

AVAILABILITY AND UTILIZATION OF DIGITAL TECHNOLOGY FOR TEACHING AND LEARNING IN SECONDARY SCHOOLS IN NSUKKA LOCAL GOVERNMENT AREA DURING COVID-19 PANDEMIC LOCKDOWN

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Abstract

The Corona virus disease pandemic and the social distancing that followed have affected drastically all sectors of the society, education inclusive. The whole educational system from elementary to tertiary level collapsed during the lockdown period of the novel Corona virus Disease 2019 (COVID-19) not only in Nigeria but across the globe.

To cushion the effect of the pandemic on schools, the world embraced technological innovations. . Many including commercial digital learning platform providers rushed to provide their support and solutions sometimes for free. This paper discusses the availability and utilization of digital technology tools for teaching and learning in secondary schools in Nsukka Local Government Area ,. Three research questions guided the study, A total of 120 teachers drawn from five public and five private secondary schools was used for the study. A structured questionnaire developed by the researchers was used for the study. Data collected were analyzed using mean and standard deviation.

Findings from the study showed that digital technology tools such as computers, printers and mobile phones were available and utilized in the sampled schools whereas more sophisticated digital technology tools such as internet facilities,,projectors and interactive white board were lacking. This paper therefore recommends that government in the area should invest in the acquisition of digital technology tools in schools across the area as well as in-service training of teachers on the use of such tools.

Keywords: Digital technology, COVID-19 pandemic, Lockdown period, Instruction, Utilization.

Introduction:

The COVID-19 pandemic raging around the globe has caused large-scale institutional and behavioural 'shock effects' in various areas of human activity including education. The impact on the learners is unprecedented. On April 9th, 2020 there are over 1, 500, 000, 000 students worldwide from primary to tertiary level who cannot attend school due to the lockdown (UNESCO, 2020). Due to massive and unexpected closures, affected countries and communities have been forced to seek

quick alternatives in different digital learning platforms (Jandric, 2020). These rapid moves from classroom to online teaching have set aside the more profound questions related to national educational policies and theoretical grounds and premises. Current conditions of formal educational systems can be described using Philip Strong model of epidemic psychology consisting of three consecutive and overlapping epidemics: those of fear, explanation and action. Strong uses 'epidemic' as a metaphor representing collective psychological reactions to an epidemiological crisis. The first aspect involves an epidemic of fear and opens up a question. How can the educational systems and individual learners cope with the exceptional situation? The second aspect is an epidemic of explanation and moralization. People may be unable to decide whether a new disease or a new outbreak is trivial or whether it is really something enormously important. They swing backwards and forwards from one state of mind to another. (Strong 1990).

At the same time, different actors in administrative positions provide their accounts of how to make sense of the situation and ensure the continuation of teaching and learning. Politicians are, of course, at the front line of educational policy-making, simultaneously setting restrictions and measures based on health expert's assessments and constructing their official and authoritative narratives. Social media allow experts and novices to share their rational and irrational views with little in the way of moderation. Lockdowns affect students in multiple ways, reinforcing inequalities and putting them under social and psychological stress. Parents and guardians are affected too and many of them come to realize perhaps for the first time, the social purpose of the educational system and its power to structure everyday life.

The third aspect is an epidemic of action. It demonstrates how educational institutions and teachers across the world's educational systems transfer their work from classroom and lecture halls to digital platforms almost overnight. This quick transition has also revealed gaps and shortcomings in how digital learning has or has not been adopted in educational institutions using digital technologies.

Digital technology is an inclusive term which describes educational technology that electronically supports teaching and learning. It means an exciting, energetic, emotional, enthusiastic, extended and educational devices that focuses on new application and development that brings learning and media psychology in consideration to the pedagogical elements in teaching and learning (Luskin, 2014).

Digital technology embraces a wide range of IT and ICT used with network architecture support of internet. It enhances education, business, organizations and institutional activities like schools, colleges and universities. For instance, e-mail and internet facilities are some of the pedagogical devices in digital technology. Kalakota and Robinson (2011) Noted that like e-business, it is a combination of strategies, technologies and process to electronically co-ordinate both internal, external business processes and manage enterprise. Like virtual education, educational activities are developed by internet. This denotes that learners can be taught outside the classroom with some digital technological devices. It is a learning programme in which students receive lectures through various types of digital technologies such as multimedia and

video conferencing devices.

