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Encouraging Teachers in the Use of ICT for Effective Teaching in Post Covid-19 Era at Basic Education Level in Mubi Education Zone, Adamawa State, Nigeria

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Abstract

The study adopted descriptive survey research design on "Encouraging Teachers in the use of ICT for Effective Teaching in Post Covid-19 Era at Basic Education level in Mubi Education Zone, Adamawa State". The study covered Mubi Education Zone which comprises of five Local Government Areas. Random sampling technique was used in the selection of four schools at Basic Education level in Mubi Education Zone. The sample size was 30 randomly selected teachers from the four sampled schools which gave a total sample of 120 teachers. Three research questions were raised and two hypotheses. The instrument used was called "The use of ICT for Effective Teaching in Post Covid-19 Era Questionnaire" with a four point scale. Three experts validated the instrument, a field trial of test retest was done on ADSU Demonstration Secondary School and a reliability coefficient of 0.84 was obtained. The data collected were analyzed using mean rating and standard deviations. Findings revealed that there is challenge in integrating ICT facilities for Effective teaching due to high cost of computers. Inadequate e-learnng facilities/equipment and Lack of

regular electricity also serves as challenges. The study suggested a liberalization of the educational sector from the bureaucratic bottleneck that has bedeviled its transformational development over the years and concluded that education as a key to national development cannot be relegated to the background but must be fully funded and adequately equipped to face the challenges of sustainable development.

Keywords: ICT, Effective Teaching, Covid-19 Pandemic, Basic education.

Introduction

Sequel to the rising concerns about the spread of COVID-19 and the need to contain the virus, a growing number of schools have shut down in regards to conventional classroom delivery system (Ali, 2020). The sudden outbreak of the COVID-19 virus overwhelmed the entire world such that World Health Organization (WHO) declared it a public health emergency of international concern (Anake, Aloye, Achuen, & Egbe, 2020). The educational sector was largely affected as the imposition of lockdown became prominent in containing the virus. Educational institutions (schools, colleges and Secondary Schools) were forcefully closed which has a lot of negative effects on the students such as a detrimental effect on academic performance and the entire sector. Hence, this paved way for the need to continue education through digital modalities.

COVID-19 posed serious consequences for students by depriving them of their fundamental rights to education and exposing them to risk of child labour, early marriage, exploitation, and poor academic abilities (Baytiyeh, 2021). As attested by UNESCO (2020a), more than 1.5 billion students globally which represents 87% of the global student population, were deprived of education. More worrisome is the threat of extended closures which paved way for the need to rethink traditional teaching (UNESCO, 2020b).

ICT has quite a contentious definition due to its application in different fields and the continuous evolvement of the systems used in such learning. Contextually, digital learning is an instructional practice that ultimately helps students through various digital means such as the internet, corporate network, computers, satellite broadcasting, audiotapes, videotapes, interactive TV, compact disks, among others (Ming-Hung, Huang-Cheng, & KuangSheng, 2017). These mediums are applied in a broad range of technology-enhanced educational strategies including blended learning, network-based learning, computer-based learning, virtual classrooms, digital cooperation and other strategies that rely on digital tools (Lauren, 2021).

However, the level of digital learning in Nigeria is still at low ebb due to the resistance to change from traditional pedagogical methods to more innovative, technology-based teaching and learning methods by the educational sector. Although many academic units have also started synthesizing learning but a lot of them are still stuck with old procedures (Dhawan, 2020). This is not far connected from the facts that there is inadequate ICT infrastructure, the educational sector is generally underfunded, poor and limited expertise, lacks effective co-ordination of the various ICT for education initiative and as well the overdependence of educational institutions on government (Aduke, 2008).

