

## DIGITAL LIBRARY SERVICES FOR EFFECTIVE LEARNING AND RESEARCH ACTIVITIES DURING COVID-19 LOCKDOWN PERIOD IN NIGERIA



**Oluseun Mobolanle SODIPE**  
Gbenga Daniel Library  
Tai Solarin University of Education,  
Ijagun, Ogun State, Nigeria.  
mobolanlekay@gmail.com  
+234-8131539922

### **Abstract**

*This study reviewed the roles of digital library services in facilitating effective learning and research activities during COVID-19 lockdown period in Nigeria. A library is a social institution without which an educational institution and a well-informed nation will not be complete. However, the unplanned closure of libraries for COVID-19 came with obvious implications on the education industry globally despite the fact that the decision to close library appears to be right considering the need to contain the Coronavirus pandemic. This study investigated the purpose of using digital library; ascertaining the effects of COVID-19 lockdown on learning and research activities and finding out the influence of digital library services on learning and research activities during COVID-19 lockdown period in Nigeria. Descriptive research design of survey type was used in this study while total enumeration was used to include all the 10 academic librarians of Gbenga Daniel's Library, Tai Solarin University of Education to form the sample size for the study. The data was analysed using descriptive method of frequency count, percentages and mean scores. Findings revealed that the major purposes of using digital library service during COVID-19 lockdown period are to; enhance search and access information, meet the core needs of users and share online resources. Also, findings showed that that COVID-19 lockdown interrupted learning; shattered the academic dreams of students; deny students access to school facilities and research laboratories, loss of interest in reading habit among learners and limit researchers' ability. Moreover, result of the finding indicated that digital library service promotes public health awareness; provides information regarding COVID-19 preventive measures; and enable researcher to acquired relevant journals and literatures during COVID-19 pandemic lockdown period in Nigeria. The study concluded that the need for adoption of digital library in education as a way to curb the effects of Coronavirus lockdown and other future pandemics in Nigeria.*

**Keywords:** Digital Library, Learning and Research Activities, COVID-19 Lockdown Period, Nigeria

### **Introduction**

A library is a social institution without which an educational institution and a well-informed nation will not be complete. It is very essential to education and stock

resources which provide answers to any problem or query. Digital Library is an integral part of the education system and educational applications of digital libraries range from primary schools through graduate schools and across all disciplines. Digital Library according to Isaac, Philip and Isaac (2018) is a set of documents available through electronic means by the use of digital technologies that allow for the retrieval, archiving, preservation, and dissemination of the documents. Meanwhile, Baro (2010) revealed that digital libraries services are a set of electronic resources and associated technical capabilities for creating, searching, and using information. They are considered as an extension and enhancement of information storage and retrieval systems that manipulate digital data in any medium. The content of digital libraries includes data and metadata. Digital libraries are constructed, collected and organised a community of users, and their functional capabilities support the information needs and uses of that community (Abubakar, Bala and Augustine, 2020)

Furthermore, Onyema (2020) mentioned that digital libraries are services that have been developed and enhanced for years, but the recent Covid-19 pandemic has made many users to be aware of its prominent services in learning and research activities, especially because of the closure of libraries, during the Covid-19 pandemic period. Consequently, additional efforts have been made to promote digital libraries and their services, as clearly visible and active libraries. Moreover, traditional libraries or those without digital services had the challenge of keeping their services active for their users during this the COVID-19 emergency lockdown, hence librarians have been engaging in new work practices in order to achieve library service delivery provision from their homes.

COVID-19 seems to spread from person to person by the same mechanism as other common cold or influenza virus that is through face to face contact with a sneeze or cough, or from contact with secretions of people who are infected. The role of fecal transmission is yet to be determined in COVID-19 but was found to occur during the earlier Severe Acute Respiratory Syndrome (SARS) outbreak (Heymann and Shindo, 2020). Libraries, as a social institution, are responsible for ensuring public awareness and the provision of up to date information to users (Lipsitch, Swerdlow and Finelli, 2020).

