



### Use of ICT in Teaching and Learning: A disruptive Innovation for Library and Information Science Students in Nigerian Universities (A Literature Review)

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#### Abstract

*The paper discussed use of ICTs in teaching and learning: a disruptive innovation for library and information science students in Nigerian universities. The paper identified various ICTs used in teaching and learning, motivating factors for the use of ICTs in librarianship, the impact of use of ICTs in learning, challenges that undermined ICTs use in teaching and learning. The aim of the paper was to determine whether the use of ICTs in learning environment is an innovation or a disruptive initiative. From the literature reviewed, the use of ICTs in teaching and learning has problems and prospects on the education scale. The paper made cogent recommendations as the way forward and concluded that ICTs use in education enterprise be relative.*

**Keywords:** *ICTs, Teaching, Learning, Library, Information Science, Universities, and Nigeria.*

#### 1.1 Introduction

ICT, an acronym for information and communication Technology is the slogan of the 21<sup>st</sup> century. Amazingly, information and communication technology has changed human society into what is commonly called information society. As rightly observed by Alagu and Thanuskodi, (2018) ICT has been integrated into every work of life and it plays a pivotal role for knowledge acquisition and dissemination for onward advancement of education and the society at large. Information and communication technology has a number of components such as CD-ROM, Cable Television, Cellular Phones, computer system, opaque projectors, filmstrip projectors, cassette recorders etc. when two or more of these components are put together on a working platform manipulated by telecommunication is referred to information

and communication technologies. It is in this regard that Ekwelem, (2019) rightly described ICTs as the technologies that allow human society to manipulate them to create, collect, process, store, and disseminate information and data for different purposes.

In education sector, prior to the emergence of information technologies, teaching, learning and research in Nigeria were conventional or traditional that is, an interactive between the teacher and the learners, the main source for information available then was the “library” with its associated problems (lack of professional staff, lack of current materials, staff care free attitude, theft and mutilation of the available resources among others). This process of providing and acquiring knowledge was restrictive by content and geographical barriers. However, with the emergence of the

technologies, most challenges of teaching and learning are gradually easing out for a technological teaching and learning processes, especially, for schools, teachers and learners who have taken advantage of the emerging technologies.

## 2.1 Review of Related Literature

In a study conducted by Adetimirin, (2012) on ICT literacy among undergraduates in Nigerian Universities, revealed that undergraduates in most of the state universities were found to have poor ICT literacy skills. Three major factors were identified such as irregular power supply, inadequate ICT and limited duration of the use of ICT. The author further recommended that all universities should introduce courses on ICT competency to students especially for first year students and encourage lecturers to use ICT for teaching and learning.

Further, Agim, Iroeze, Osuji, and Obasi-Haco (2018) conducted a study on level of availability and utilization of information and communication technology facilities by students: A case study of Federal Polytechnic Nekede, Owerri Imo State Nigeria and made similar recommendations. Kwaku, Paul and Nana (2019) information and communication technology: Assess and use by Teachers of Community Health Nurses Training School in Adansi Fomena and recommended for provision of computer laboratories and staffing the laboratories with technology assistants in supporting ICT usage by teachers, teachers should be retrained on different type of ICT that can be used in teaching since most teachers have no competence in handling database application. The narrative is indifferent with students of library and information science in Nigerian universities.

Conceptually, library and information science students are undergraduates admitted into Nigerian universities specifically library science departments or units as the case may

be to study librarianship for duration of four or three years as applicable. The aim of library science education according to Ochogwu as maintained by the National University Commission (2007) is to develop attitudes and habits that make the learners skillful in the arts of selection, acquisition, organization, storage and dissemination of information held by various libraries in Nigeria. Apart from that, the students are taught the principles of management of information resources in different formats in information centers. Library science students are also educated to have a clear understanding of the information needs of the people in Nigerian society with the view to provide the necessary and relevant systems and structures to meet such needs.

In the light of the foregoing, one is not certain if the seventeen (17) Sustainable Development Goals set by the United Nations can be achieved through teaching, learning, research and innovation in Nigeria. For instance Okiy (2011) earlier lamented that universities in Nigeria are far too-ill-equipped to train and develop graduates suitable for the 21<sup>st</sup> Century. Analysis of the situation point to the extreme level of infrastructural as well as pedagogical deficiency in Nigerian Universities. This is as a result of underfunding of universities as such ICTs use or adoption for teaching and learning in universities without minting words have limited chance.

This paper however believes that for Nigeria and Nigerians to achieve the 4<sup>th</sup> Sustainable Development Goal by 2030, Nigerian education system would have to fully utilize available opportunities arising from the use of emerging technologies in the information age (i.e.) the acceptance and use of ICTs must be given the due attention it desires.

