

**ICT DRIVEN CHANGES IN TEACHING AND  
LECTURING ENVIRONMENT:  
IMPLICATION FOR LIBRARIANS AND INFORMATION  
PROFESSIONALS**

By

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**ABSTRACT**

*This paper focused on the Information and Communication Technologies (ICTs) which permeate into almost everything in our society today including our educational system. Schooling and teaching now has taken new dimension and is radically changing with this new perspective. ICT have some characteristics that make them an indispensable tool in our daily life, libraries and in our schools system as well as in our world of works. The ICT has also change the way we communicate now and the way we live and work generally. For this compelling reason ICT application in Education is a tool that supports the schools and libraries, etc. to become maximally advantage. Thus, the study made some recommendations to improve the positive development and achievement of adopting ICT for teaching, learning and research and information resources sharing in libraries, information centers and educational institutions in general.*



## Introduction

Information and Communication Technology (ICT) has become a subject that cannot be ignored in educational, institutional, organizational, private or corporate life, it has radically transformed the way we live now, transact business, drive organizational and institutional functions, interact with people (friends, family members, colleagues) etc. According to Daniels (2002) as quoted in Noor-UI-Amin (2007) ICTs have become within a very short time, one of the basic building blocks of modern society. Many countries have come to take the understanding of ICT and mastering of its basic skills and concepts of ICT as part of the core concepts of education, alongside mastering the reading, writing and numeracy skills. Paas (2008) defined Information and Communication Technology (ICT) as an indispensable tool recognized all over the world used to access, process, retrieve, store, manipulate, produce, present and exchange information in electronic and other automated means. The electronic tool could be Personal Computer (PC), MODEM (Modulation and Demodulation), Compact Disks, Telecommunication devices, Mobile Phones, the Internet or a combination of both.

Umeh (2013), asserts that ICT is a driven technological tool and resources used to create and manipulate knowledge. ICT has virtually transformed teaching and learning today in this age of information revolution. Aspects like the preparation and delivery of courses, assessment of students, scholarly publication and general availability and retrieval of information for research purposes has being greatly influenced.

Education, which is described as the process of transferring skills is one single phenomenon that guarantees the continued existence of humanity as one generation will always need the skills and procedures that have sustained the last. Before the advent of ICT, formal education was confined to the classroom where the teacher was seen as the most important component in the learning ecosystem. Libraries existed then in the ecosystem as a learning and reference center for knowledge acquisition and the sharpening of teacher skills and for the support of smart students as it housed books in diverse and other reference materials.

The advent of technology especially the computer and internet which are the backbones of the ICT revolution in life generally have changed that narrow arrangement. Today, teaching and learning process have been moved from a 100% classroom experience to a self-paced, learner led and always on model. The internet has been described as the largest repository of knowledge and the most revolutionary factor in the teaching and learning



process after the invention of writing and movable types. Internet and the web host databases, portals, websites, libraries and even live schools that are available to learners twenty-four hours a day.

The libraries and librarians had served as the custodians and guardians of knowledge who are charged with the responsibility of acquiring, organizing, storing, evaluating, sharing and disseminating knowledge. They have performed that role by managing and ensuring that libraries established in schools, higher institutions of learning like the universities, colleges of education and the polytechnics; communities and organizations function optimally through ICT. Aina, (2013) referred to the librarian as gatekeeper of knowledge. That was the time when the only reliable and easiest source of information was through the acquired, sorted and evaluated information available in the libraries and manned by the librarians and other information scientists. The internet has caused a positive disruption which has changed that simple arrangement and work requirement for the educationists and librarians.

### **Application of ICT in Education**

Tinio (2013) asserted that ICT has transformed not only the process of teaching and learning but has opened access to education especially underserved, underfunded and remote populace. ICT in Education means Teaching and Learning with Information and Communication Technology facilities. Worldwide research has shown that ICT can lead to improved student learning and better teaching methods. A report made by the National Institute of Multimedia Education in Japan, proved that an increase in student exposure to educational ICT through curriculum integration has a significant and positive impact on students achievement, especially in terms of Knowledge Comprehension. However, we can see that there are many educational technology solutions provided in the world which may cause confusion among educators about how to choose the right ICT solution.

The use of ICT education is so paramount because, images can easily be used in teaching and improving the retentive memory of students. Through ICT, teachers can as well easily explain complex instructions and ensure students' comprehension. ICT in education can also enable teachers to be able to create interactive classes and make the lessons more enjoyable, which could improve student attendance and concentration. It wonderfully to add that ICT help visualise document through the camera which decreases teachers' preparation time, increases interactivity with students, and increases student concentration and comprehension of complex instructions.



Tinio stated the following as the influence of ICT on education as thus;

**(i) Anytime, Anywhere:**

One defining feature of ICTs is their ability to transcend time and space. ICTs make possible asynchronous learning, or learning characterized by a time lag between the delivery of instruction and its reception by learners. Online course materials, for example, maybe accessed 24 hours a day, 7 days within a week. ICT-based educational delivery (e.g., educational programming broadcast over radio or television) also dispenses with the need for all learners and the instructor to be in one physical location. Additionally, certain types of ICTs, such as teleconferencing technologies, enable instruction to be received simultaneously by multiple, geographically dispersed learners (i.e., synchronous learning).