UNESCO press released on COVID-19 dated 24th March 2020 stated that “the number of students affected by the school and university closures in 138 countries has nearly quadrupled to 1.37 billion, representing more than 3 out of 4 children and youth worldwide. In addition, nearly 60.2 million teachers are no longer in the classrooms, (UNESCO, 2020). However, these measures have drastically affected libraries in the world as libraries have experienced closure or restrict their services. However, this does not necessarily mean that libraries are not providing services for all or some of their users through remote and online approaches. Libraries around the world are being affected by the emergence and spread of the coronavirus. Onyema (2020) stated that since people have been unable to access library buildings, libraries developed strategies reach their users at home. This was done partly by fine-tuning their home

delivery services, and mostly through a library offer based on digital services. Consequently, libraries promoted access to online resources via their websites pointing to platforms of e-books, and e-media. However, access to digital resources varies across the different category of libraries.

In a library, be it digital or traditional, the essential transaction is the same since users have to interact with contents. But richer interaction is possible within the digital environment, not only as more content is put within the reach of the user, but also as more tools and services are put directly in the hands of the users. These include the abilities to search, refer, validate, integrate, create, customise, publish, share, notify, and collaborate, to name but a few. Students, teachers, faculty, and those pursuing continuing education will “connect to learn” but they will also “learn to connect”, as they leverage their participation with other users of the library and its resources (Rosenberg, 2006)

National Digital Library of India (NDLI) initiated specially designed collections of e-resources for specific group of students to help the student community in the difficult situation arising from suspension of physical classes and closure of physical libraries due to COVID-19 lockdown. The services are provided through the library social networking pages (National Digital Library of India, 2020). It can, therefore, be said that digital library has the capability to improve the quality, quantity, and efficiency of teaching and learning by developing, managing, and providing access to high-quality educational resources and support services through a community-based, distributed digital library. Libraries around the world are facing hard choices around which services to offer and how arising from minimal restrictions to full closure of all public institutions and organisation due to Covid-19 pandemic. It is no more news that governments are taking different approaches to curtail the spread of COVID-19 by ordering the closure of all public institutions including libraries. Clearly any decision to restrict services or close a library is a difficult one and needs to be taken following an assessment of the relative risks. The unplanned closure of public place like library for COVID-19 came with obvious implications on the education industry globally though the decision to close library appears to be right considering the need to contain the spread of Coronavirus pandemic.

The fortuitous closure of libraries worldwide revalidated the need for adoption and deployment of cutting-edge technologies to deliver library services to library users. Consequently, library users that have inculcated the use of emerging technologies in their systems before the outbreak of COVID-19 had a comparative advantage over those who are yet to embrace technology in their operations. Hence, there is need for thorough understanding on the challenges that the COVID-19 pandemic has posed on digital libraries and users during the lockdown. It was in the light of the above stated problem that this study seeks to evaluate the influence of digital library services on effective learning and research activities in COVID-19 lockdown period in Nigeria. It is against this backdrop that this study investigated and reviewed the roles of digital

library services on effective learning and research activities during COVID-19 lockdown period in Nigeria.

### **Objectives of the Study**

This study investigated the roles of digital library services on effective learning and research activities during COVID-19 lockdown period in Nigeria. Specifically, objectives of this study are to:

1. determine the purpose of using digital library service by library users during COVID-19 lockdown period in Nigeria;
2. ascertain the effects of COVID-19 lockdown on learning and research activities in Nigeria;
3. find out the influence of digital library services on learning and research during COVID-19 lockdown period in Nigeria.

### **Research Questions**

This study answered the following questions:

1. What is the purpose of using digital library service by library users during COVID-19 lockdown period in Nigeria?
2. What are the effects of COVID-19 lockdown on learning and research activities in Nigeria?
3. What influence do digital library service had on learning and research during COVID-19 lockdown period in Nigeria?

