APPLICATION OF INFORMATION COMMUNICATION TECHNNOLOGY (ICT) IN TEACHING AND LEARNING

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ABSTRACT

Mere learning of ICT skills is not enough, but using ICT to improve the teaching and learning paradigm improves the concept and application of teaching and learning. ICTs are making dynamic changes in the society. They are influencing every aspect of human life. Application of ICT tools in teaching and learning process has changed the total scenario of teaching and learning process. Teaching and learning process s of this is not now limited within the classrooms boundaries. ICTs are making major differences in the teaching approaches and ways students are learning. This article discusses the meaning and definition of ICT, various components of ICT for teaching and learning, ICT in education. This article focuses mainly on ICT in teaching/learning process.

INTRODUCTION

The acronym “ICTs” (Information and Communication Technologies) tagged in plural is a common core. It encompasses various technologies that are used for facilitating communication such as Cellular Phones, radio, video, television, computers, and satellite systems among others. Blurton (2019) opines that ICT is an accepted acronym of the word Information Communication Technology. It is a diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information.

The integration of computers and communications offer unprecedented opportunities to the education systems with its capacity to integrate, enhance and interact with each other over a wide geographic distance in a meaningful way to achieve the learning objectives. The growth of these communication and computer systems, their ease of use, the power and diversity of information transfer allow teachers and students to have access to a world beyond the classroom. It has the potential to transform the nature and process of the teaching and learning environment and envision a new learning culture. Interactivity, flexibility and convenience have become the order of the day in the ICT supported environment. ICT opens up opportunities for learning because it enables learners to access, extend, transform and share ideas and information in multi-modal communication styles and format. It helps the learner to share learning resources and spaces, promote learner centered and collaborative learning principles and enhance critical thinking, creative thinking and problem-solving skills (Jeelani, 2011).

When teachers are digitally literate and trained to use ICT, these approaches can lead to higher order thinking skills, provide creative and individualized options for students to express their understandings, and leave students better prepared to deal with ongoing technological change in society and the workplace. ICT issues planners must consider include: considering the total cost-benefit equation,

supplying and maintaining the requisite infrastructure, and ensuring investments are matched with teacher support and other policies aimed at effective ICT use (Enyedy, 2014).

MEANING AND DEFINITION OF ICT

The abbreviation ICT stands for *Information and Communication Technology*. According to Ajayi (2008), ICT is defined as a diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information. Voogt and Pelgrum (2005); Watson (2006), explained ICT as being divided into two main approaches in education such as; ICT for education and ICT in education. ICT for education implies the development of information and communication technology for learning and teaching purpose while ICT in education involves the adoption of general components of information and communication technology in practical use in teaching and learning processes

CHARACTERISTICS OF INFORMATION TECHNOLOGY

Information Technology has the following characteristics:

a. Acquisition, Storage, manipulation, management, transmission or reception of data or information.

b. Real time access to information.

c. Easy availability of updated data

d. Connecting Geographically dispersed regions

e. Wider range of communication media

INFORMATION AND COMMUNICATION TECHNOLOGY IN EDUCATION

Globalization and technological changes have created a new global economy powered by technology, fuelled by information and driven by knowledge. The

emergence of this new global economy has serious implications for the nature and purpose of educational institutions.

As the access to information continues to grow rapidly, schools cannot be contented with the limited knowledge to be transmitted in a fixed period of time. They have to become compatible to the ever-expanding knowledge and also be equipped with the technology to deal with this knowledge.

Information and Communication Technology (ICT) in Teaching and Learning Process In recent times, life has become easier, due to the invention of ICT. In the last few decades, there have been a tremendous growth in the use of ICT in all fields such as education(distant learning via electronic networks, open learning through students controlled learning pathways, the process of changing teaching and learning styles by using a narrow range of Information Technology based), facilities; industries, businesses, societies, lives of people. Currently, the educational institutions all over the world are integrating ICT with the teaching and learning process in order to provide knowledge and skills to the learners to meet the challenges of educational environment. According to (Adu and Olatundun, 2013), "It is only through the integration of ICT in education that one can teach students to be participants in the growth process in this era of rapid change". Watson (2006), describes ICT as having revolutionized the way people work today and are now transforming educational systems.

