine tasks (record keeping, lesson plan development, information presentation, basic information searchers on the internet) Johnson B Aragon, 2003 indicated that the most significant factor for continuing the development of lectures ICT- related skill is for them to have regular access to functioning and relevant ICT equipment. The way ICT is used in lessons is influenced by lectures knowledge about their subjects, and how ICT resources can be utilized and related to it. The evidence shows that when lecturers use their knowledge of both the subject and the way students understood the subject, their use of ICT ha a more direct effect on student achievement.

Also, Alexander (2000) stated that lecturer training professional development is seen as the key driver for the successful usage of ICTs in education. Effective ICT use in education increases lecturers training and professional development needs. However, ICTs can be important tools to help meet such increased needs by helping to provide access to more and better educational content and aid in routine administrative tasks. In addition, Johnson and Aragon (2003) explained that using ICT tools in the planning process, the lecturer designers need to reflect upon their learning experiences of the ICT integration. The reflection can focus on the appropriateness of the technology used, strengths and weakness of the technology and possible improvement.

Moss, (2007) stated that various competencies must be developed throughout the educational system for successful ICT use for instructional planning. These include skills with particular application: integration into existing crucial; curricular changes related to the use of ICT including changes in instructional design and changes in teacher role. ICTs are swiftly

evolving technologies, however and so even the most ICT fluent lecturers need to continuously upgrade their skills and keep abreast of the latest development and best practices.

Also, in the planning process the assistance of technical support specialist is needed because technical support specialists are essential to the continued viability of ICT use in use in a given school. While the technical support requirements of an institution depend ultimately on what and how technology is deployed and used general competence that are requires would be in the installation, operation, and maintenance of technical equipment (including softer administration and network security. Without any technical support, much time and money may be lost due to technical breakdowns.

The National Educational Technology Standards (NETS. 2003) indicated that teachers plan and design effective learning environments and experiences supported by technology in the following ways:

- i. Design developmentally appropriate learning opportunities that apply technology enhanced instructional strategies to support the diverse needs of learners.
- ii. Identify and locate technology resources and evaluate them for accuracy and suitability.
- iii. Apply current research on teaching and learning with technology when planning learning environment and experiences.
- iv. Plan for the management of technology resources within the content of learning activities,
- v. Plan for the management of technology resources within the context of learning activities.
- vi. Plan strategies to manage student learning in a technology enhanced environment.

Utilization of ICT in instructional Delivery

Modern instructional facilities are a process of administrative of vocal, pictorial, textural, numeral information by micro based combination of computers and telecommunication. Modern instructional



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facilities can be said to be the use of computer based information systems and communication systems to process, store and transmit data. Moses (2011) opined that it is a way of describing existing and innovative ways of providing learners with global access to information, learning and support, Emeonyenu (2000) sees it as an umbrella term that includes any communication device or application encompassing computer network hardware, software, electronic mail, satellite system as well as the various services and application associated with them. Emeonyenu (2000) further explained that the modern instructional facility is often spoken of in a particular context, such as ICT in education. Hence, in education it is the computing of communication facilities and features of various teaching, learning and a range of management activities that lecturers must change to in order to meet the challenges of this information age. Ugwanyi and Eze (2010) opined that the use of computer in the present day teaching and learning is inevitable because it helps to meet the need of students for greater individualization of instruction and greater relevance of the subject matter. The authors explained that computer assisted instruction consists of programmed instructional sequences presented with the computer.

Instructional delivery is the process of presenting the planned lesson in the classroom environment. Delivering means teaching. Alexander (2005) identified teaching methods and student organization as the facet of pedagogy. This suggests that the pedagogy of ICT should be understood within a broader framework of educational practice. What is observed in the classroom is only part of this practice. Thus, illuminating good practice in teaching and learning with ICT will require examining teachers, ideas, values, beliefs, and the thinking that leads to observable elements in practice. According to Shulman (2004) teachers' knowledge bases include the following categories of knowledge:

- i. Content knowledge
- ii. General pedagogical knowledge: knowledge related to general teaching

issues, for example teaching approaches and classroom managements.