### **Literature Review**

Digital library is a collection of electronic resources that provides online access library collection which include digitised audio, video, text and written material. It provides free copies of books and journals, among others to users. Normally these materials are classics which have no copyright digital formats (as opposed to print, microform, or other media) and accessible by computers. The digital content may be stored locally, or accessed remotely via computer networks. Pomerantz (2007) defined digital library services as a deeds, efforts or performances whose delivery is mediated by information technology to provide e-services. Such e-service includes the service element of e-tailing, customer support, and service delivery which reflects three main components that include service provider, service receiver and the channels of service delivery.

Isaac, Philip and Isaac (2018) pointed out that the concept of digital library service represents prominent application and utilisation of information and communication technologies (ICTs) in different section of libraries. However, providing an exact definition of e-service is hard, different researchers have been using different definitions to describe e-service. Despite these different definitions, it can be argued that they all agreed about the role of technology in facilitating the delivery of services which make them more of electronic services. From information management point of view, digital libraries are systems that combine the machinery of digital computing, storage and communication, the content, and software needed to reproduce, emulate, and extend the services of collecting, cataloguing, finding and disseminating

information offered by traditional libraries based on paper and other materials. A full service digital library must not only fulfill all essential services provided by traditional libraries but also make good use of the advantages of digital technology (Kavita, 2011).

Digital libraries are viewed as systems providing a community of users with coherent access to a large, organised repository of information and knowledge. This organisation of information is characterised by the absence of prior detailed knowledge of the uses of the information. The ability of the user to access, reorganise, and utilise this repository is enriched by the capabilities of digital technologies (Nayak, 2013). Wrenn (2015) argued that the impact brought about by digitalisation or of library services, has created a drastic positive change on how library services are being perceived by both the members of the library staff and the library clientele, and it has by far exceeded the services rendered by the libraries when using a conventional method of carrying out library activities.

From the foregoing, one can summarise that digital library is necessary for adequate library services and therefore needs to be given adequate attention. This is necessary in order to assist the libraries in supporting learning and research activities for educational institutions which would ultimately allow users to have access to the information resources within and outside the immediate environment during COVID-19 lockdown in Nigeria.

### **The Purpose of Digital Library Services**

Nowadays, Vishwanthan, (2001) stated that digital libraries enable any citizen to access a considerable proportion of all human knowledge from any location. Unlike traditional libraries that occupy buildings accessible only to those who walk through their doors, digital libraries reside on inter-networked data storage and computing systems that can be accessed by people located anywhere. The role of a Digital Library is essentially to collect, manage, preserve and make accessible digital objects. Meanwhile, some functions of digital library were found to include; provision of friendly interface to users, access to available network facilities, supporting library functions, enhancing advanced search, access and retrieval of information, improving library operations and preserving unique collection through digitization, among others, (Kavita, 2011).

According to Shen (2008), digital library has certain characteristics, which make them different from traditional library. It has expansive and accurate system of searching with large volumes of text, image and audio-video resources. Digital libraries do not need physical space to build collection and it can be accessed from anywhere, any time. The user can get his/ her information on his own computer screen by using the Internet. Actually, it is a network of multimedia system, which provides fingertip access.

### **Different between Digital Libraries and (Traditional Library)**

Libraries are the repositories of knowledge form of an integral part of education. The primary objective of the library is to organize and provide access to information. This

objective will never change but the format and methods that are used will change dramatically, providing new opportunities and challenges. Libraries have witnessed a great metamorphosis in recent years. The print medium is increasingly giving way to the electronic form of materials (Velumani, 2013). Velumani (2013) further claimed that the library is an extremely important entity in an ever-changing society and it must be responsive to the needs of society. Information Technology (IT) has changed the complexion of today's libraries. Libraries have evolved to become an information provider rather than mere document providers. The shift from the traditional libraries to the digital is not merely a technological evolution but requires a change in the paradigm by which the users access and interact with information. This move from traditional to electronic libraries also alters the fundamental role of the library.

