ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 6| June 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

TEACHING AND LEARNING RESOURCES DURING THE COVID-19 PANDEMIC IN PUBLIC PRIMARY SCHOOLS IN ADAMAWA STATE, NIGERIA

Yusuf Bakari[1], Dr. Rubai O. Madela[2], Dr. Lucy Wandiri Mbirianjau[3]
[1]Doctoral Student, Department of Educational Foundations, Kenyatta University
[2]Senior Lecturer, Department of Educational Foundations,Kenyatta University
[3]Lecturer, Department of Educational Foundations,Kenyatta University

ABSTRACT

The main objective of the study on whose this paper based was to examine the availability, utilization and challenges of using ICT resources during the COVID-19 pandemic in public primary schools in Adamawa State, Nigeria. The research made use of survey research design. This study employed multistage sampling techniques which include stratified random sampling, simple random sampling, and also purposive sampling. The study used stratified random sampling, and purposive sampling method to select 16, 16 head teachers, one hundred and sixty (160) pupils, thirty-two (32) teachers. Questionnaire was used as an instrument for collecting quantitative data while qualitative data was collected using Focus Group Discussion. Data obtained from questionnaire was quantitatively analysed using mean score method of data analysis. The study which investigates the availability, utilization and challenges of using ICT resources during the COVID-19 Pandemic in primary schools in Adamawa State, Nigeria revealed that although ICT resources are not always available in Primary schools in Adamawa State, the few that are often available are not usually utilized. The study also confirmed that poor technical infrastructure, cost of ICT equipment, lack of computer literacy, inappropriate teacher training, cost of accessing the internet, irregular and frequent interrupted power supply, and difficulty in understanding the objectives of the online courses are the challenge posed by the e-learning in Nigerian education system. Based on the findings of this study, the following recommendations were made; E-learning should be given the utmost attention and properly implemented to help attain the growth we seek for in our education system during and after COVID-19 pandemic and Schools should be provided with necessary ICT facilities that encourage positive use of ICT.

KEYWORDS: ***Availability, Utilization Challenges ICT Resources, Covid-19 Pandemic and Public Primary Schools***

INTRODUCTION

One of the Millennium Development Goals (MDGs) for 2015 was to attain universal basic education. It was emphasized that developing countries, particularly those in Africa, have made significant headway in bridging the school enrolment gap with that of developed countries like Europe (Blomeke, 2017). Notably, through the Sustainable Development Goals, the focus has been shifted from attainment of not just school attendance but also excellent education. In the year 2020, Sub-Saharan Africa made the most gain in primary enrolment among emerging regions, increasing from 52 to 78 percent for 30 years. However, considerable gaps remain in the achievement of SDG 4, which seeks to offer high-quality, inclusive education to all children by 2030. Children from poor homes are more likely to drop out of school than their more affluent counterparts.

When the Covid-19 disease was reported in Wuhan China in 2019 and began spreading rapidly, across the globe, its negative impact on education was felt in numerous way. As of April 28th, 2020, Africa had recorded 33,389 incidents (UNESCO, 2020a) of Covid-19. In South Africa, within the same year, there were 4,793 infected cases, 90 fatalities, and 1,473 recoveries (Schröder et al, 2020). Officials from the African Union's Centre for Disease Control (CDC) described the corona virus outbreak as an existential threat to the continent. The situation in the education industry was never any better, with more than 1,268,164,088 pupils (72 percent) leaving their learning institutions in over 177 countries by April 2020 (Marivate & Combrink, 2020). These schools closures, along with hash tags like "lockdown," "social distancing," and "stay at home," necessitated new and creative ways of thinking like the utilization of Information and Communication Technology (ICT) in teaching and learning to reach students who had been lock up in their homes hence could not easily access learning institutions.

Of worth noting is that the extent to which ICT was available and utilized during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria had not been established. In attempt to fill the above gap a study was designed with one of its objectives seeking to examine the availability, utilization and challenges of using ICT resources during the COVID-19 pandemic in public primary schools in Adamawa State, Nigeria. This objective is the main focus of this paper, whose data has been obtained from a small part of a wider doctoral thesis on Covid-19 pandemic management protocols and classroom

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 6| June 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

teaching and learning in public primary schools in Adamawa State, Nigeria.