The COVID-19 further exposed the worsening educational sector of Nigeria and provided the need to improve on the system which serves as the only panacea to the public amidst coronavirus pandemic. Therefore, there is need for educational institutions to remain resilient and find new ways of encouraging the use of ICT for effective teaching-learning activities. Hence, fully embracing digital learning is not only

necessary but also a last resort. The ever growing demand for education by the people cannot be met through the traditional pedagogical delivery which actually instigated the commitment to improve the Information and Communications Technology (ICT) skills of its people, and the need to bridge the digital divide by targeting Nigerian schools aimed to have students actively participate in learning activity to achieve the set learning outcome. With this, there is an exposition and recognition of the increasing importance of online learning in not only this dynamic world but also in emergency. Now is an opportunity to improve standards, contribute to knowledge-based economies, enrich learning potentials, facilitate personalized learning and in all, transform pedagogy to make it more student-centered in line with the global standard (Fullan, 2013; Hammond, 2013). Therefore, the adoption of digital learning is very crucial to ensuring the continuity of education in Nigeria which demands working on our digital infrastructure, up-skilling staff and expanding their capabilities.

Statement of the Problem

Education has remained the bedrock of any nation being an instrument for national transformation and development. Issues surrounding the use of ICT in the educational sector have received extensive attention globally especially with the COVID-19 outbreak. This raised a global concern and necessitated the adoption of digital learning since the COVID-19 has come to stay. According to Ali (2020), educational institutions worldwide are moving more and more towards digital learning. Economic activities have been grinded globally with so much negative effect on all the sectors. The fear of the unknown of whom is a carrier of COVID-19 pandemic to be transmitted which may lead to death is what every reasonable human being is avoiding. The educational system in Nigeria is faced with the challenges of teaching and learning as well as transforming from the traditional ways with enhanced technological methods of imparting knowledge to diversified learners in the 21st-century. Application of ICT towards minimizing traditional classroom instruction poses a challenge in teaching and learning in post covid-19 era at Basic Education level in Mubi Education. However teachers can only give skills and ideas to learners, if they are literate on the use of ICT packages. This is, unfortunate not the case in Nigeria where most teachers have minimal or no ICT skills and continue to use traditional approach to teaching. Can this generation therefore survive the challenges in the use of ICT in post COVID 19 era with this level of ignorance, techno phobia and information paranoia. Sequel to the above, arise the need to undertake a study on "Encouraging Teachers in the use of ICT for Effective Teaching in Post Covid-19 Era at Basic Education level in Mubi Education Zone, Adamawa State".

Purpose of the Study

The purpose of this study is to Encourage Teachers in the use of ICT for Effective Teaching in Post Covid-19 Era at Basic Education level in Mubi Education Zone, Adamawa State. Specifically, the study seeks to:

1. Find out the challenges of integrating ICT for effective teaching at Basic Education level in Post Covid-19 era in Mubi Education Zone.
2. Identify the level of ICT use in teaching and learning processes at Basic Education level in Mubi Education Zone.
3. Identify the constraints of the use of ICT in the advancement of learning process in Post Covid-19 era at Basic Education level in Mubi Education Zone.

Research Questions

1. What are the challenges of integrating ICT for effective teaching at Basic Education level in Post Covid-19 era in Mubi Education Zone?
2. What is the level of ICT use in teaching and learning processes at Basic Education level in Mubi Education Zone?
3. What are the constraints of the use of ICT in the advancement of learning process in Post Covid-19 era at Basic Education level in Mubi Education Zone?

Hypotheses

H_{O1}: Most Schools at Basic Education level in Mubi Education Zone are not ready for the Using of ICT for Effective Learning in the post Covid-19 era.

H_{O2}: Inadequate funding and misappropriation of funds are the major challenges of Schools at Basic Education level towards using ICT for effective teaching in the post Covid-19 era in Mubi Education Zone.

Methodology

Research Design

The research design adopted for this study was descriptive survey research design which explicitly explains the following elements: Population, Sample size and sampling techniques, Instruments of data collection and Method of data analysis.

Population of the Study

The population of the study comprises of all the schools at Basic Education level in Mubi Education Zone which includes; Mubi North Local Government Area, Mubi South Local Government Area, Maiha Local Government Area, Michika Local Government Area and Madagali Local Government Area.

Sample and Sampling Technique

Random sampling technique was used in the selection of four schools at Basic Education level in Mubi Education Zone. The sample size was 30 randomly selected teachers from the four sampled schools which gave a total sample size of 120 teachers used for this study.