All conventional libraries basic functions focus on collection, organization and dissemination of information resources. Traditionally a “library is a place in which books, manuscripts, musical scores, or other literary and artistic materials are kept for use but not for sale”. In effect, it is an institution oriented towards collections and custody, where people may make use of the facilities (Jie, & Bao-Zhong, 2012). Whereas a digital library is an assemblage of digital computing, storage and communications machinery together with the content and software needed to reproduce, emulate and extend the services provided by conventional libraries. In other words, a digital library is a computer-based system for acquiring, storing, organizing, searching and distributing digital materials for end user access. It is not just a collection of material in electronic form; it includes a browser interface and perhaps a virtual space and society (Jie, & Bao-Zhong, 2012).

Sangsuree (2011) maintained that traditional libraries are limited by storage space; digital libraries have the potential to store much more information, simply because digital information requires very little physical space to contain it. As such, the cost of maintaining a digital library is much lower than that of a traditional library. A traditional library must spend large sums of money paying for staff, book maintenance, rent, and additional books. Digital libraries do away with these fees.

The following are some of the different between digital libraries and other libraries (Jie, & Bao-Zhong, 2012):

1. No physical boundary. The user of a digital library need not to go to the library physically; people from all over the world can gain access to the same information, as long as an Internet connection is available.
2. Round the clock availability. People can gain access to the information at any time, night or day.
3. Multiple accesses. The same resources can be used at the same time by a number of users.
4. Structured approach. Digital libraries provide access to much richer content in a more structured manner, i.e. we can easily move from the catalog to the particular book then to a particular chapter and so on.
5. Information retrieval. The user is able to use any search term (word, phrase, title,

- name, subject) to search the entire collection. Digital libraries can provide very user friendly interfaces, giving clickable access to its resources.
6. Preservation and conservation. Another important issue is preservation - keeping digital information available in perpetuity. In the preservation of digital materials, the real issue is technical obsolescence. Technical obsolescence in the digital age is like the deterioration of paper in the paper age. Libraries in the pre-digital era had to worry about climate control and the de-acidification of books, but the preservation of digital information will mean constantly coming up with new technical solutions.
  7. Space. Whereas traditional libraries are limited by storage space, digital libraries have the potential to store much more information, simply because digital information requires very little physical space to contain them. When a library has no space for extension digitization is the only solution.
  8. Networking. A particular digital library can provide a link to any other resources of other digital libraries very easily; thus a seamlessly integrated resource sharing can be achieved.
  9. Cost. In theory, the cost of maintaining a digital library is lower than that of a traditional library. A traditional library must spend large sums of money paying for staff, book maintenance, rent, and additional books. Although digital libraries do away with these fees, it has since been found that digital libraries can be no less expensive in their own way to operate.

The contrast between traditional and digital libraries is presented below

Traditional Libraries	Digital or Electronic Library
Print collection Stable, with slow evolution	All resources in digital form. Dynamic and ephemeral
Individual objects not directly linked with each other.	Multi-media and fractal objects
Flat structure with minimal contextual metadata Scholarly content with validation process Limited access points and centralized management	Scaffolding of data structures and richer contextual metadata. More than scholarly content with various validation processes Unlimited access points, distributed collections and access control
The physical and logical organization correlated.	The physical and logical organization may be virtually
One way interactions Dynamic realtime dialogue Free and universal access.	Free and universal access. Free as well as fee based Free as well as fee based.
One way interactions.	Dynamic real-time dialogue.

It must be emphasized that the electronic library does not replace the traditional library services; rather it is another means of providing easy access to information that are not easily available. Electronic libraries are about new ways of dealing with knowledge: collecting, organizing, preserving, propagating and accessing it.

## **Effects of COVID-19 Pandemic Lockdown (Coronavirus Disease) on Learning and Research Activities in Nigeria**

Coronavirus Disease is a contagious disease that first emerged in Wuhan, China in 2019. It was later coded “COVID-19” by the World Health Organization (WHO) which stands for Coronavirus Disease 2019. The Coronavirus outbreak remains one of the worst global pandemics for decades. The mortality rate soared and the ease of spread was upsetting. Research shows that older people and those with underlying medical problems like cardiovascular diseases, diabetes, chronic respiratory disease, and cancer were more likely to develop serious illnesses from coronavirus. Some of the symptoms of Coronavirus include; sore throat, runny nose, constant coughing/sneezing, breathing difficulty and fatigue (W.H.O, 2020).