## 2.2 ICT Use in Teaching and Learning

ICT use in teaching and learning from empirical literature has significantly

influenced teaching and learning. Interestingly, availability of ICTs in schools or organizations does not imply that the staff or students in such entities will use the ICT tools optimally. Bandaryk cited in Adetimirin, (2012) reported that the adoption of any learning tool in higher education is dependent on awareness of users, the willingness to make use of such tools and the capacity to utilize the ICTs effectively is core. Other scholars such as Saleem, Tabusum and Batcha, (2013) have different views for the use of ICTs in education notably, Internalized and externalized factors. Internalized inhibitors such as 'users lack of skills, awareness and paucity of time are common among non-users of ICTs in teaching and learning across the globe while empirical literature has it that lack of funds, power supply, servers or network connection are external factors that limit, use of ICTs in Teaching and learning.

In response to global policy changes in the use of ICTs in teaching, learning, research and innovation, the Nigerian government, through the National Universities Commission (NUC) instituted a legal framework for all Universities in Nigeria to adopt ICTs related activities in all programmes/courses in order to make desirable ICT competencies reflect on future university graduates in the world of work. The evolution of use of ICTs in teaching and learning is to an extent sustained in educating Nigerian (library and information science students are not an exception).

### **2.3 Types of ICTs used in Teaching and Learning**

The use of information and communication technologies in teaching in this context means the adoption of general components of information and communication technologies in teaching and learning process (Ottong, 2014). Such components include: computers, television,

fax machines, video, audio recorders, cassette disc players, satellite, internet, DVDS, Video tapes, General System of Mobile Communication (GSM) and microchips. The application of these components is found to be very effective in teaching students of distance learning, teleconferencing, virtual libraries, and the internet. ICTs are popular technological tools used by people in many fields all over the world; teachers, or educators in Nigeria use them to transform the educational system (Osuchukwu, Obuezie & Ogwuche, 2017).

The benefits of ICTs according to Femi, (2011) are obvious, they have their downsides too, and present challenges to users. In this instance, 'teachers' who are immigrants in the new technological world. They are immigrants for the fact that they are from different subject background, they have learnt and have acquired the skills and terminologies of their field but now have to learn information and communication technology Jargons and communicate or disseminate such information to students who are on the other side of the technologies.

In the past, conventional teaching process revolved around the teacher's lesson plan followed by instructions to achieve a desired learning outcome and an interactive with the learners to determine if the content is captured and knowledge gained. This process was cumbersome, time-wasting, without any chance for flexibility. But with the emergence of the ICTs, and their adaptation in education, teachers have a gamut of opportunities for self-development and quality service delivery to the learners, the teachers in the new information age have access to intercontinental information, and can prepare impeccable lectures based on global perspectives in their field.

Teachers use ICTs to deliver lessons in institutions of higher learning in Nigeria for instance, open and distance learning education. This not only changed the way

teachers teach but as well the manner students learn. Loxley cited in Kwaku, Paul and Nana, (2019) have maintained that ICTs use in education have the capacity and have changed the negative perception of teachers and more importantly, have built up competence level of teachers in using ICTs. Earlier result of a study conducted by European school net and university of Liege, in Heines, (2016) indicates that teacher's confidence, competence and opinion about ICTs used for teaching and learning affect the frequency of students use of ICTs for learning.

The use of ICTs in teaching library and information science students according to Ioryem, Sambe and Agyo, (2017) promotes collaborative teaching, including role playing, group problem solving activities and articulated projects. The implication of the adoption of ICTs in library education in Nigeria according to the authors is that education generally is characterized by paucity of resources over the years. Therefore, library educators will gain knowledge and have access to resources when they use ICTs in teaching. Moreover, the programme is designed to use ICT tools to facilitate teaching and the learning process. This could also enable teachers share resources they do not have as well as redesign course content.

#### **2.4 Impact of Use of ICTs in Learning**

Information and communication technologies have unprecedented impact on learners in particular, library and information science students in Nigeria. ICTs used in teaching in the field of librarianship have influenced students learning scale to an appreciable level. Abdulrahman and Habila, (2017); Abubakar, Gupiyun and Banwar, (2017) and Agboola and Shaibu, (2019) have dwelt on impact of ICTs in learning environments and among learners and teachers which this paper lists as follows:

a. ICTs provide support performance based curricula.

- b. ICTs used in librarianship helps revitalize library science students.
- c. They help to improve quality of knowledge gained by providing curricular support in difficult subject areas.
- d. ICTs encourage and support library and information science students in their independent learning.
- e. One of the most vital contribution of ICTs in the field of librarianship is Easy Access to learning, with the help of ICTs students can browse through e-books and journals past questions etc. and can access resource persons and mentors over the globe.