Teaching and learning has gone beyond the teacher standing in front of a group of pupils and disseminating information to them without the students' adequate participation (Ajadi, Salawu, & Adeoye, 2008). With the aid of ICT, teachers can take students beyond traditional limits, ensure their adequate participation in teaching and learning process and create vital environments to experiment and explore. This new development is a strong indication that the era of teachers without ICT skills are gone. Any classroom teachers with adequate and professional skills in ICT utilization will definitely have their students perform better in classroom learning.

Information and Communication Technologies refers to technology that provides access to information through telecommunications such as the internet and Wi-Fi connection, social media, cell phones, E-learning Software and CDs and DVDs, The various ICT facilities used in the teaching learning process in schools to include; radio, television, computers, overhead projectors, optical fibres, fax machines, CD-Rom, Internet, electronic notice board, slides, digital multimedia, video/VCD machine and so on (Babajide, & Bolaji, 2003 & Ofodu, 2007).

When students and teachers have the right technological gadgets that can be interconnected through means such as internet, learning is easily taken online without necessarily making use of the traditional physical classroom. For instance, a teacher can record a video of them discussing a certain topic and share it with students who may be expected to watch it at their convenience and respond to specific questions. The students will then share their responses with the teacher through online means (Mandela & Mwangi, 2023). Both synchronous and asynchronous tools of teaching and learning can be embedded in a common controlled online environment, known as a learning management system (LMS), accessible to both teachers and students participating in a common course. However, LMS although gaining popularity in higher education, is still rarely used in primary schools in Africa.

Numerous authors, publishers and well-wishers have been providing teaching and learning materials and resources that could be used to support learning for free in the online space. Accordingly, the use of ICT to promote online teaching and learning was found to be a good substitute to the physical classroom that could no longer be accessed at all levels of education during Covid-19 pandemic outbreak.

Various studies have shown the multifaceted problems militating against the effective use of ICT in the teaching learning process in schools even before the Covid-19 Pandemic outbreak. These include: irregular power supply (Yusuf, 2005; & Ofodu, 2007); inadequate computer literate teachers (Oyebanji, 2003 & Dabesaki, 2005) inadequate funds (Ofodu, 2007) and reluctance to change, among others. Gadzama (2019) did a study on the successful integration of ICT in teaching and learning among public secondary schools in Nigeria, which revealed that non availability of software and hardware infrastructure was a major factor challenging the utilization and integration of computer and ICT in the schools. It became necessary to establish how this challenge was being navigated given that the use of technology was almost inevitable in teaching and learning in the context of Covid-19 outbreak. Ndibalema (2014) further reported that many teachers in secondary schools do not have sufficient knowledge and skills on the use of ICT in teaching and learning. Therefore, this study sought to establish the availability of ICT facilities and their utilization in teaching and learning in primary schools in Adamawa State, Nigeria during the Covid-19 pandemic.

RESEARCH OBJECTIVES

One of the main objectives of this paper on which this study is based was to examine the availability, utilization and challenges of using ICT resources during the COVID-19 pandemic in public primary schools in Adamawa State, Nigeria. In line with this objectives, this paper is designed to address the following objectives:

i. Assess the availability of ICT resources in learning during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria.
ii. Examine the utilization of ICT resources during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria.
iii. Identify the challenges in the utilization of ICT resources during teaching and learning in the context of covid-19 Pandemic in public primary schools in Adamawa State, Nigeria.

RESEARCH QUESTIONS

In line with the objectives above, this paper seek to answer these questions:-

i. To what extent were ICT resources available for teaching and learning during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria?
ii. To what extent were ICT resources utilized for teaching and learning during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria?
iii. What were the challenges in the utilization of ICT resources during teaching and learning in the context of covid-19 Pandemic in public primary schools in Adamawa State, Nigeria?

METHODOLOGY

This research made use of survey research design to gain a greater understanding of the availability of ICT and its utilization in teaching and learning in primary schools in Adamawa State, Nigeria, in the context of the Covid-19 pandemic. Adamawa State was created out of Gongola State in 1991 with Yola as its capital. The state is located at 9.3265^0 N and 12.3984^0 E, has a land area of 36,917 km2, and borders Borno and Gombe States to the north and west, respectively. It is bordered by the national border with Cameroon (Tukur, 2015).

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 6| June 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

Adamawa State was chosen for this study because it was among the states that experienced high rates of COVID 19 pandemic with cases of 1,157 in 2021 when compared to other states like: Borno which recorded 81, Yobe 19, Taraba 25, Gombe 30 and Bauchi 70 cases of infections within the same year. Primary schools were chosen because of the vulnerability and high level of exposure of small children who attend such schools in the society. The primary schools are also more likely to lack resources and awareness towards adhering COVID-19 Pandemic prevention protocol as compared to secondary schools and institutions of higher learning (FMOE, 2020).