In response to the outbreak of coronavirus, the Federal Government of Nigeria ordered a total closure of all schools. The decision was largely applauded, and the National University Commission (NUC), a regulatory body for all universities in Nigeria also gave a follow-up directive to all universities in the country to shut down. The government also suspended social gatherings, and workers were asked to work from home. An Italian who was reported to be the first case of coronavirus in Nigeria was successfully treated and discharged according to the government, but new cases emerged thereafter. The untimely closure of schools was good supportive measures to contain the spread of the disease, but it also had some adverse consequences on millions of students globally.

The outbreak of Coronavirus negatively affected educational activities worldwide. The coronavirus pandemic affected educational systems worldwide, leading to the widespread closures of schools. It created serious disruptions in academic activities, as well as in career plans. As part of the global efforts to combat COVID-19, many countries across the world closed down schools in an attempt to contain the coronavirus pandemic. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO) monitoring team, over 100 countries implemented nationwide closures, impacting over half of the world's student population (UNESCO, 2020).

According to UNESCO (2020b), some of the harmful effects of school and library closures for coronavirus are as follows:

- 1. Interrupted learning:** School provides essential learning and when they are closed, students are deprived of opportunities for growth and development.
- 2. Nutrition:** Many youngsters rely on free or discounted meals provided at schools for food and healthy nutrition. This is compromised as a result of school closures for coronavirus.
- 3. Unequal Access to digital learning portals:** lack of access to technology or good internet connectivity for continued learning during school closures.
- 4. Increased pressure on schools and school system that remain open;** Localized school closures place burdens on schools as parents tend redirect their children to open schools.



- 5. Social Isolation:** Considering the fact that educational institutions are hubs for social activity and human interactions, school closures can deprive youth and children of some social communications and socializations that are essential to learning, development and creativity.

Edeh (2020) stated that research activities were negatively affected because school closures and lockdowns limit researchers' ability to conduct researches particularly in situations whereby face-to-face interactions with students and teachers are required or access to school facilities or research laboratories were denied. School driven innovations and research are also affected during school closures. Moreover, Heymann and Shindo, (2020) disclosed that teachers were required to teach remotely and students needed adjustments to the new teaching and learning techniques. The transition to online education posed a challenge to learners in countries where there were no relevant infrastructures and facilities that facilitate online education. The problem of the digital divide was also a big issue particularly for learners in rural areas. This is because students and teachers in rural areas often lack the needed facilities and expertise to implement remote teaching and learning while many lacks the required digital skills to implement online education. Technology remains a therapy to bridge the educational gaps that often emanates from unscheduled closure of schools during pandemics

Ashrafi-Rizi and Kazempour (2020) suggested that closing schools are not the only option to mitigate coronavirus. They advocated for authorities to give parents some flexibility to choose what is best for their families, while implementing stronger mitigation measures. To mitigate the effects that accompanied the closures of schools, educators and learners had to rely on use of technological tools and platforms to ensure continued education. Consequently, it is important to admit in the present study that despite the perceived challenges imposed by school closures for coronavirus, the option remains one of the most effective measures to halt the spread of the pandemics.

### **Influence of digital library services on learning and research during COVID-19 lockdown period in Nigeria**

The services rendered with the help of information and communication technologies are faster and more effective. Moreover, it creates faith and confidence about the products and services of an organization among its customers. The electronic services have changed the procedure of information handling with the help of development of digital library. The digital library service facilities which is easy and instantaneous access of required information, provides opportunities for libraries to increase the scope of their resources, services and their users (Onyema and Deborah, 2019).