Instrument for Data Collection

The instrument used for the data collection was structured questionnaire which has four (4) sections: A, B, C and D. Section A consists of demographic data of the respondent. Section B and C (research question) was made up of seven (7) research items while section D is made up of 6 research items. The response pattern was Agree (A), strongly Agreed (SA), Disagreed (D), Strongly Disagree (SD) while the scoring pattern is Agree (A) = 4 points, Strongly Agreed (SA) = 3 points, Disagree (D) = 2 points and Strongly Disagree (SD) = 1 point. The researchers also made use of secondary sources or qualitative sources to obtain data including government publications, newspapers, textbooks, periodicals, journal publications and online materials. The use of documentary methods refers to the analysis of documents that contain information about the phenomenon wished to be study.

Validation and Reliability of the Instrument

To ensure that the questionnaire measures the described traits, it was validated by expert in the field of Curriculum who subjected it to facial and content validation. From the corrections coupled with those from

other specialists in measurement and evaluation, the instrument was restructured before the final copy was made available for administration. The reliability of the instrument was determined using test re-test method. A reliability coefficient of 0.84 was obtained.

Method of Data Analysis

In analyzing the data collected the mean rating and standard deviations were used. To meaningfully undertake the validation or otherwise of our hypotheses, this study utilizes the documentary research method.

Presentation of Results

Reseach Question 1: What are the challenges of integrating ICT for effective teaching at Basic Education level in Post Covid-19 era in Mubi Education Zone?

S/N	ITEMS	$\bar{X}$	SD	DECISION
1	Unstable supply of electricity is an impediment to the use of ICT in teaching and learning	2.86	0.83	Disagree
2	High cost of computers is a hindrance to the usage of ICT in teaching and learning	3.5	0.74	Agreed
3	Lack of trained personnel is an impediment to teaching and learning of ICT	3.6	0.69	Agreed
4	Inadequate funding of schools by the government is an obstacle to the use of ICT in teaching and learning	3.73	0.63	Agreed
5	Un-conducive environment is an impediment in the teaching and learning of ICT	2.79	0.74	Disagree
6	Workload of teachers will not allow them to combine e-learning education in teaching and learning process	3.1	0.73	Agreed
7	Most teachers do not have idea on computer	3.7	0.57	Agreed

From table 1 above, it shows that most of the respondents agreed with mean (2,3,4,6,and7,) rating ranging from 3.10 to 3.73 with the exception of two item of mean (1 and 5) rating ranging from 2.79 to 2.86. it means that most of the respondents agreed that there are obstacles of integrating ICT for effective teaching at Basic Education level in Mubi Education Zone.

Reseach Question 2: What is the level of ICT use in teaching and learning processes at Basic Education level in Mubi Education Zone?

S/N	ITEMS	$\bar{X}$	SD	DECISION
1	I Have The Ability To Use Internet To Search For Information	3.19	0.87	High
2	I Know How To Create A Simple Presentation Using PowerPoint.	2.61	1.02	Moderate
3	I Know How To Use Word Processors For Personal And school Purposes.	3.36	0.69	High
4	I Have The Knowledge Of How To Capture And Edit Digital Photos, Movies Or Other Graphics.	2.58	1.05	Moderate
5	I Have The Knowledge Of How To Use Online & Offline Help Facilities For Troubleshooting, Maintenance & Update	2.71	0.89	Moderate

	Of Applications.			
6	I Can Share Lesson Plans & Teaching Materials Through Course Web Sites.	2.62	0.96	Moderate
7	I Have The Knowledge Of How To Use Interactive Whiteboard In The Classroom For Lesson Delivery.	2.65	0.98	Moderate
8	Configuring Computer Settings Of Various Software & Hardware Is Well Known By Me.	2.59	0.99	Moderate
9	I Can Actively Follow Online Forums & Discussions.	3.50	0.62	High
10	I Can Download & Install Relevant Applications Which Are Needed For My Teaching Activities.	2.71	0.98	Moderate
11	I Am Competent In The Use Of ICT In Teaching And Learning	2.62	0.95	Moderate

Table 2 showed the mean scores of teachers' level of using ICT in teaching and learning at Basic Education level in Mubi Education Zone. The total mean Score of level of using ICT in teaching and learning at Basic Education level in Mubi Education Zone is 2.83 which fall between 2.00 and 2.99, classified as moderate. According to the classification of mean score levels for this study, the overall mean score of 2.87 score is classified as moderate. This shows that the level of teachers use of ICT at Basic Education level is at an average level.