The target population for this study comprised of all the public primary school pupils (309,434), head teachers and teachers (37800) in Adamawa State, numbering 347, 234. The study used stratified random sampling to select four (4) schools from each of the five educational zones in Adamawa State, to form a total of 16 schools. To begin with, schools were grouped into three strata in each of the four zones that included mixed-sex schools, boys-only schools, and girls-only schools.

The study used stratified random sampling to select the four (4) schools from each of the five educational zones in Adamawa State, to form a total of 16 schools for the study. To begin with, schools were grouped into three strata in each of the four zones that included mixed-sex schools, boys-only schools, and girls-only schools. In each strata, the names of every single school was written on a piece of paper, folded and placed in a bowl. The bowl was shaken and a school randomly picked to be included in the sample.
The study also made use of a purposive sampling method to select head teachers, pupils and teachers. Purposive sampling was used in line with the research purpose of studying Covid-19 pandemic management protocol in the area of teaching and learning primary school. The researcher purposively selected 16 head teachers from the 1890 total population of head teachers in Adamawa State. The stratified sampling technique enabled the researcher to ensure that a group of the target population was fairly included in the sample of the study. Additionally, the method ensured that a more accurate sample was obtained from the target population. Two (2) teachers from each school were selected for interview thus making a total of (32) teachers in all.

Twenty-one (21) Local Education Authorities (LEAs) were grouped into educational zones. Each educational zone was regarded as a stratum, and all the schools were grouped into five (5) strata. In selecting the study sample, the researcher used the stratified random sampling method to select four (4) schools from each stratum, hence a total of sixteen (16) schools studied. The researcher used sixteen (16) schools for the study, (16) head teachers, one hundred and sixty (160) pupils, thirty-two (32) subject teachers.

Questionnaire was used as an instrument for collecting quantitative data. The researcher organized questionnaires into categories of 4 sections, whereby section A contained the general information about respondents, such as age, gender, teaching experience, and level of education. In sections B, C and D the researcher used 19 closed ended items to gather information on the availability, utilization and challenges of using ICT resources during the COVID-19 pandemic in public primary schools in Adamawa State, Nigeria.

For purposes of ascertaining the validity of the research tools used in the study, triangulation of research tools was applied. This means that more than one data collection method used through interviews, FGD, observation, while questions were checked for validity by experts in research.

The reliability of internal consistency of the instrument was determined using the test-re-test method of establishing reliability. According to Akuezuilo and Agu (2003), the test-re-test method shows that if the instrument was applied more than once on the same person or group of persons, the similarity of the results will indicate the reliability coefficient of such a test. The internal consistency was determined by using Cronbach's Alpha reliability Coefficient and a coefficient of 0.81 was gotten which shows that the instrument is reliable.

Data obtained from questionnaire was quantitatively analyzed using mean score method of data analysis. The responses from focus group discussions were qualitatively analyzed thematically; narrative and qualitative content analysis was done in line with the research objectives. Through this analysis, it was possible to outline and summarize the data.

RESULTS AND DISCUSSION

Research Question One: To what extent are ICT resources available for teaching and learning during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria?

Table 1: Availability of ICT resources for teaching and learning during the COVID-19 pandemic

S/N	Item	Mean	Decision
1	Availability of ICT facilities/ devices	2.31	Often available
2	Availability of ICT Centers	2.01	Often available
3	Availability of e-library	1.04	Not available
4	Strong internet access	1.03	Not available
5	Stable electricity supply	1.41	Often available
6	Funds for maintenance	1.34	Often available
	Average Mean	**1.52**	**Not available**

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 6| June 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

From the analysis in table one; it is clear that while ICT facilities/ devices and ICT Centers are often available, there was unavailability of e-library, strong internet access, and electricity supply and funds for maintenance for use in teaching and learning during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria.

Some responses from the Focus Group Discussion supported the above finding as illustrated by the sample voices below:

Our schools have ICT facilities and devices like computer systems and projectors (Samaila, Teacher Mixed Sex School, May, 2023).

Our schools have no strong internet and no stable electricity (Abdullahi, Teacher Mixed sex school, May, 2023).