- iii. Curriculum knowledge: knowledge about the tools of the trade scheme of work, resources, and soon.
- iv. Pedagogical content knowledge: that special amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding
- v. Knowledge of learners and their characteristics Knowledge of educational contents: groups, classes, the school and the wider community.

Level of ICT Training

ICT skill refers to the one's ability to converse with people through various technologies. Akpan (2018) observed in study of ICT competence and lecturers' job efficacy in universities that the level of ICT competence of lecturers significantly enhanced their job efficacy. Similarly, Felistas (2016) investigated the factors influencing teachers' participation in the integration of ICT in teaching and learning in public secondary schools in Machakos Sub County, Kenya. The study established a significant relationship between teacher competency ICT integration and ICT training. Similar finding was reported by Vasilka, Tatjana and Sanja (2014) that ICT competencies of teachers was influenced by number of training, possession of personal computer and having internet at home. Based on these arguments, the following hypothesis is formulated:

H₁: Level of ICT training has a significant impact on ICT competency of business education lecturers in college of education

Access to ICT Facilities

There are various studies and opinion on impact of ICT facilities for instance, Saimi and Yamat (2021) focused on factors influencing ICT competency skills among ESL primary school teachers and the study found that ICT competency skills of teachers was influenced by teachers' attitudes towards ICT and accessibility of ICT facilities. Equally, Sarfo, Amankwah, Oti-Agyen and Yidana (2018)



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observed in their study that majority of the teachers have access to ICT tools such as computers, mobile phones, the internet and personal digital assistants and the accessibility of these facilities had impact on ICT proficiency. In related study, Obakhume (2011) in his study of assessment of school teachers' use of ICT in Oyo state of Nigeria found that ICT facilities are not available and accessible in most of the schools covered. It was also observed that most teachers used as the sample for the study, are not competent in the use of ICT due to the lack of availability and accessibility ICT facilities.

Based on these arguments, the following hypothesis is formulated:

H₂: Access to ICT facilities have a significant impact on ICT competency

of business education lecturers in college of education.

Research Framework

Based on the empirical evidences discussed in sections 3.1 and 3.2, a research framework showing the relationship between independent variables (i.e., level of ICT training and access to ICT facilities) and dependent variable (i.e., ICT competency of business education lecturers in college of education) is developed (see Figure 1). This framework is developed based on competence motivation theory proposed by Harter in 1978. The theory suggests that one's competency is determined by individual and situational factors that impact one's motivation. Hence, lecturers' Level of ICT training and access to ICT facilities could impact on their ICT competency.

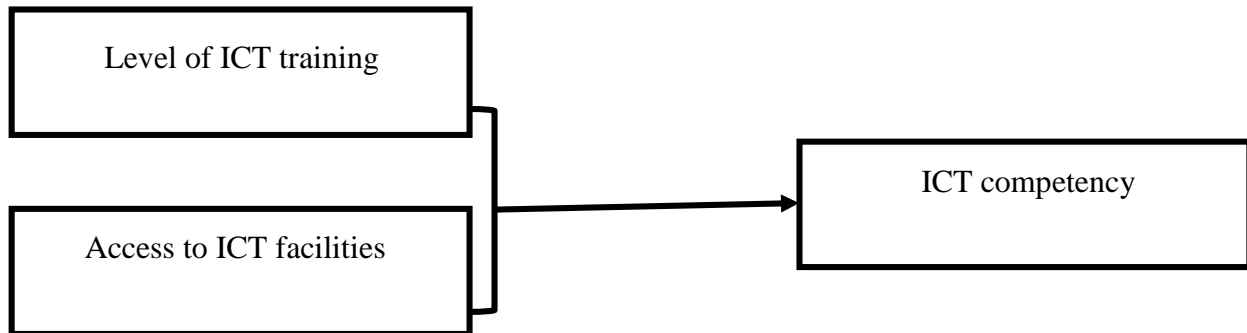


Fig. 1 Research Framework

Methodology

The study employed a cross-sectional research design which involves the collection of data at a specific point. Also, the study used a quantitative and descriptive survey method aimed at testing the formulated hypotheses developed from the previous reviews. The unit of analysis for this study is individual.