According to **Milind and Dipak (2012)**, the purpose of digital library services is to enable the user to access the information required for knowledge enhancement. Digital Library rooted in recent years the expression "*learn anywhere and anytime*", which obviously leads to the thought of alternative information. In any pandemic and in Nigeria's COVID-19 Lockdown, according to *Muhammad (2020)*, there are three

dimensions to a digital library service's role:

To promote public health awareness by creating and disseminating information regarding COVID-19 preventive measures; To succeed public health strategies, require social acceptance of measures such as school closures, remote working, home isolation, the monitoring the health of symptomatic individuals using telephone or online health consultations (Heymann and Shindo, 2020). There are various topics which need to be embedded in awareness campaigns about COVID-19 - for example the steps individuals can take to prevent transmission - general instructions on using masks, handwashing, and the use of sanitizers, the avoidance of handshakes and various other ways to control the spread of the virus. Other useful information might include histories from those who are recovering from this coronavirus and advice on good, nutrition and lifestyle which can reduce the risk of this disease.

To support research team, researchers and faculty by providing information regarding the latest developments, research and literature; Digital library has been used to support medical staff, academics, research teams and para medical staff by drawing attention to the latest developments regarding vaccination, diagnosis kits, and relevant studies published in medical journals (Wilder-Smith, and Freedman, 2020). To meet the core needs of regular library users. During a pandemic the digital library must also continue support its regular users. During the recent lockdown many libraries have managed to provide virtual support to their users, such as provision of references, document delivery, literature searches, and systematic reviews. Some libraries have initiated online webinar and sessions to keep in touch with their users via Google Classroom, Google Hangouts, Skype, or Zoom (Muhammad, 2020).

### **Methodology**

*Descriptive research design of survey type was adopted for the study.* Survey research seeks the opinion of individuals on a particular problem and the consensus of the opinion is expected to provide solutions to the problem. The population of this study comprises of all the 10 academic librarians in Gbenga Daniel's Library, Tai Solarin University of Education. Total enumeration was used to include all the 10 academic librarians to constitute the sample size for the study. A questionnaire developed by the researcher was used to collect data for the study. In order to ensure the validity of the questionnaire, the researcher gave the draft of the questionnaire to two (2) experts in the field of Library and Information Science who checked the content to see whether the instrument actually measured what it ought to measure which was later subjected to corrections. The questionnaire was administered personally to ensure the excellent response rate as well as to avoid any misunderstanding while providing responses. The data collected was analysed using frequency count, percentages and mean scores. The decision was that any item with a mean score of 2.50 and above was regarded as accepted while any item with a mean score below 2.50 was regarded as rejected.

## Presentation of Results and Discussion of Findings

**Table 1: Demographic information**

Option	Frequency	Percentage (%)
Gender		
Male	5	50.0
Female	5	50.0
Total	10	100.0
Age (Years)		
Below 40 years	3	20.0
41 - 45 years	1	10.0
46 - 50 years	3	30.0
51 years and above	3	30.0
Total	10	100.0
Educational Status		
MLIS/M.Sc/M.ED	9	90.0
PhD	1	10.0
Total	10	100.0
Working Experience		
Below 5 years	1	10.0
5-10 years	4	40.0
11-15 year	3	30.0
16 years and above	2	20.0
Total	10	100.0
Job Position		
University Librarian	1	10%
Deputy University Librarian	1	10%
Principal Librarian	3	30%
Senior Librarian	2	20%
Librarian I	2	20%
Assistant Librarian	1	10%
Total	10	100%