The above assertion is supported with an average calculated mean score of 1.52. The finding agreed with the findings of Babajide and Bolaji, (2003), Bryers, (2006), Bandele, (2006) and Ofodu, (2007) who revealed that radio, television, computers, overhead projectors, optical fibres, fax machines, CD-Rom, Internet, electronic notice board, slides, digital multimedia, video/VCD machine are the facilities and devices for ICT in teaching and learning.

Research Question Two: To what extent are ICT resources utilized for online teaching and learning during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria?

Table 2: Utilization of ICT resources for teaching and learning during the COVID-19 pandemic

S/N	Item	Mean	Decision
1	Learning Management System	1.61	Not Utilized
2	Google classroom	1.54	Not Utilized
3	Internet and Wi-Fi connection,	1.57	Not Utilized
4	Social media platforms,	1.64	Not Utilized
5	E-learning Software	1.51	Not Utilized
6	Educational CDs and DVDs,	1.72	Not Utilized
	Average Mean	**1.60**	**Usually Utilized**

From the analysis in table two, it is clear that even though the ICT resources are not always available; the few that are often available are not utilized for online teaching and learning. This is supported with calculated mean score of 1.60.

Similarly, some responses from the interview and Focus Group Discussion supported the above finding as illustrated by the sample voices below:

Utilization of ICT resources is not utilize in teaching and learning during the COVID-19 pandemic (Zubaina, female teacher Mixed Sex School, May, 2023).

Our teachers do not teach us using zoom, online platform, Whats'App, face book during Covid-19 lockdown (Ali, teacher Mixed Sex School, May, 2023).

This finding agreed with the findings of Oluwafemi (2022) and Huber & Helm (2020) that that learning management system (LMS), internet and Wi-Fi connection, social media, cell phones, E-learning Software and CDs and DVDs, are ICT facilities that most countries used during COVID-19 Pandemic but these facilities were not utilized in primary schools in Adamawa State, Nigeria.

Research Question Three: What are the challenges in the utilization of ICT resources during teaching and learning in the context of covid-19 Pandemic in public primary schools in Adamawa State, Nigeria?

Table 3: the challenges in the utilization of ICT resources during teaching and learning in the context of covid-19 Pandemic

S/N	Item	Mean	Decision
1	Poor technical infrastructure	3.20	Agreed
2	Cost of ICT equipment	2.91	Agreed
3	Lack of computer literacy	2.89	Agreed
4	Inappropriate teacher training	3.06	Agreed
5	Cost of accessing the internet	2.92	Agreed
6	Irregular and frequent interrupted power supply	2.77	Agreed
7	Difficulty in understanding the objectives of the online courses	2.67	Agreed
	Mean Average	**2.92**	Agreed

From the analysis in table three above, it is clear that there were various challenges affecting the utilization of ICT resources during teaching and learning in the context of covid-19 Pandemic. Some of these challenges are: poor technical infrastructure cost of ICT equipment, lack of computer literacy, inappropriate teacher training, cost of accessing the internet, irregular and frequent interrupted power supply and difficulty in understanding the objectives of the online courses.

Responses from the Focus Group Discussion supported the above finding as illustrated by the sample voices below:

The major challenges affecting utilization of ICT resources in teaching and learning during the

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 6| June 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

COVID-19 pandemic are: Cost of ICT equipment, Irregular and frequent interrupted power supply and Cost of accessing the internet (Zubairu, male teacher mixed sex school, May, 2023).

Even though our school has ICT centre, most of the computers in the centre ant not functioning because of lack of maintenance (Mr. Johnson, Teacher Girls only school).

This assertion is supported with calculated means score of 2.92. The finding agreed with the findings of Ofodu (2007), Kwache (2007), Gadzama (2019) and Ndibalema (2014).

CONCLUSION AND RECOMMENDATIONS

The study which investigates the availability, utilization and challenges of using ICT resources during the COVID-19 Pandemic in primary schools in Adamawa State, Nigeria revealed that although ICT resources are not always available in Primary schools in Adamawa State, the few that are often available are usually not utilized. The study also confirmed that poor technical infrastructure, cost of ICT equipment, lack of computer literacy, inappropriate teacher training, cost of accessing the internet, irregular and frequent interrupted power supply, and difficulty in understanding the objectives of the online courses are the challenge posed by the e-learning in Nigerian education system.

