Challenges of Information and Communication Technology in Teaching and Learning During Coronavirus Pandemic in Secondary Schools in Awka South Local Government Area of Anambra State.

Dr Juliana Nkechi Odoh

Abstract

This research was done on the challenges of using (ICT) information and communication technology in teaching and learning during coronavirus pandemic in secondary schools in awka south local government area of anambra state. The study adopted survey research design. The population of the study comprised of 495 teachers in the 19 public secondary schools in Awka South L.G.A. of Anambra State. Multi-stage sampling technique was used to select 10 public secondary schools, out of the 19 public secondary schools in Awka south, while 25 teachers were randomly selected from each of the 10 schools to give rise to the sample of 250 teachers. The researcher designed a questionnaire related to the subject matter. Data collected in the study were analyzed using mean; the raw scores were presented in tables showing relative frequencies of each item or group of items. Findings of the study are grouped into, positive and negative aspect. On the positive aspect, students were able to learn online during the Coronavirus Lockdown, students were able to get ICT knowledge and skills in their various schools prior to the Coronavirus Pandemic Lockdown, students were able to carry out some research on their own concerning the non-familiar terms used by their teachers in the course of teaching, students were able to provide answers to the assignment given to them and explore more online. On the negative aspect, Inadequate ICT infrastructure including Computer hardware, software and bandwidth/access. lacks the necessary infrastructure facility to benefit from ICT which include Power holding, Internet access among others, Lack of qualified ICT personnel, to change from traditional pedagogical methods to more innovative, technology-based teaching and learning methods, by both students and academics.

Keywords: Challenge, Information, Communication, Technology, and Corona-virus

Introduction

Information and Communication Technology (ICT) integration in education generally means technology - based teaching and learning process that closely relates to the utilization of learning technologies in schools. Due to the fact that students are familiar with technology and they will learn better within technology-based environment, the issue of ICT integration in schools, specifically in the classroom is vital. This is because; the use of technology in education contributes a lot in the pedagogical aspects in which the application of ICT will lead to effective learning with the help and supports from ICT elements and components (Jamieson- Procter, 2013). It is right to say that almost all ranges of subjects' starts from mathematics, science, language, arts humanities and other major fields can be learned more effectively through technology-based tools and equipment. In addition, ICT provides the help and complementary

supports for both teachers where it involves effective learning with the help of the computers to serve the purpose of learning aids (Jorge et al, 2013).

E-Learning

Parks (2013) posits that the word "E" should refer to "everything", everyone, engaging and easy" in addition to electronics", E-Learning refers to the use of internet/ICTs i.e, information and communication Technology to enhance and support teaching and learning process (Obododike & Okekeokosisi, 2020). According to Eze, Chinedu-Eze and Bello (2018), e-learning is concerned with the holistic incorporation of modern telecommunication equipment and ICT resources into the education system. The term e-learning connotes electronic method of learning which is associated with computerized learning in an interactive interface at the convenience of both the learners and lecturers. E-Learning also implies educationally technology (Obododike & Okekeosisi, 2020), e-learning is seen as the only option to keep the educational system running in the event of the pandemic (Anaekwe & Anaekwe, 2020). This implies that utilization of e-learning in Nigeria for instructional delivery encountered various problems.E-Learning according to Organization in Economic Corporation and Development (OECD) (2015) is defined as the use of information and communication technologies in diverse processes of education to support and enhance learning in institutions of higher education, and includes the usage of information and communication technology as a complement to traditional classrooms, online learning or mixing the two modes. Wentling (2017) states that the term e-learning refers to the attainment and use of knowledge that are predominantly facilitated and distributed by electronic means. To them, the e-learning depends on computers and networks, but it is likely to progress into systems comprising of a variety of channels such as wireless and satellite and technologies such as cellular phones (Wentling, 2017). Gotschall (2015), argues that the concept of e-learning is proposed based on distance learning, thus a transmission of lectures to distant locations by way of video presentation. Liu and Wang (2009) cited in (Wentling, 2017), however claims that the progression of communication technologies, particularly the internet, did transform distance learning into e-learning.