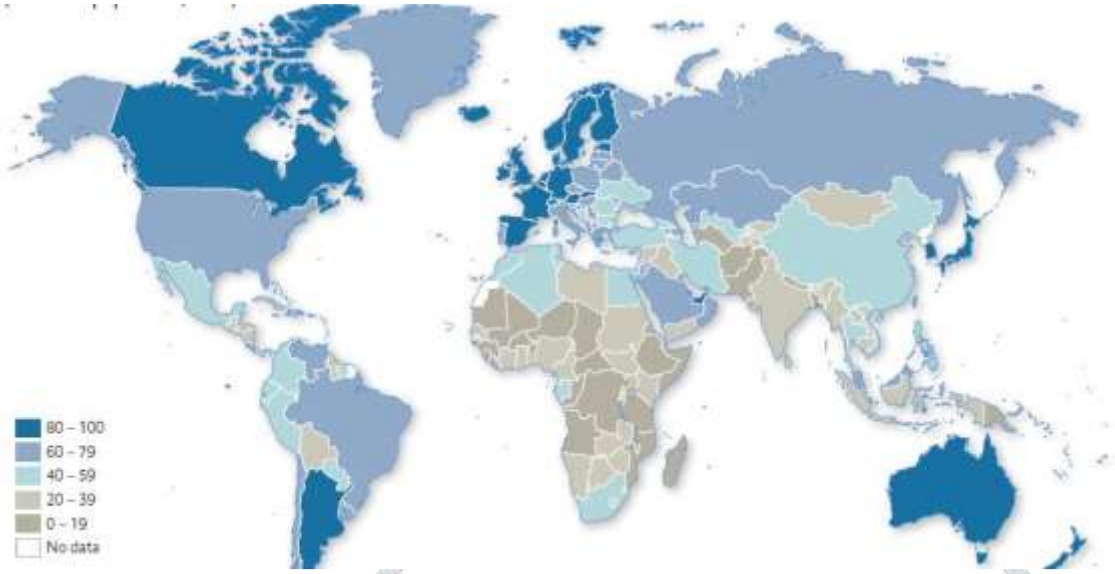
Research Question 3: What are the constraints of the use of ICT in the advancement of learning process in Post Covid-19 era at Basic Education level in Mubi Education Zone?

S/N	ITEMS	$\bar{X}$	SD	DECISION
1	The government finances all purchase of ICT facilities in schools	2.98	0.84	Disagreed
2	The government funds the building of computer laboratories in schools.	3.46	0.68	Agreed
3	The government employs engineers/technicians to fix damage	3.05	0.69	Agreed
4	The government funds seminars for teachers to acquire ICT knowledge	2.90	0.78	Disagreed
5	The government employs delegates to supervise teachers in schools to make sure that the policy on ICT education is fully implemented	3.40	0.74	Agreed
6	Most students thinks that computer should be learnt in cyber cafes and not in schools	3.40	0.85	Agreed
7	Most students have lukewarm attitude when computer is based as an instructional tool for teaching and learning	3.30	0.49	Agreed

