

# RELEVANCE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) TO THE TEACHING AND LEARNING PROCESS IN THE 21<sup>ST</sup> CENTURY

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## **Abstract**

The relevance of Information and Communication Technology (ICT) in the field of education cannot be underrated. It is an innovative and inevitable tool in the teaching and learning process which has turned the world into a global technical village. Presently, no nation can develop without the positive impact of science and technology. Thus, there is a dire need to adopt new measure that will foster better understanding of what is taught and learnt. The thrust of this paper is to examine the concept of Information and Communication Technology and its importance in the teaching and learning in the 21<sup>st</sup> century. It also suggests some ways of using ICT meaningfully in order to achieve optimum teaching and learning.

## **Introduction**

The industrial and technological prowess of any nation is measured to a large extent with the level of education attained by her citizens at all levels. Simply put, literacy is the backbone of development. However, this laudable objective cannot be achieved in the classroom bedeviled by teacher-oriented lecture, memorization and regurgitation of facts and principles. In other words, production of literate individuals cannot thrive well in an atmosphere of dogmatism.

Considering the foregoing, a lot of innovations have been introduced in the teaching and learning process in the 21<sup>st</sup> century in a bid to foster understanding and application of what is taught and learnt. (Nwagbo, 2002). The contemporary age is regarded as the knowledge age (Jarbor, 2001). In this vein, it is timely to explore the efficacy of modern technologies which will bring what is taught to the door-step with real-life experiences. Thus, the succinct recognition of the persuasive influence of information and communication technology which has made knowledge the most prized commodity. It is assumed that ICT will make teaching and learning process more relevant by delving into the problems of learning difficulties and poor teaching (Olorutegbe & Odutuyi, 2003). Inappropriate method of delivering lessons and lack of resourcefulness are obvious, hence, the adoption of ICT-based approach to teaching and learning is necessary as the paper examines its implications.

## **Concept of Information and Communication Technology**

Information and communication technology is an integrated application of computers and telecommunication technologies in solving problems created by global information explosion. ICT as a concept, is relatively new. Today it permeates all domains of society-workplace, school, homes. In some cases, it has transformed the way we do things. (Awotua-Efebo, 2006). In the words of Sanmi and Osungbemiro (2002) ICT refers to the use of electronic equipment to process, store and dissemination information to and over a wide audience. It is the merging of various technologies ranging from electrical/electronic engineering, computer science/engineering and telecommunication into one field that has been found useful in space exploration engineering, banking, medicine, communication commerce, education among others.

In their contributions, Taimiyu (2000); and Tjaden (1996) adopted a tool centred definition by which they see ICT as an equipment used to produce, obtain and send information. It comprises knowledge about the nature interrelationship and use of data and information. Putting forward his ideas, Okwor (2002) described ICT as the use of computer and telecommunication systems in the collection, collation, analysis, processing, manipulation, storage, retrieval transmission and communication of data in different forms which may include audio, visual and audio-visual formats.

Information and communication technology has been in existence in various forms. For instance the talking drum, radio, television might be considered the ICT of its time (Awotina-Efebo, 2006). Nonetheless, today's ICT is, essentially different due to its unique characteristics. It captures, stores, manipulates and disseminates information (Wall & Kemp, 1987).

In view of the potentials of ICT, there is a need to embrace it in the teaching and learning process, because it relays information at a very fast rate. It also keeps the clients abreast of current knowledge at par with issues that affect mankind.

### **Importance of ICT in the Teaching and Learning Process in the 21<sup>st</sup> Century**

The emergence of ICT has ushered in great advancement in the education sector. In fact, it is indispensable in improving and re-focusing the awareness of the individual in the subject/courses that are taught in schools. According to Kmitta and Davis, (2004) advances in the field of information and communication technologies (ICT) with their attendant impact on education can be likened to the book revolution which occurred with the Guttenberg invention of movable press in the 15<sup>th</sup> century. ICT is a virile tool for upgrading the standard of education through quality teaching.