ICTs used in education according to Adeosun, (2010) have been supportive in conventional classroom work, design and development of learning materials, further ICTs aids library science students gain access to virtual libraries and other electronic resources from other libraries or virtual space. So one can go on and on to highlight possibilities spaces that are created by information and communication technology tools in education and students in librarianship in particular.

#### **2.5 Factors motivating use of ICTs in Teaching and Learning**

As earlier mentioned, Teaching and Learning before the emergence of ICTs was time consuming and stressful on the part of the teacher and the learners which this paper regards as traditional teaching and learning approach. With the emergence of ICTs, efforts have been made by higher institutions of learning in Nigeria to adopt the technologies in teaching and learning. For example, it was uncommon to find teaching aids in lecture halls in most universities in Nigeria at the moment, a number of universities have ICTs installed in their classrooms which helps in learning as a result, teachers teach with ease and learners also learn better and faster

(Adetimirin in Otolu, Saibakumo and Urhibo, 2018). ICTs are good means of communicating with students. Further, Bappah, (2010) have reported that teachers proved a higher level of competency in using word processing application, teaching courses, preparing teaching materials and delivering lesson notes efficiently.

The use of ICTs in teaching and learning according to Daramola, (2016) provides students- library and information science students inclusive, lecturers and researchers in Nigeria the opportunity to close the knowledge gap between developed and developing countries and as well encourage use of e-resources.

Much earlier, Wombo and Abba, (2008) averred that the provision of ICTs in universities enhanced chances of granting academic status to programme by Nigeria Universities Commission (NUC). Roesnita and Zainab in Ottolo et al, (2018) affirmed the importance of e-resource – a component of ICT that most undergraduate use the services of e-books for writing assignment, term paper and other academic activities. This report is parallel with Adetimirin, (2011 and 2012) respectively.

Goodall and Pattern, (2011) provided an interesting revelation that students who use ICTs e-books, e-journals read more, are measured high in terms of borrowing books score better grades and have less academic stress and as well turnout to have high academic achievement in their work place.

In spite of the above, Vajargah, Jahan and Azadmansh, (2010) reported a number of reasons for the use of ICTs in higher education as: using digital libraries and internet-based information for enrichment of curriculum content, sharing and exchange learning experiences among lecturers using e-mail in teaching and learning activities and using supplementary software for effective teaching learning and feedback.

The use of ICTs in learning, the

internet in particular, is rewarding for example, learners can gain unlimited access to current and relevant information and data irrespective of geographical location on the globe.

### **3.1 Challenges undermining ICTs Use in Teaching and Learning**

The adoption of ICTs in teaching learning and research in Nigerian institutions of higher learning is challenging and complex. For example many library educators teaching librarianship were not taught information and communication technology skills. With the implementation of ICTs in librarianship, library educator's roles have increased. This implies that the educators need a continuing education programme in order to update their knowledge and as well acquire ICTs skills to teach based on global practices. For instance the library teacher needs to learn ICTs (software and tools) to be in a position to teach the students. Haliso, (2011) explained that library educators need ICT skills to learn, use and teach students to perform functions such as cataloguing and classification, indexing, serials management among other library routines.

Another challenge undermining ICTs use in teaching and learning is that, majority of library educators have average knowledge of ICTs therefore, lack competence in handling ICTs effectively.

Another challenge that undermines the use of ICTs in teaching and learning in Nigeria is lack of financial resources. Funds are critical to the successful implementation of ICTs in universities. It is therefore uncertain to project the cost of acquiring software, hardware, databases, connectivity or configuration and maintenance of the system. As a result of the depressed economy most universities are un-able to acquire and maintain ICTs for the purpose of teaching and learning effectively. Agim, et al (2018) also contended that bandwidth is another

challenge impacting negatively on use of ICTs in teaching and learning in Nigeria. The authors described bandwidth according Wikipedia (2014) as a range of frequencies within a given band that is used in transmitting a signal. The authors further explained that the amount of bandwidth determines the strength, efficiency and speed of the university's internet activity. So, poor signal of bandwidth hinders network from working and this attacks both teachers and learners in the learning environment.

The use of ICTs in library and information science domain is challenging, as most library and information science departments have to redesign their curriculum to key into the information age. For instance, some core courses have to be re-titled and redesigned to capture ICT courses such as information intelligence, computer practical 1&2 information organization 1&2 etc. This exercise is painstaking and time consuming on the part of the lecturers or the department and by extension have negative implications on the learners.

Information and communication technologies varies and they keep coming in different formats, models and sizes. The propensity to master the structure and working of these emerging tools for teaching and learning purpose is quite challenging on the part of the learners and the teachers (Ashcroft, 2004). In spite of the benefits of using ICTs in teaching and learning, ICTs use is yet to impact or take its place of pride in teaching and learning enterprise on a general note in Nigeria.