**(ii) Access to Remote Learning Resources:**

Teachers and learners no longer have to rely solely on printed books and other materials in physical media housed in libraries (and available in limited quantities) for their educational needs. With the Internet and the World Wide Web (WWW), diverse a wealth of learning materials are available in almost every subject and in a variety of media can now be accessed from. Anywhere at any time of the day and unlimited number of people are connected. This is particularly significant for many schools in developing countries, and even some in developed countries, that have limited and obsolete library resources. ICTs also facilitate access to resource person's, mentors, experts, researchers, professionals, business leaders, and peers-all over the world.

ICT application to education has also brought about concepts like e-learning, open and distance learning, blended learning, user centred learning, among other emerging concepts concept and platform.

**(iii) E-Learning:** This concept refers to learning activity that is facilitated by the internet. It is mostly associated with tertiary education, professional development trainings or short courses but the truth is that it can be applied to all levels and aspects of education.

**(iv) Blended Learning:** This method of learning combines traditional classroom based learning with online and electronic based and assisted learning. It referred to hybrid learning in some quarters; it harnesses the power of the internet and ICT in general to cause a deep and impactful use YouTube Videos, Websites or other portals online to explain concepts to students.



(v) **Open and Distance Learning:** Open and distance learning is defined by the Commonwealth of Learning as "a way of providing learning opportunities that is characterized by the separation of teacher and learner in time or place, or both time and place; learning that is certified in some way by an institution or agency; the use of a variety of media, including print and electronic; two-way communications that allow learners and tutors to interact; the possibility of occasional face-to-face meetings; and a specialized division of labour in the production and delivery of courses". This is fast becoming very popular as even universities are now deploying open distance educational models. The Federal University Technology, Minna, Niger State through ICT launched the Centre for Open Distance Learning (CODEL) in 2011 in order to gainfully maximize the power of the internet by offering courses and delivering lectures online to students nationwide.

(vi) **Learner-Centred Learning:** This is the approach that harnesses the prior experiences of learners in order to build on new and introduced emerging concepts. Learner-centred learning is an offshoot of constructivism, it builds on the mental pictures of the learner in order to expose the meanings and application of concepts that the learner can relate with. Learner centred approach is made possible by the learner's ability to find information from other sources especially the internet and offline databases.

### **Challenges of ICT in Education**

All over the world, the observable common barriers to the use of ICTs in the digital age is associated with lack of information literacy. Information literacy is an art that extends from knowing how to use computers and access information to critical reflection on the nature of information itself, its technical infrastructure and its social, culture, and philosophical context and impact. Shapiro and Hughes (1996) in Salehi and Salehi, (2012). In this era of ICT, Nigerian educationists who are not information literate as Henriatta (2005), rightly pointed out, are potential national risks because they ceased to be information literate professionals in the digital age. A development that make the widening digital gap parallel to the digital divide. It is worthy to note that ICT continues to advance in western and Asian countries, while African countries still experience a lag behind in its implementation, and that continues to widen the digital and knowledge divides. In a recent study by Kiptalam et.al (2010), observed that access to ICT facilities is a major challenge facing most African countries, with a ratio of one computer to 150 students against the ratio of 1:15 students in the



developed countries. Meanwhile according to National Council for Science and Technology (2010) indicated that computer use in classrooms and other areas of education is still in its early phases, and need to be continuously improve upon so as to equipped teachers and administrators to play an important role in the use of computers in classrooms.

The challenges affecting effective application of ICT in education are numerous as supported by Kiptalam et.al (2010).

**Lack of Qualified Teachers to Teach ICT in Schools:** The demand for ICT learning has been tremendous and the number of teachers who are trained to teach ICT cannot meet the demand. There are more students willing to be taught computing skills than there are teaches to transfer the skills.

**Lack of Computers:** Computers are still very expensive and despite spirited efforts by the government agencies, NGO, corporate organisations and individuals to donate computers to as many schools as possible, there still remains a big percentage of the schools unable to purchase computers for use by their pupils.

**Lack of Electricity:** Many schools are still not yet connected to electricity; and most developing countries, cannot be able to connect all parts of the country to the national electricity grid. Consequently those schools that fall under such areas are left handicapped and may not be able to offer computer studies effectively.

**Broken Down Computers:** While a good number of schools have benefited from donated used-computers, they have not been adequately equipped with the same on maintenance and repair, hence its very common to see a schools computer laboratory full of broken down computers, some repairable and some not. It will be nice if the government can actually put strict measures on any person, NGO or corporate bodies who will donate second-hand computers (which constitute e-waste).

**Apathy by the Administration:** There is still a strong perception especially by the older generation that computers require highly skilled personnel to operate them, while this may not be the case, some school administrators also fear that their students will be exposed to adult sites and other undesired sites, through the use of the internet. Some also fear the infection of viruses to their computers leading to data loss, while this may be true to some extent, proper education on the safe use of computers and help alleviate some of these fears.