The role of ICT in education is becoming more and more important and this will continue to grow and develop in the 21<sup>st</sup> century, (Laurillard, 2001). The importance of ICT in teaching and learning process can be categorized into two namely: instructional strategy and knowledge resource (Ivowi, 2002). As an instructional strategy, ICT can be used to reach out to learners at every corner of the globe. According to Bates (2005), ICT consists of computing facilities and features that variously support teaching, learning and a range of activities in education. Computer Assisted instruction has been found to be pedagogically more useful and effective in teaching sciences than conventional tutorials. Educationist will admit that knowledge cannot be transmitted like information in a pipeline. This means that knowledge is constructed. Through ICT (internet), the learner has access to the largest information bank virtually on any topic. Students using ICT for learning become engulfed in the process as it gives room for information sources and cognitive tools (Brewton, 2000). Furthermore, ICT concretizes lessons and sustains interest of learners. Slow and fast learners can benefit from what is taught (Ezeliora, 2003).

ICT also brings ease to learning at distance using fax, email, teleconferencing, videoconferencing etc. These eliminate the fear of accidents as a result of traveling long distances to conferences and seminars venues. Precisely, ICT, saves time and energy on the part of resource persons and participants. As a knowledge resource, ICT extends beyond the walls of the school. The traditional paradigm for teaching (i.e. teachers lecturing while students listen is changing). The influence of world wide web (www) is apparent in terms of providing readily accessible information and promoting communications between learners and experts. In line with this, Olayiwola (2003), opined that conventional mode is no doubt, giving way to more sophisticated and rewarding modes due to the development of modern ICT.

### **Bottlenecks to the use of ICT in the Teaching and Learning Process.**

#### **Population Explosion**

Most schools are over-populated that ICT devices (computers), cannot go round. This will inhibit effective teaching and learning. In the computer centers where students go for browsing, they wait for several hours because the number of clients outweighs available facilities.

#### **Computer Illiteracy**

Acquisition of basic knowledge of what a computer is all about and its applications is paramount. Teachers and students must be competent in the use of ICT (Essia;2005 Davis, 2003) in order to derive the benefits therein. In contrast, most Nigerians do not know how to use modern ICT facilities to promote educational efficiency, and they are not adequately trained to use information media.

#### **Insecurity and Poverty**

Poverty and unemployment can hamper the availability and use of ICT in the teaching and learning. Most Nigerians are living below the poverty line and cannot afford the ICT devices due to economic meltdown. Besides, cases of vandalism are eminent in some areas thereby, endangering the safety of the gadgets. This ugly situation should be curbed to the barest minimum by security agents.

#### **Brain Drain**

Nigeria has lost her qualified technical personnels due to poor remuneration. This has adversely affected the quality of computer training given to teachers and students. This has led to the shortfalls in the formal training in the area of networking to give a broad view of net communicating system.

#### **Improper Handling of ICT Devices**

ICT facilities are delicate and therefore, need carefulness in terms of operation and maintenance. Inexpediently in Nigeria, personnels handling the gadgets are grossly insufficient.

#### **Poor Power Supply**

There has been epileptic nature of electricity supply by Power Holding Company of Nigeria (PHCN). This affects the efficient networking of ICT. Continuous power supply is inevitable.

#### **Poor Funding/Lack of Political Will**

Internet connectivity is capital intensive. According to Baron (2001), the costs associated with the development of high quality technology-facilitated learning materials are quite high. In addition, most public schools (especially in rural areas) do not have ICT devices and no curriculum has been developed to guide its study. This does not augur well with sustainable development.

#### **Ways of Using ICT Meaningfully to Achieve Optimum Teaching and Learning**

The relevance of ICT cannot be underrated in the ever-growing world of technology. The significance of information and communication technology lies in the way they are used not merely in their procurement. Even though ICT enhances teaching and learning, the pertinent question is how can it be utilized to ensure successful teaching and learning in schools. For effective use of ICT, sufficient micro computers should be available; conducive classroom environment should be created. Adequate and continuous supply of electricity to operate and maintain the system with well

groomed computer/ICT experts should be put in place. Even though, the cost of utilizing ICT in the teaching and learning process, is much, the gain is not contestable.

### **Conclusion**

The importance of ICT in the teaching and learning process is unquantifiable. Thus taking advantage of global information revolution will help in positive transformation of Nigerians in the 21<sup>st</sup> century. Knowledge is power and innovation is a key to success in this computer age. Any country that cannot measure up with the information and communication technology will be left to its perils. ICT has enormous potentials for developing countries and thereby fostering sustainable development (Mansell & When, 1998).

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