With the advent of digital technology, the traditional approach of teaching and learning has been replaced by the use of digital tools such as smart boards, internet facilities, projectors, laptops and android system (Idris, Jibrin&Ibrahim 2017). This has earlier been stated that the use of digital technology as a new revolution has shown great impact in every aspect of human endeavor including social, economic and in knowledge acquisition (Bande, 2006). However, digital technology has been proved to be very effective in teaching and learning in educational institutions at all levels. This means that teachers with adequate skills in digital technology utilization will be of great benefit to the learners, because the changing world depend largely on such technologies and skills (Kplovie, Joe & Okoto 2016). It is in respect of this that Akpan (2011) stated that it is very important for teachers to have access and skills to be able to utilize digital technology in their classroom situations especially in secondary schools. A good number of studies showed that teacher's competence is a significant predictor of their ability towards using digital technology (Berner, 2012). Abdulkadir (2014) found that most teachers who showed negative attitude towards the use of digital technology in education lacked knowledge and skill to enable them deliver effectively. In the light of this, there is the need to find out how digital technology is used for teaching and learning in secondary schools in Nsukka L.G.A during COVID-19 pandemic lockdown.

There is a global revolution taking place in the world of education in this new information age and the world of digital technology. Digital technology has been effective in several areas ranging from medicine, the world of sports, security, capacity building and enhancing learning during instructional delivery. In the presence of the novel corona- virus pandemic with the associated lockdown that collapsed educational systems worldwide, the countries affected by unexpected closure of schools resorted to the use of different digital learning platform as alternatives. It has been observed that this technology has not been utilized by teachers especially in secondary schools. Therefore, this paper seeks to investigate the availability and utilization of digital technology tools for teaching and learning in secondary schools in Nsukka Local Government Area during COVID-19 pandemic lockdown

Research Questions

The following research questions were raised to guide the study

1. What digital tools are available for teaching and learning in secondary schools in Nsukka during COVID-19 pandemic lockdown
2. To what extent do teachers utilize the available digital tools for teaching and learning during COVID-19 pandemic lockdown
3. What are the constraints to the use of digital technology tools for teaching and learning during COVID-19 pandemic lockdown

Methodology

The study adopted a descriptive survey research design which seeks to describe data on variables of interest (Bowling, 1999). The choice of this design was hinged on Bowling's notion that descriptive survey research provides detailed and factual information concerning existing conditions. The area of the study is Nsukka Local Government Area. The population of the study comprised one thousand two hundred and sixty nine (1269) teachers in forty-two (42) registered public and private secondary schools in Nsukka Local Government Area. 5 public and 5 private secondary schools were randomly selected from the Local Government Area bringing the total study sample to 10 secondary schools. 12 teachers from each of the schools were randomly selected for the study bringing the final sample to one hundred and twenty (120) teachers. The researchers deemed that the uniqueness of the sample would allow for a more objective view of the current practice of digital technology use in secondary schools. The instrument used for data collection was the researcher's made questionnaire structured on a 4-point rating scale of Strongly Agreed (SA=4) Agreed (A=3), Disagree (D=2) and Strongly Disagree (SD=1). A test-retest method was used to determine the reliability of the instrument and a reliability coefficient of 0.78 was established. The data collected was analyzed using mean and standard deviation. For decision making, any item with mean of 2.50 and above was considered agreed while any item with a mean less than 2.50 was disagreed.

Results

Research Question One: What digital tools are available for teaching and learning in secondary schools in Nsukka Local Government Area during COVID-19 pandemic lockdown

Table 1: Mean Rating and Standard Deviation of Teachers Responses on digital tools available for teaching and learning in secondary schools.

S/N	Digital Technology Tools	Number	X	SD	Decision
1.	Computers	120	3.18	0.45	Agreed
2.	Interactive white boards	120	2.10	0.23	Disagreed
3.	Projectors	120	2.42	0.21	Disagreed
4.	Internet Facilities	120	2.44	0.40	Disagreed
5.	E-mail boxes	120	3.13	0.45	Agreed
6.	Mobile point	120	3.78	0.43	Agreed
7.	Power point	120	2.37	0.39	Disagreed
8.	Printers	120	3.48	0.43	Agreed
9.	Scanners	120	2.47	0.48	Disagreed
10.	Video cameras	120	2.33	0.23	Disagreed

The data presented in Table 1 indicates that computers, e-mail boxes, mobile phones and printers are the digital tools that are adequately available in the sampled schools. From the analysis of the data also, it was revealed that more technologically advanced digital technology tools such as interactive white boards, projectors, internet facilities, power point, scanners and video cameras are totally unavailable in the sampled schools.