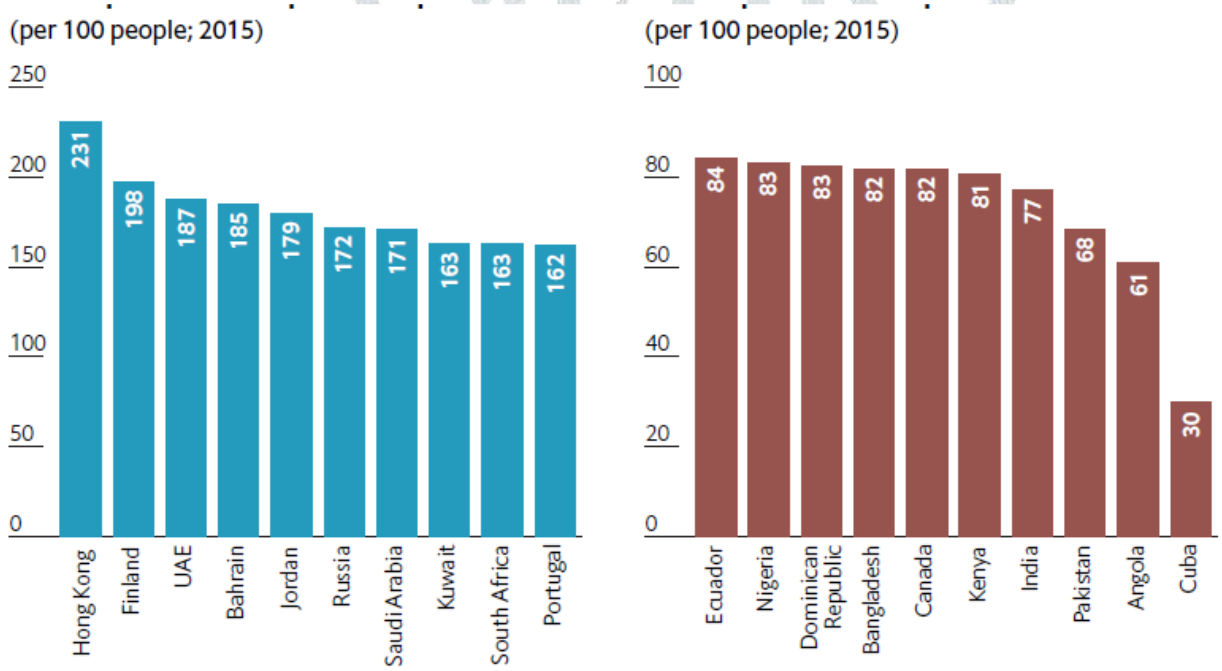
From table 3 above, it shows that most of the respondents agreed with a mean (2,3,5,6 and 7) rating ranging from 3.05 to 3.46 with the exception of two item of mean (1 and 4) rating ranging from 2.90 to 2.98, it means that most of the respondents agreed that there is constraints of e-learning in the advancement of e-learning process among secondary schools.

Testing of Hypotheses

H_{01}: Most Secondary Schools in Mubi Education Zone are not ready for the Using of ICT for Effective Learning in the post Covid-19 era.



Source: Economic Intelligence Unit, 2018
Figure 1: Showing the the share of a country's population that has access to connectivity



Source: The Economic Intelligence Unit, 2018
Figure 1: showing the number of mobile phone subscriptions per head in a country

As shown in Figures 1-2, The Economist Intelligence Unit (EIU) at her technological readiness ranked 82 out of the world's largest economies, which Nigeria was included, on access to internet, (internet usage and mobile phone subscriptions)the Economic Intelligence Unit ranked Nigeria on number 79 (between 2013 and 2017) and 80 (between 2018 and 2022) in her readiness for institutional e-readiness and ability of institutions to use Information Communication and Technology (ICT) to achieve her mission and vision of digital learning for quality education. This assertion postulates that Nigeria notwithstanding the poor state of her students who could not afford laptop, smartphone and tablets, the federal government attitude towards funding of the institutions is quite abys small and has highly under-funded her educational sector. In view of these findings, the researcher hereby accepts the first hypothesis which submits that Most Schools at basic Education level are not ready for the using of ICT for effective teaching in the post covid-19 era.

Due to some hindrances in the Nigerian educational sector, there are obvious and reluctant attempts that encourage reliance on the traditional pedagogy in educational process despite the emergence of technology. The difficulty in fostering use of ICT in schools can be tied to our poor digital infrastructure. For instance, the 2020 Digital Global Overview reported that only 20 percent of Nigerians have access to smartphones while about 40 percent only, have access to the internet (Osuagwu, P. & Umeh, 2020).

H_{02}: Inadequate funding and misappropriation of funds are the major challenges of Secondary Schools towards using ICT for effective teaching in the post Covid-19 era in Mubi Education Zone.