The study population was made up of 146 business education lecturers in the nine (9) colleges of education offering business education in North-east Nigeria. The population sample was used in this study because the entire pupation of the study is manageable as the number of Business Education lecturers in the North eastern Nigeria are not much. Since the entire population was considered in the present study, so there was no

sampling technique. A self-administered questionnaire method was used for the data collection. A total of 146 questionnaires were administered, 117 were duly completed and returned representing 72 percent response rate. The research instruments were adapted from the previous research literature. ICT competency is a variable with 6 items, level of ICT training had 6 items and access to ICT facilities is a variable with 6 items, all the measures were found to be valid and reliable with good internal consistency and reliability. All items adopted were measured on a 5 point Likert type scale ranging from, ranging from 1 (strongly disagree) to 5 (strongly agree). Expert's opinion was sought to ensure the face and content validity of the instruments.



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Results

Table 1 below provides the result multiple regression on the impact of level of ICT training, access to ICT facilities on ICT competency of business education lecturers in colleges of education in North East Nigeria. The R square is 0.28. As suggested by Cohen (1988), 0.26 substantial, 0.13 moderate and 0.02 weak; the R^2 here is considered substantial, this explains that 28 percent of level of ICT training and access to ICT facilities are affected by ICT competency, which suggests that the contribution of each variable to the model is very substantial

(Cohen, 1988). Also table 1 clearly shows that level of ICT training is the most important variable in predicting ICT competency of business education lecturers in colleges of education with ($\beta = 0.425$, $t = 5.038$, p -value = 0.000), whereas, access to ICT facilities was next to level of ICT training with the following values ($\beta = 0.383$, $t = 4.442$, p -value = 0.000). Both level of ICT training and access to ICT facilities were found to have a significant and positive relationship with ICT competency of business education lecturers in colleges of education in North East Nigeria. Hence, H1 and H2 were supported.

Table 1: Regression analysis on impact of level of ICT training and access to ICT facilities on ICT competency of business education lecturers in colleges of education

Variable	Standardized Coefficients Beta	T value	P value	Decision
Level of ICT training	.425	5.038	.000	supported
Access to ICT facilities	.383	4.442	.000	supported
R Square				.28
Adjusted R Square				.25
F value				40.018
p value				.000

Discussions

The findings from this study revealed a significant and positive relationship between level of ICT training and ICT competency of business education lecturers in colleges of education in North East Nigeria. The finding is consistent with the previous researches for example, Akpan (2018); Felistas (2016); Vasilka et al. (2014). The studies found significant relationship between level of ICT training and ICT competency. Similar findings of Saimi and Yamat (2021) showed that accessibility of ICT facilities directly affects ICT competency skills of teachers. The study was on factors influencing ICT competency skills among ESL primary school teachers. Additionally, the study of Sarfo et al. (2018) observed that majority of the teachers have access to ICT tools such as computers, mobile phones, the internet and personal digital assistants and the accessibility of these facilities had impact on ICT proficiency. Similar finding was reported by Obakhume (2011).

Conclusion

The study investigated the impact of level of ICT training and access to ICT facilities on ICT competency of business education lecturers in colleges of education in North East Nigeria. The empirical evidence in this study shows that level of ICT training and access to ICT facilities have a positive and significant influence on ICT competencies of business education lecturers in colleges of education in North East Nigeria. and ICT competence will greatly impact upon business education lecturers' job efficiently and effectively especially in this age of knowledge-based technology and globalization because lecturers who are competent in making use of ICT in their work processes do not only contribute to improved learning outcomes in their students, but also benefit personally from enhanced work productivity. Hence, ICT competency of business education lecturers in colleges of education in North-East Nigeria will improve their performance in instructional delivery, research and assessment of students.



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