Based on the findings of this study, the following recommendations were made;

1. E-learning should be given the utmost attention and properly implemented to help attain the growth we seek for in our education system during and after COVID-19 pandemic.
2. The government should ensure that schools are well equipped with ICT infrastructure that will not only enhance teaching and learning but also support learning when face to face classrooms becomes impossible to conduct as was witnessed during Covid-19 pandemic.
3. There is a need for stakeholders in education to frequently organize in service training for teachers on ICT so that they are ready to integrate it in teaching and learning in all seasons including during the outbreak of Covid-19

REFERENCES

1. *Ajadi, T. O. Salawu I. O. and Adeoye, F. A. (2008) "E-Learning and Distance Education in Nigeria," The Turkish Online Journal of Educational Technology, Vol. 7, No. 4, 2008.*
2. *Babajide VFT, Bolaji OA (2003). Perception of lecturers and service teachers towards the use of communication media in teaching pure and applied science related discipline. 44 th Annual STAN Conference proceedings pp. 33 – 36.*
3. *Bandele SO (2006). Development of modern ICT and internet system. In Agagu AA (ed). Information and communication technology and computer Applications. Abuja: Panof Press pp. 1 – 3.*
4. *Bryers AP (2004). Psychological evaluation by means of an on-line computer. Behaviour Research Method and Instruction 13: 585 – 587.*
5. *Dabesaki M (2005). e-Education in Nigeria: challenge and projects. Being a paper presented at the 8 th UNICT TASK force meeting Dubin Ireland.*
6. *Blomeke, S. (2017). Modelling teachers' professional competence as a multi-dimensional construct. In Pedagogical Knowledge and the Changing Nature of the Teaching Profession, edited by S. Guerriero, 119–135. Paris: OECD*
7. *Byun, S.&Slavin, R.E. (2020). Educational Responses to the COVID-19 Outbreak in South Korea. Best Evid. Chin. Edu, 5, 665–680.*
8. *Gadzama, A. W. (2019). Utilization of ICT and Technology Transfer: A Panacea to Nigeria's Economic Development. IJESC, 9 (9), 23687-23692. Retrieved from https://ijesc.org/*
9. *Goldschmidt, K. (2020). The COVID-19 Pandemic: Technology use to Support the Wellbeing of Children. J Pediatr Nurs,53, 88–90. pmid:32317129*
10. *Huber, S. G., & Helm, C. (2020). COVID-19 and Schooling: Evaluation, Assessment and Accountability in Times of Crises—reacting quickly to Explore Key Issues for Policy, Practice and Research with the School Barometer.Educational Assessment, Evaluation and Accountability, 1–34. Doi:10.1007/s11092-020-09322-y*
11. *Marivate, V. & Combrink, H.M. (2020). Use of Available Data to Inform the COVID-19 Outbreak in South Africa: A Case Study. Data Science Journal, 19(1), 19. DOI: **http://doi.org/10.5334/dsj-2020-019***
12. *Ndibalema, P. (2014). Teachers' altitude towards the use of information communication technology (ICT) as a pedagogy tool in secondary schools in Tanzania; the case of Kondoa district. International journal of education and research, 2(2), 115- 128.*
13. *Nikolopoulou, K., & Gialamas, V. (2015). Barriers to ICT use in High Schools: Greek Teachers' Perceptions. Journal of Computers in Education, 3 (1), 59-75. DOI: 10.1007/540692-015-0052-Z.*
14. *Ofodu GO (2007). Nigeria Literary educators and their technological needs in a digital age. Educ. Focus 1(1): 22 – 30.*
15. *Orodho, J.A. (2009). Element of education and social science research methods: Kenezja publishers, Maseno, Kenya.*
16. *Oyebanji PK (2003). Teacher training: Key to implementation of information and communication technology in science technology and mathematics teaching. In M. A. G. Akale (ed) Proceeding of the 44 th Annual Conference of Science Teachers' Association of Nigeria pp. 265-267*
17. *Schröder, M., Bossert, A., Kersting, M. et al. (2021). COVID-19 in South Africa: outbreak despite interventions. Sci Rep, 11, 49 – 56.. https://doi.org/10.1038/s41598-021-84487-0*
18. *Seels, B. B., & Richey, R. C. (1994). Instructional technology: The definition and domains of the field. Washington DC: Association for Educational Communications and Technology.*
19. *Yusuf, M. O. (2005). Information and communication technologies and education: Analyzing the Nigerian national policy for information technology. International Education Journal, 6(3), 316-321.in China. J. Adolesc. Health,67, 747–755.*