Year	Total Budget in Trillion	Educational Budget in Billion	% of the Budget	Recurrent Expenditure in Billion	Capital Expenditure in Billion	UBEC in Billlion
2017	N7.4	N550	7.40	N398	N56	N96
2018	N8.6	N605.5	7.04	N435.1	N61.73	N109.06
2019	N8.83	N620.5	7.05	N539.7	N47.3	N113
2020	N10.33	N691.07	6.7	N490.2	N50.95	N111.79
2021	N13.08	N742.5	5.6	N615.22	N127.3	N77.6

Table 4 above presented the budgetary allocation to education in Nigeria from 2017-2021, this budget which falls below the minimum recommendation of the United Nations Educational, Scientific and Cultural Organizations (UNESCO) recommendation of 20% to 26% allocation to Educational sector. The above budgetary allocation is meant to cater for twenty eight educational agencies, thirty Seven federal Universities, twenty seven federal polytechnic, twenty one federal colleges of Education and hundred and four unity schools which falls and draws their budget from the federal ministry of education in Nigeria. The inadequate funding of education at Basic Education level has metamorphosed into abandoned projects, epileptic power supply, erratic internet networks, limited access and penetration of the Internet. This has further resulted into grossly inadequate information and communication technology, infrastructure, capacity building deficit in training, teaching and technical staff to deliver online lectures in line with management of online examination. Schools at Basic Education level are ill-equipped for online education, and poverty level of many students which up till now remain a stumbling blocks to digital learning owing to lack of experts and arbitrary neglect in the areas of inadequate funding. Consequent upon this, the researcher here by accepts the hypothesis which states that inadequate funding and misappropriation of funds are the major challenges of using ICT for effective teaching in the post COVID-19 era at Basic Education level in Mubi Education Zone

Discussion of the findings

In response to research question 1 in table, the respondents agreed that the following challenges are responsible for schools at Basic Education level to integrate ICT for effective teaching and learning. These were high cost of computers, lack of trained personnel, inadequate funding of schools by the government and the workload of teachers that are impediment to the use of computer in teaching and learning with a mean rating ranging from 3.00 to 3.73 while two respondents disagreed with two out of seven items with mean

rating ranging from 2.79 to 2.86. This shows that there are no availability of ICT facilities in secondary schools in Mubi Education Zone. ICT facilities has the characteristics of making teaching and learning faster, it deepens and motivate knowledge, it accelerates talents and potentials in individuals, it helps to relates and transfer whole school experience to the world of work. It helps to create a connectivity cord between the school and the world of work. It helps to resolve problems emanating from economic resection as well as giving room for viable opportunities for people to excel, (Adeyinka, 1971).

In response to research question 2, The finding of the study is in line with the finding of Mahmud & Ismail (2010) found that teachers had average level of ICT knowledge and skills and did not use ICT in teaching because they considered themselves not competent enough to use ICT materials. According to Stephen (2013), the use of ICT in teaching and learning, depends on teachers' ICT competency. Teachers, who perceive themselves competent enough to use ICT, usually make use of ICT in their classrooms.

In response to research question 3, the table revealed the respondents agreement with the three out of seven items with mean rating ranging from 3.40 to 3.46 while two respondents disagreed with the mean ratings ranging from 2.90 to 2.98. This shows the constraints of the use of ICT in the advancement of learning process in Post Covid-19 era at Basic Education level in Mubi Education Zone may be positive or negative.

Conclusion

Education as a key to National development cannot be relegated to the background but must be fully funded and adequately equipped to face the challenges of sustainable development goal 4. The Covid 19 pandemic in line with its social distancing status created the need for ICT in teaching and learning which has before now been in neglect and abandoned owing to the deplorable state of our infrastructure and educational sectors. The Covid 19 further exposed our worsening educational sector and provided the need to improve on the system which serves as the only panacea to socio-economic development of any nation hence the urgent need to technologically advance the sector through adequate funding, government should invest in infrastructure, while training and retraining teachers on new technology applications are imperative to making the switch possible if we must be like Institutions in Europe and the United States that were able to adapt because they had the funding and the basic ICT infrastructure to do so.

Recommendations

From the findings and conclusion of this study, the following recommendations are made

1. On the job training should be organized for teachers to update their knowledge on information technology for adequate academic delivering at Basic Education level.
2. The federal and State governments must as a matter of urgent necessary action enforce the UNESCO recommendation of 20% to 26% budgetary allocation to education in Nigeria.
3. Non-governmental bodies should support schools in terms of provision of facilities and equipment.
4. It is mandatory for government to fund adequately the procurement of ICT facilities.
5. Government should supply electricity to all schools, since this is a major hindrance to using ICT in teaching-learning activities.

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