These concepts and application of ICT in learning and teaching demand a new learning environment to effectively harness the power of ICT to improve learning. ICT has the potential to transform the nature of education like where, when, how and the way learning takes place. It will facilitate the emergence of responsible knowledgeable society emphasizing life long learning with meaningful and enjoyable teaching and learning experiences; the move from reproductive model of teaching and learning to an independent, autonomous learning model that promotes initiatives, creativity and critical thinking with

independent research. Learners are expected to collect, select, analyze, organize, extend, transform and present knowledge using ICT in authentic and active learning paradigm. Teachers are expected to create a new flexible and open learning environment with interactive, experimental and multimedia based delivery system. ICT helps teachers and learners to communicate and collaborate without boundaries, make learners autonomous and allow teachers to bring the whole world into classroom activities, especially the concept of on-line programmes. It is ultimately important to understand the roles of ICT in promoting educational changes. A basic principle is that the use of ICT changes the distribution and ownership of information resources in the space of teaching and learning and thus changes the relationship among educational participants. While designing any innovative teaching and learning environment using ICT, the teacher should always keep the learning at the center of all activities, pedagogy should be at the heart; and integration of pedagogy-technology should be the central focus.

COMPONENTS OF ICT FOR TEACHING AND LEARNING

a) Video conferencing: It is a two way communication system. It is also called teleconferencing, it's the use of television video and sound technology (webcam)between people in different locations. It can be used to give and receive lectures irrespective of the location of teachers or learners.

b) World Wide Web: The World Wide Web, known as www, w3 or simply the web, is one of the several internet resources developed to help, publish, organize and provide access to information on the Internet.

c) Web 2.0: The term was coined by Tim O‟ Reilly at the O‟ Reilly Media. Web2.0 describes World Wide Web sites that use technology beyond the static pages of earlier web sites. Although web2.0 suggest new version of www, it does not refer to update to any technical specification, but rather to cumulative changes in the way web pages are designed and used. It allows

users to interact, collaborate and chat with each other both synchronously and asynchronously. Social Media, Blogs, Wikis, Video sharing are all based on Web2.0 Technology. With web2.0 tools, users can communicate around the world at a nominal cost. It allows population to correspond and spread ideas with each other rather than receiving the information from a single source.

d) Blog and Wikis: Blogs and wikis are fundamentally web2.0 and their global proliferation have enormous implication for libraries and also in teaching and learning process. Blogs may indeed be a greater milestone in the history of publishing than web pages. They enable the rapid production and consumption of web based publications. Blogs contains posts some time similar to journal entries, from a person or a group. The post are dated and listed in reverse chronological order. People can comment on posts as well as provide links to related sites, photos and blogs. Wiki is an online collaborative writing tool. According to Richardson (2006) a wiki is a collaborative web space where anyone can add content and anyone can edit content. That has already been published Wikis are designed to help groups collaborate, share and build online content and are especially useful for learners who are separated by time and place.

e) Social Media: Social media are perhaps the most promising and embracing technology. They enable messaging, blogging streaming media and tagging .Some most commonly used social media are MySpace. Facebook, Delicious, Frappr and Flickr networks that have enjoyed massive popularity in web 2.0. It is based on web2.0 technology. MySpace and Face book enable users to communicate with each other, Del.icio.us enables users to share web resources and Flickr enables the sharing of pictures. Frappr is a bit of a blended network, using maps, chat rooms and pictures to connect individual.