**Apathy by the Teacher:** The teacher may fear being rendered irrelevant by the introduction of computers in his/her class. The 'feel' that the teacher still remains an authority and a 'know it all' in class is something that most teachers cherish, and anything that makes them otherwise is deemed an enemy of the classroom.

**Lack of Internet or Slow Connectivity:** Most schools are not able to connect to the World Wide Web (WWW), due to the high costs involved in the connectivity.

**Lack of Initiative by the Community Leaders:** The community leaders who are charged with looking at the interests of a given community do not see the need to purchase and subsequent installations of computers to their schools as a priority. They consider health care, provision of water and other amenities as more important than buying computers for their schools.

**Obsolete Computers:** Lower the morale of both the teacher and the student; it is very common to find some schools using very old computers running on win98 or win 95.

**Increased Moral Degradation:** Internet pornography, cyber bullying and other anti-social behaviours is a worrying emerging problem. The major dilemma which arises in providing educational technology stems from a lack of financial resources and a limited distributive capacity. In addition, many African countries have not been able to employ teachers, and provide resources to keep up with this demand. This brings about compromised quality of education.

### ICT Roles on Library and Librarian in Information Resource Sharing in Education

The library is expected to provide the following and Librarians are equally expected to harness the following to offer services as supported by Blakes, (2006).

#### **Provide access to information resources:**

- i. Through online catalogue, indexes and databases including full text e-resources.
- ii. Through connections to local, regional and global networks; and by securing materials for students, academics and staff through interlibrary loan and other resource sharing arrangements powered by ICT and internet connectivity .
- iii. Provide the state of the art ICT infrastructure: in hardware and software, sufficient bandwidth and responsive network management



system. Expert and professional support to facilitate thorough and accurate use of all library resources.

- iv. Easy access to library information resources and services through web. [www.iiste.org](http://www.iiste.org)

### **Librarians in Modern ICT**

The emergence of ICT has revolutionized modern society. Life was manually driven without computers and their peripherals. Like other fields of human endeavour, there is no aspect of library activities that digital processing is not applicable. Digital technology is of particular importance when information is to be gathered, stored retrieved and evaluated (Kennedy and Davis, 2006).

Ideally, ICT is expected to have a major impact on the management, structure, and work activities of Nigerian libraries. As first step to bridging the gap, Nigerian librarians and educationists must accept one basic fact that, ICTs are drivers of innovation in the managerial and operational processes in libraries. That is, the use of the technologies of modern computer-based information systems is a major force that has the capabilities of transforming the traditional methods used in cataloguing and classification, indexing, abstracting etc. It is expected that all technologies that process, store and communicate data and information in libraries should be managed as integrated systems and be used as access tools for the libraries resources.

Libraries with access and those without access to information technology are degrading as the "Information Age" continues to expand the horizon through which information services are provided in libraries. This is one of the many challenges confronting Nigerian libraries and librarians as Information Technology sweeps across the world. Many Nigerian libraries are now converting the contents of their print resources into electronic databases thus, increasing their dependence on technology. Unlike in the past, today, technology has provided opportunity for librarians to know how they can combine computer and communication technologies in the performance of library tasks.

This confirms Williams and Sawyer (2003) assertion, that in the era of information technology, "we will have everything connected to everything", which are internet-based remote control devices to regulate our libraries. Technology has brought about a completely different way of providing library services resulting to the development of new services (Gbaje, 2007). The Internet is now the dominant mode of information exchange in



libraries information centres in the digital age, it is no longer a luxury but, a compelling necessity which Nigerian libraries and educationists and researchers must accept and adopt to bridge the digital gap.

### **Conclusion**

ICTs have impacted on educational practice in education quite tremendously, the impact grows considerably year by year which makes ICT become a strong irreversible agent for change among many educational practices. Extrapolating current activities and practices, the continued use and development of ICTs within education have a strong impact on: ICT and teaching, learning process; quality and accessibility of education; knowledge acquisition; learning motivation and satisfaction; learning environment; ICT usage and academic performance. In library, ICT is all embracing, without avoidance of doubt ICT is all over in the centre hub of education and learning in all ramifications.

This shows that the adoption and use of ICTs in education have a positive impact on teaching, learning, and research. ICT promotes the delivery of education and provides wider access to the same. In addition, it increases flexibility which makes learners to access the education regardless of time and geographical barriers, influence the way students are taught and how they learn. ICT driven provide the rich environment and motivation for teaching learning process which have a profound impact on the process of learning in education by offering new possibilities for learners, teachers, lecturers and researchers. Similarly wider availability of the best practices and best course materials in education, which can be shared by means of ICT, can foster better teaching and improved academic achievement of students and resources sharing in the library.

### **Recommendation**

Having examined the driven changes of ICT in education; implication for librarian and using library which is the hub of education, the following recommendations are hereby put forward:

- i. Computer use in classrooms and other areas of education need to be upgraded to meet the global trend.
- ii. Library management should assimilate application of ICT for quality service delivery.



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