Diffusion of innovation (DOI) theory by Everett Rogers

Diffusion of Innovation (DOI) is a theory popularized by an American communication theorist and sociologist, Everett Rogers, in 1962 that aims to explain how, why, and the rate at which a product, service, or process spreads through a population or social system. In other words, the diffusion of innovation explains the root at which new ideas and technology spread. The diffusion of innovation theory is used extensively by marketers to understand the rate at which consumers are likely to adopt a new product or services. The study anchored on early adopter**s** model of innovation by Rogers (2003), the distribution of adopters of an innovation can be approximated by a normal distribution of the time of adoption. Using the mean and standard deviation of this distribution as a period of segmentation results in adopter's categories: innovators, early adapters, early majority, late majority, laggards. Rogers characterizes

innovators as venturesome, early adapters as opinion leaders who are widely respected in their social circle, early majority members as "deliberate", the late majority as "skeptical" about the value of innovation, and laggards as "traditional". Phrase "early adapters" was categorized by Rogers innovators and early adapters, and the phrase "later adapters" to connote individuals belonging to any of the three remaining categories. In general, early adapters use innovations even when the uncertainty surrounding potential uses is high, and the benefit of the innovation have not become widely visible and accepted. Rogers uses innovativeness, operationalized as time of adoption, to derive adapter's categories. Rogers (2003) claims that innovation is diffused through a population in a social system based on key attributes such as compatibility by early adapters. He focused on the social system from a micro level, that is, the organization, as well as the individual adapters-the micro level. Rogers view based on this three concept resonate with the researchers of instructional technology models, which were developed through his (1962, 1995, 2003) diffusion of innovation (DOI) theory.

The instructional technology models with micro and macro theories, therefore, are briefly discussed below, synthesizing their particular concept of Rogers's three conceptual frameworks. Rogers three key components of the theory includes the concepts of social system, the ideal of compatibility of technology, and the categorization of early adapters. For the theory, the social system is a system within which organizations and early adapters adopt, diffuse, and use the technology while compatibility of technology refers to the technology that is relevant to the context (system), needs, believes, values and experiences of individual adapters (Rogers, 2003). As noted in the previous section, early adapters tend to adopt technology earlier than others in the system. Thus, identifying early adapters and targeting them is an effective approach to innovation diffusion.

Challenges in using ICT towards Student teaching and learning

ICT has a key role to play in enabling the education industry to manage complex information flows and to integrate them towards effective educational planning and development (Adeyemi & Esere, 2013). Although ICT holds great potential in supporting and augmenting existing educational system as well as national development efforts in Nigeria, several challenges remain. According to Adeyemi and Esere (2013), these challenges include:

1. Inadequate ICT infrastructure including Computer hardware, software and bandwidth/access.
2. Lack of qualified ICT personnel. Most institutions lack computer literate teachers and ICT experts that would support and manage the internet connectivity and/or application of computing in the teaching-learning process (Adeyemi&Esere, 2013). The cost of equipment in a country like Nigeria with a battered economy and seriously devalued currency is enormous. However, it should be noted that the problem might not be the funds nor the technology but rather the will on the part of government and/or the governors of education (Itegboje & Okubote, 2012).

3. Nigeria lacks the necessary infrastructure facility to benefit from ICT, again, most of the ICT infrastructures such as internet, telefax, e-mail are dependent on NITEL (Nigeria Telecommunication Limited) NIPOST (Nigeria Postal Agency) and PHCN (Power Holding Resistance Corporation of Nigeria) services (Adeyemi & Esere, 2013)
4. to change from traditional pedagogical methods to more innovative, technology-based teaching and learning methods, by both students and academics. The attitudes of various management in and outside institutions towards the development of ICT related facilities such as the internet and procurement of computers is rather slow in some instances, and in others there are no aids or support by the government at all (Albirini, 2016).

Obododike & Okekeosisi (2020) investigated the challenges of implementing E-Learning in Nigeria Educational System in the COVID-19 pandemic Era. The study Reviewed works on Educational sector globally which, it observed that the educational sector is shifting towards e-learning in order to cushion the effect of this pandemic. However, developing countries evidence from the Nigeria experience is posed with the challenge of shifting from the traditional teaching method to the e-learning during the pandemic. The findings of the study revealed that challenges arise because of the varying degree of preparedness of the institutions, lack of infrastructures, paucity of funds and policies issues in the Nigeria sector. The study concluded that the present world pandemic is making the educational sector to look inward. The study recommended among others; that government should be proactive in ameliorating the challenges identified in this study and build on the opportunities e-learning offers educational institutions even post COVID-19. The study also recommended that for e-learning to be effective, appropriate measure should be given to maintenance, provision of stable internet provider to support easy and fast teaching and learning.

Objectives of the study

1. The main objective of the study is to determine the challenges in using information communication technology in teaching and learning during coronavirus pandemic in secondary schools in Awka South Local Government Area of Anambra State.