CHALLENGES OF USING ICT IN TEACHING AND LEARNING

Integrating ICT into teaching and learning is a complex process and one that may encounter a number of difficulties. These difficulties are known as "challenges" (Schoepp, 2005). The following are some of the key challenges that have been identified in the literature regarding teachers' use of ICT tools in classroom.

i) Limited accessibility and network connection

Several research studies indicate that lack of access to resources, including home access, is another complex challenge that prevent teachers from integrating new technologies into education. The inaccessibility of ICT resources is not always merely due to the non-availability of the hardware and software or other ICT materials within the school. It may be the result of one of a number of factors such as poor resource organization, poor quality hardware, inappropriate software, or lack of personal access for teachers (Becta, 2014).

ii). Limited technical support

Without both good technical support in the classroom and whole-school resources, teachers cannot be expected to overcome the obstacles preventing them from using ICT (Lewis, 2013). Pelgrum (2011) found that in the view of primary and secondary teachers, one of the top barriers to ICT use in education was lack of technical assistance.

iii) Lack of effective training

The challenge most frequently referred to in the literature is lack of effective training. Beggs (2020), found that one of the top three barriers to teachers' use of ICT in teaching was the lack of training.

iv) Limited time

Becta's study (2014) found that the problem of lack of time exists for teachers in many aspects of their work as it affects their ability to complete tasks, with some of the participant teachers specifically stating which aspects of ICT require more

time. These include the time needed to locate Internet advice, prepare lessons, explore and practise using the technology, deal with technical problems, and receive adequate training.

v) Lack of teachers' competency

Another challenge directly related to teacher confidence is teachers' competence in integrating ICT into pedagogical practice (Becta, 2014). Many teachers lacked the knowledge and skills to use computers and were un enthusiastic about the changes and integration of supplementary learning associated with bringing computers into their teaching practices.

ADVANTAGES OF ICT IN TEACHING AND LEARNING

E-learning or Online Learning: The presence of ICT in education allows for new ways of learning for students and teachers.

ICT brings inclusion: Students with special needs are no longer at a disadvantage as they have access to essential material and special ICT tools can be used by students to make use of ICT for their own educational needs.

ICT promotes higher-order thinking skills: One of the key skills for the 21st century which includes evaluating, planning, monitoring, and reflecting to name a few.

ICT enhances subject learning: It is well known these days that the use of ICT in education adds a lot of value to key learning areas like literacy and numeracy.

ICT use develops ICT literacy and ICT Capability: Both are 21st-century skills that are best developed whilst ICT remains transparent in the background of subject learning.

ICT use encourages collaboration: ICT naturally brings children together where they can talk and discuss what they are doing for their work and this in turn, opens up avenues for communication thus leading to language development.

ICT use motivates learning: Society's demands for new technology has not left out children and their needs. Children are fascinated with technology and it encourages and motivates them to learn in the classroom.

ICT in education improves engagement and knowledge retention: When ICT is integrated into lessons, students become more engaged in their work. This is

because technology provides different opportunities to make it more fun and enjoyable in terms of teaching the same things in different ways

DISADVANTAGES OF ICT IN TEACHING AND LEARNING

ICT use allows for effective Differentiation Instruction with technology

Disadvantages of ICT in Teaching and Learning

Technology use in the classroom can be a distraction

Technology can detract students from social interactions

Technology can foster cheating

Not all students have equal access

CONCLUSION

The integration of ICT into the very idea of teaching and learning has placed pedagogy over technology. Our concern here was not just to master ICT skills, but rather using ICT to improve teaching and learning. The major emphasis of ICT infusion in pedagogy is such that it tends to improve learning, motivate and engage learners, promote collaboration, foster enquiry and exploration, and create a new learner centered learning culture.

RECOMMENDATIONS

Since ICT provides greater opportunity for both teachers and students to adjust learning and teaching to individual needs, therefore, it is necessary to enhance the integration of ICT concept and application in School education.

The effective use of ICTs in teaching learning process also depends on teacher's ICT competency and skill. Therefore, it is recommended that teachers (lecturers) be trained on how to use ICT in teaching process.

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