Research Question Two: To what extent do teachers utilize the available digital tools for teaching and learning during COVID-19 pandemic lockdown

Table 2: Mean Rating and Standard Deviation of Teachers Responses on the extent of utilization of the available digital tools for teaching and learning.

S/N	Digital Tools	Number	X	SD	Decision
11.	Computers	120	3.42	0.45	Agreed
12.	Interactive Whiteboards	120	2.36	0.21	Disagreed
13.	Projectors	120	2.44	0.38	Disagreed
14.	Internet Facilities	120	2.42	0.39	Disagreed
15.	E-mail boxes	120	3.48	0.39	Agreed
16.	Mobile Phones	120	3.18	0.45	Agreed
17.	Power point	120	3.65	0.40	Disagreed
18.	Printers	120	3.48	0.43	Agreed
19.	Scanners	120	2.38	0.21	Disagreed
20.	Video Cameras	120	2.47	0.41	Disagreed

Results from Table 2 indicates that computers, e-mail boxes, mobile phones and printers are utilized to a high extent for teaching/learning in secondary school. From the data available in the table also, it was revealed that digital tools like interactive white boards, projectors, internet facilities, power point, scanners and video cameras are utilized to a very low extent for teaching and learning in secondary schools during the lockdown.

Research Question Three: What are the constraints to the use of digital technology tools for teaching and learning in secondary schools during COVID-19 pandemic lockdown

Table 3: Mean Rating and Standard Deviation of Teachers' Response on the Constraints to the use of digital technology tools for teaching and learning.

S/N	Item Statements	Number	X	SD	Decision
21.	Disruption and Network failure hinder my performance	120	4.51	0.94	Agreed
22.	Management does not make provision for digital technology tools in school	120	3.13	0.45	Agreed
23.	Lack of power supply for using digital technology tools	120	3.85	0.64	Agreed
24.	Lack of technical knowledge for the use of DT	120	3.78	0.89	Agreed
25.	Inadequate funding of DT related programs and activities	120	3.64	0.84	Agreed
26.	Fear of embracing the innovative technology	120	3.46	0.51	Agreed

Results from Table 3 shows that teachers agreed that items 21, 22, 23, 24 and 25 posed significant challenges to the use of digital tools for classroom teaching and learning during the lockdown. From the response of the teachers, it can be inferred that: disruption and network failure, non-provision of digital tools by management, lack of power supply, lack of technical knowledge for the use of DT, inadequate funding and fear of embracing the innovative technology are the constraints to use of digitals tools for teaching and learning during the lockdown.

Discussion of Findings

The findings from this study show that digital technology tools such as computers, e-mail boxes, printers and mobile phones are available in secondary schools in Nsukka L.G.A while the more sophisticated digital technology tools like interactive whiteboards, projectors, scanners, internet facilities, power point and video cameras are lacking in secondary schools in Nsukka L.G.A. However, the result indicated that some of the digital tools were not properly utilized for instructional delivery.

The study also identified some constraints to utilization of digital technology tools in classroom instructional delivery. These constraints include disruption and network failure, management's lack of provision for DT tools, lack of power supply, lack of technical knowledge and fear of embracing the innovation.

Conclusion

The study determined the availability and utilization of Digital Technology tools for Teaching and Learning in Secondary Schools in Nsukka Local Government Area during COVID-19 pandemic lockdown. It revealed that digital technology tools like computers, e-mail boxes, mobile phones and printers among others are available for

use in teaching and learning. However, they are not extensively utilized in the secondary schools in the area of study. This is because of the constraints to their utilization such as network failure, lack of power supply, lack of technical knowledge, inadequate funding and fear of embracing the innovative technology.

Recommendations

In view of the findings of the study, the following recommendations were made;

1. Government in the area and key stakeholders should prioritize the acquisition of digital technology tools like computers, printers, scanners, and internet facilities etc. for secondary schools. While doing this, there is need to make contingency plans for powering and maintaining the DT tools to ensure usability and assure durability.
2. Government in the area should establish a digital technology resource centre that is fully equipped with state of the art digital technology tools so that secondary schools across the Local Government Area can book trips to the centre to expose students to more sophisticated DT tools that may not be available in their respective schools.
3. Teachers should be massively trained on an on-going basis on the use of technology. This is critical to the successful utilization of DT tools in schools as study showed that the teachers who are supposed to drive and implement the use of these digital technology tools are themselves uncomfortable with technology.
4. The cost of digital technology tools like laptops, desktops etc. should be reduced to affordable prices so that teachers and students can be able to acquire them.

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