#### **4.1 The Nexus: ICTs Disruptive or Innovation?**

According to Yeboah and Ewur, (2014) ICT tools like WhatsApp have become a necessary evil for students in tertiary institutions. This stems from the fact that, it enhances the performance of students if used positively. In that, it makes communication

easier and faster thereby enhanced flow of information and sharing of ideas among students. However, when ICT is used negatively it has adverse effect on the performance of students. Among the negative impacts identified by the authors include the following: it takes much of the student's study time, results in procrastination relate problems, destroys students grammar and spellings, leads to lack of concentration during lectures and difficulty in balancing online activities and academic preparation. Kuppuswamy and Shankar, (2010) explained that the social networks grabs the total attention and concentration of the students and diverts it towards non educational, unethical and inappropriate actions such as chatting, time killing by random searching and not studying.

The word "Online" is very popular because of how frequent it is been used in ICT environments. Students usually go online to do research, chat with family and friends or share ideas with their mates. There are millions of information in different forms online and some mostly distract students whenever they are looking for information for a research. For instance, a student might type "How important is ICT" into a search engine like Google and amongst the results, he/she may find something like "How ICT can help you make money as a student". He/she will forget what he typed for a second and try to follow the link and read about how to make money. The student is not only distracted but has also wasted time and it can happen to a teacher too. Class is sometimes distracted because a student may be playing video games or doing other stuff on his phone or table whilst teacher is teaching. With all these, it is clear that the field of education has been affected by ICTs, which have affected teaching, learning and research.

Based on these author's experiences on the use of ICTs in teaching and learning environment, the use of ICTs is

counterproductive on the side of the teacher in the sense that most lecturers in universities in Nigeria do not have teaching requirement as professional teachers to teach as it is practiced in developed societies. Efforts by Teachers Registration Council of Nigeria (TRCN) to address this situation have met stiff resistance. The basic characteristics of these teachers are lack of teacher's certificate, lack of teaching methodology or Pedagogical skills, care free attitude towards their jobs and hardly plan lesson notes for students just for the fact that the internet has a lot of materials. If such is the nature of the job then, every educated person can be a teacher. This is damaging of the education system and the library science in particular. This paper believes a productive teacher should read widely on topical issues and prepare notes for students alongside the internet resources. Unfortunately, most teachers prefer referring student's to the internet for information.

ICTs use in teaching and learning is more destructive and deadly than corona virus of Wuhan China. The internet to be specific the social media have done more harm to students learning abilities and other aspects of their lives. Take for instance the Nigerian music, one can hardly make sense of the so called talented artists. The music is cut and pest kind of music, no philosophy, the melody is poor and meaningless. It is master minded by computer technological devise. If appropriate initiatives are not taken to check this misnomer more damage is eminent in our musical world in Nigeria. In learning environment, the use of ICTs have created a huge problem for example learners hardly have time to read books to source information for high academic performance, plagiarism and piracy is highly encouraged- creativity is not valued and yearned for. This is evident in productivity output in work places and the nature of Nigerian local content. Adomi, (2015) earlier lamented that researchers are depending more on the internet search engines

instead of libraries and their resources to meet their research information needs. Adomi further reported that the library is no longer the first place to search for knowledge i.e. there is a shift from consuming information in hard copy to multimedia digital form. This implies that there is a shift in the center of information gravity from libraries to the internet so dramatically done in a short period (Smith, 2014). Reliance on internet for our co-operate existence seems rewarding. We also envisaged over dependence on technological innovation could be more dangerous for Nigerian education system with recourse to teaching and the learning process.

### 5.1 Recommendations

Arising from the discussion and considering the fact that teaching and learning is core in the knowledge acquisition process for national development, it may not be out of place to ensure that excesses of information and communication technologies in teaching and learning is amicably controlled before it gets worse. The following could be the way forward:

1. Student's access to some of the ICTs be controlled.
2. Students should be encouraged to be creative by reducing the use of ICTs and read more textual materials for their academic growth.
3. Teacher's over reliant on the internet for materials or information is quite dangerous and damaging of their job and the students. Teachers should have attitudinal change for scholarship.
4. Teachers and students should use ICTs available relatively and create room for critical thinking and decision making.
5. Universities management should provide orientation to students on the negative effect of use of ICTs on their studies. This will improve their academic performances.

6. All teachers or educators in disciplines or courses, or programmes in Nigerian Universities should have teaching certificate or be registered with Teachers Registration Council of Nigeria (TRCN).

### Conclusion

The development of any society is dependent on her system of education. Nigeria as a nation can only develop if she develop and sustains quality education. Therefore, disruptive innovations that could alter teaching and learning be controlled or resisted. The nexus is relative use of ICTs in teaching and learning.

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