Table 1 above shows gender of the respondents, 42.5% of the respondents were male while 57.5% of the respondents were female. This shows that female respondents are respondents more than male in the study area. Also, 30% of the respondents were below the age of 40 years, also, 10% of the respondents were between 41 - 45 years of age, in addition 30% of the respondents were between the age of 46 - 50 years while 30% of the respondents were 51 years and above respectively. In addition, 90% of the respondents were MLIS/M.Sc/M.ED holder, while 10% of the respondents was PhD holder. Moreover, 10% of the respondents have below 5 years of experience in library work, moreover, 40% of the respondents have between 5-10 years of experience in librarianship, however, 30% of the respondents had 11-15 years of experience in the organization and 20% of the respondents had 16 years and above in the field of

librarianship in the selected university. Lastly, table above shows the status of the respondents in the university library, one respondents representing 10% is University Librarian, also, one respondents representing 10% is Deputy University Librarian, meanwhile, 3 respondents representing 30% were Principal Librarian, in addition, 2 respondents representing 20% were Senior Librarian, while two respondents representing 20% was Librarian I and one respondents representing 30% is Assistant Librarian.

### **Analysis of Research Questions**

**Research Question 1:** What is the purpose of using digital library service by library users during COVID-19 lockdown period in Nigeria?

**Table 2: Purpose of using digital library service during COVID-19 lockdown period**

S/N	Items	High	Moderate	Low	Mean	Decision
1	To enhance advanced search, access and retrieval of information.	7 70%	3 30%	-	2.7	High
2	To access the information required for knowledge enhancement	8 80%	2 20%	-	2.8	High
3	To meet the core needs of library users anywhere and anytime	6 60%	4 40%	-	2.6	High
4	To increase library scope of resources and services	5 50%	3 30%	-	2.1	Moderate
5	To link and shared online resources like references, documents, literatures, and systematic assessment	5 50%	5 50%	-	2.5	High

Table 2 above shows the purpose of using digital library service during COVID-19 lockdown period. The high mean rating of 2.7, 2.8, 2.6 and 2.5 shows the major purposes of using digital library service during COVID-19 lockdown period are to enhance advanced search; to access the information required for knowledge enhancement; to meet the core needs of library users; and to shared online resources. While mean rate of 2.1 shows that there is moderate in utilization of digital library in terms of library scope of resources and services using during COVID-19 lockdown period

**Research Question 2:** What are the effects of COVID-19 lockdown on learning and research activities in Nigeria?

**Table 3: Effects of COVID-19 lockdown on learning and research activities in Nigeria**

S/N	Items	High	Moderate	Low	Mean	Decision
1	Interrupted learning	8 80 %	2 20%	-	2.8	High
2	Shattered the academic dreams of students	3 30 %	7 70%	-	2.3	Moderate
3	Denied access to school facilities and research laboratories	8 80 %	1 10%	1 10 %	2.7	High
4	Loss of interest in reading habit among learners	7 70 %	2 20%	1 10 %	2.6	High
5	Limit researchers' ability to conduct researches	9 90 %	1 10%	-	2.9	High

Table 3 above shows the effects of COVID-19 lockdown on learning and research activities in Nigeria. The mean ranking of 2.8 shows that COVID-19 lockdown **interrupted learning**. Furthermore, the moderate mean score of 2.3 shows that COVID-19 lockdown shattered the academic dreams of students, also, the high mean score of 2.7 indicated that COVID-19 lockdown enhanced denial of access to school facilities and research laboratories while high mean score of 2.6 disclosed that COVID-19 lockdown creates loss of interest in reading habit among learners and 2.9 high mean score shows that COVID-19 lockdown limit researchers' ability to conduct researches in Nigeria.

**Research Question 3:** What influence do digital library service had on learning and research during COVID-19 lockdown period in Nigeria?

**Table 4: Influence of digital library service on learning and research during COVID-19 lockdown period in Nigeria**

S/N	Items	High	Moderate	Low	Mean	Decision
1	Promote public health awareness	8 80%	2 20%	-	2.8	High
2	Enhanced dissemination of information regarding COVID-19 preventive measures	7 70%	3 30%	-	2.7	High
3.	Provides information regarding the latest developments in academics	6 60%	1 10%	3 30%	2.3	Moderate
4	Encourage researches' team work during isolation and lockdown	3 30%	7 70%	-	2.3	Moderate
5	Enable researcher to acquired relevant journals and literatures	5 50%	5 50%	-	2.5	High

Table 4 above shows the influence of digital library service on learning and research during COVID-19 lockdown period in Nigeria. In ascending order, the major influenced of digital library service on learning and research during COVID-19 lockdown period in is to promote public health awareness with mean rate of 2.8 followed by dissemination of information *regarding COVID-19* preventive measures with mean rate of 2.7 and enablement of researcher to acquired relevant journals and literatures with mean rate of 2.5. However, information regarding the latest developments in academics and researches' team work during isolation/lockdown was moderate with mean rate of 2.3 respectively.