2. Determine the effects of information and communication technology during coronavirus pandemic in secondary school in Awka South Local Government Area of Anambra State.

Research Question

1. What are the challenges of using (ICT) information and communication technology towards student teaching and learning during coronavirus pandemic in secondary schools in Awka South Local Government Area of Anambra State?

2. What are the effects of information and communication technology on students learning during coronavirus pandemic in secondary schools in Awka South Local Government Area of Anambra State?

Methodology

Research Design

The design of the study was descriptive survey design, according to Nwaorgu (2015), descriptive survey design is employed in a study to collect data based on the opinions of the representative sample of the population or sometimes from the entire population. Therefore, descriptive survey design is appropriate for this study; The study was carried out in Awka South Local Government of Anambra State. Awka is the capital of Anambra State. It has 9 villages that made up the Awka South local Government, Area which includes; Awka, Amawbia, Nibo, Okpuno, Nise, Ezinato, Isiagu, Mbaukwu, Umuawulu. The population of the study comprised all 495 teachers in the 19 public secondary schools in Awka South L.G.A. of Anambra State (Source: PCR Department in PPSSC headquarters Anambra State) as of 18th of November, 2022. The sample for the study comprises 250 teachers in Awka south local government area. The sampling technique employed was multi-stage sampling. Out of the 19 public secondary schools in Awka south, 10 schools were randomly sampled, while 25 teachers were randomly selected from each of the 10 schools to give rise to the sample of 250 teachers. The instrument used for data collection is a well-structured questionnaire of 4 points scale questionnaire designed by the researcher. The questionnaire was used to collect data from respondents in relation to the objectives of this study. The questionnaire was divided into two sections namely; A and B, while A comprises of personal details of the respondents such as age, gender and level of Academics, section B comprises questions relating to the questionnaire. The instrument was trial-tested using the response of the 15teachers of Secondary Schools in Awka North Local Government Area. The Cronbach alpha statistics was used to ascertain the internal consistency of the developed Instrument Reliability co-efficient values of 0.86 and 0.74 were obtained. A and B respectively while grand reliability index coefficient was 0.82 was obtained. These results indicated that the instrument was quite reliable. The researcher employed direct delivery and retrieval method in the administration of the instrument to the respondents. A total of 250 copies of the questionnaire were distributed to the respondents by hand with the help of two research trained assistants. The researcher employed the services of the research assistant to collect the completed questionnaire from the respondents on the spot to ensure a high return rate. Data collected in the study were analyzed using mean; the raw scores were presented in tables showing relative frequencies of each item or group of items. Four –point scaling of strongly Agree (SA)4, Agree(A) 3 and Disagree(D) 2, strongly Disagree (SD) 1, were used for the study. A cut –off mark of 2.50 which is the mean of the weights given to the response options will be used for determining the extent of agreement to each item.

The decision role was that any item with mean score of 2.50 and above would be taken as having attracted positive response, while any item with mean score below 2.50 would be taken to have attracted negative response.

Results

What are the challenges of using Information and Communication Technology towards students teaching and learning during Coronavirus Pandemic in secondary schools in Awka South Local Government Area of Anambra State.

Table 1: Response on the challenges in using Information and Communication Technology towards students teaching and learning during Coronavirus Pandemic.

	Items	**SA**	**A**	**D**	**SD**	**Score**	**Mean**	**Remark**
	The challenges encountered by adopting Information and Communication Technology towards students learning during Coronavirus pandemic in secondary schools in Awka South Local Government, Area of Anambra State					**Total 250**	**x**	
1.	They usually missed online classes since data is expensive	185	65	0	0	935	3.7	Agree
2.	They encountered issues of poor power supply while learning online	174	86	0	0	954	3.8	Agree
3.	Network often affected classes in session	145	95	0	10	875	3.5	Agree
4	Learning with the school computer facilities have not been easy since they did not have enough facilities	125	110	15	0	860	3.4	Agree
5.	Some teachers did not know how to teach via online	155	90	5	0	900	3.6	Agree
6.	Some teachers preferred classroom teaching to online teaching.	165	85	0	0	915	3.7	Agree

Research Question 2: What are the effects of adopting Information and Communication Technology on students teaching and learning during Coronavirus Pandemic in secondary schools in Awka south Local Government Area of Anambra State?

Table 2. Response on the effects of adopting Information and Communication Technology on students teaching and learning during Coronavirus Pandemic in secondary schools in Awka South Local Government Area of Anabra State.

	Items	**SA**	**A**	**D**	**SD**	**Score**	**Mean**	**Remark**
	The effects of adopting Information and Communication Technology on students teaching learning during Coronavirus pandemic in secondary schools					**Total 250**	**x**	
7.	Most times they failed to do the task assigned to them	133	100	20	7	879	3.5	Agree
8.	They mistook lecturers for fun	123	107	15	5	848	3.4	Agree
9.	Most times they divert from the task given to them to charting with their friends online	300	120	0	15	975	3.9	Agree
10.	They became lazy to school activities	123	100	27	0	846	3.4	Agree
11.	Most times some don't have access to the internet at homes	127	78	40	5	827	3.3	Agree
12.	They are clumsy in class activities	155	58	30	17	871	3.5	Agree

From table 1, on the challenges of using Information and Communication Technology towards student teaching and learning during Coronavirus Pandemic in secondary schools in Awka South Local Government Area of Anambra State indicated that respondents on items 1,2,3,4,5, and 6 with mean values of 3.7, 3.8, 3.5, 3.4, 3.6 and 3.7 were above 2.5 respectively which indicated agree.

From table 2, on the effect of adopting Information and Communication Technology towards students learning during Coronavirus Pandemic in secondary schools in Awka South Local Government Area of Anambra State reveals that respondents on items 7,8,9.10,11 and 12 with various mean values of 3.5, 3.4,3.8,3.4,3.3 and 3.5 were above 2.5 respectively which indicated agree.

Findings from table1, showed that they usually miss online classes since data was expensive, they encountered the issue of poor power supply while learning online, network always affect classes in session, because they do not have enough computer facilities learning wasn't that easy, some teachers do not know how to teach using online mechanism, some teachers preferred classroom teaching to online teaching in Awka South Local Government Area of Anambra State.

Findings from research question 2, implied that they were able to learn online during the Coronavirus Lockdown, they were able to get ICT knowledge and skills in their various schools prior to the Coronavirus Pandemic Lockdown, they were able to carry out some research on their own concerning the non-familiar terms used by their teachers in the course of teaching, they were able to provide answers to the assignment given to them and explore more online while recording of online classes for easy replay was a bit difficult for them to handle in Awka South Local Government Area of Anambra State.

Discussion of the finding

What are the challenges in using Information and Communication Technology on students teaching and learning during Coronavirus Pandemic in Secondary Schools in Awka South Local Government of Anambra State?

The result of the data analysis revealed that students miss classes because data was expensive, they encountered issue of poor power supply while learning online, network always affect classes in session, because they do not have enough computer facilities learning wasn't that easy, some teachers do not know how to teach using online mechanism, some teachers preferred classroom teaching to online teaching in Awka South Local Government Area of Anambra State. The result was supported by Ogbulem (2015), who opined that most teachers in senior secondary

schools are not computer literate thus, this affect the level of Information and Communication Technology in the school.

What are the effect of Information Communication Technology in enabling students teaching and learning during Coronavirus Pandemic in secondary schools in Awka South Local Government Area of Anambra State?

The Findings revealed that they were able to learn online during Coronavirus Lockdown, they were able to get ICT knowledge and skills in their various schools prior to the Coronavirus Pandemic Lockdown, they were able to carry out some research on their own concerning the non-familiar terms, used by their teachers in the course of teaching, they were able to provide answers to the assignment given to them and explore more online while recording of online classes for easy replay was a bit difficult for them to handle in Awka South Local Government Area of Anambra State. The finding is in line with Ogbonna (2011), who stated that Information and Communication Technology is an improved measure in the educational system.

Conclusion

The findings of this research indicated that Information and Communication Technology contributed positively towards students teaching and learning during Coronavirus Pandemic in secondary schools in Awka South Local Government Area of Anambra State. The study also showed that online classes are hindered by situations such as Inadequate ICT infrastructure including Computer hardware, software and bandwidth/access. lacks the necessary infrastructure facility to benefit from ICT which include Power holding, Internet access among others, Lack of qualified ICT personnel, to change from traditional pedagogical methods to more innovative, technology-based teaching and learning methods, by both students and academics.

Recommendations

Based on the findings of the study, it was recommended that:

1. The Federal Government of Nigeria has a major role to play in providing modern ICT equipment's in schools, Power Holing and internet access for easy teaching and learning process.
2. There should be adequate service training of teachers in secondary schools.
3. Parents should endeavor to get a computer system for their children to aid the learning process and to enable them get acquainted with the use of ICT.

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