**Conclusion**

COVID-19 pandemic lockdown in Nigeria has affect learning and research activities in, including research, academic programmes, professional development and jobs in the academic sector etc. These effects were felt by both educational institutions, educators, students and parents and other stakeholders in education. However, digital library has been a means of educational resources and support for public health awareness; support research teams, researchers and faculty; and provide routine core services for regular library users during COVID-19 pandemic lockdown in Nigeria. The study concludes that the need for adoption of digital library in education is a way to curb the effects of Coronavirus lockdown and other future pandemics in Nigeria. Digital library services cover informational sources and to meet the requirements of different ways to users by providing various information resources databases, personalized services, consortia, electronic resources, work abilities of users through the adoption of new search methods, understanding the value of information for research, library spaces near learning, increase educational performance of the college by achieving high levels of professional performance.

### Recommendations

1. It is recommended that digital libraries operators and services should shift from the traditional in-house services to a digitalized library and information service.
2. A need for information exists in every crisis; librarians and information professional must be ready to meet this need whether it is for COVID-19 or something else.
3. Although social distancing is good way to prevent the spread of COVID-19 information access to users remains a social responsibility of our librarians and information personnel.
4. In running an electronic library, buying online materials are very important, so the library must be able to agree to terms and conditions of the copyrights laws and licensing agreement in other to have full access to online materials, even if it means registering with such an organisation.
5. Digital libraries demands the use of steady power of supply, so constant power supply should be made available. Nigerian government through Power Holding Company (PHCN) should provide an uninterrupted power supply at all time to Nigerian citizen
6. It is advisable that digital libraries should be established in every facet of the society and the nation at large.
7. Electronic/digital libraries operators should carefully plan, efficiently executed, well reported a means of disseminating an authentic and reliable information to the community, it can be a vital tool in controlling false information and during and after Coronavirus (COVID-2019) lockdown in Nigeria.

### References

- Abubakar, L. Bala, H. & Augustine, U. (2020): COVID-19 Pandemic and Social Media News in Nigeria: The Role of Libraries and Library Associations in Information Dissemination. *International Journal of Innovation and Research in Educational Sciences* 7(2), 2349-5219
- Ashrafi-Rizi, H., & Kazempour (2020). Z. Information Typology in Coronavirus (COVID-19) Crisis; a Commentary. *Archives of Academic Emergency Medicine*, 8(1), 19.
- Baro, E.E. (2010), "A survey of digital library education in library schools in Africa", *OCLC Systems and Services*, 26 (3), 214-223.
- Edeh, M. O. (2020): **Impact of Coronavirus Pandemic on Education**. *Journal of Education and Practice*. 2 (30), 106 - 121
- Heymann, D. L., & Shindo, N. (2020). COVID-19: what is next for public health? *The Lancet*, 395(10224), 542-545.
- IFLA (2020), COVID-19 and the Global Library Field. Retrieved 31/03/2020 from <https://www.ifla.org/covid-19-and-libraries>
- Isaac, A., Philip C. & Isaac, U. (2018): The Potentials of Electronic Libraries (E-Libraries) In Knowledge Management in Contemporary Libraries in Nigeria *International Journal of Library and Information Science Studies*. 4(2), 13 - 20,

- Jie, S. & Bao-Zhong, Y. (2012): Development and Characteristic of Digital Library as a Library Branch. *Procedia* 2, 12 – 17
- Kavita, A. (2011): Digital library: today's need- a review. *International Multidisciplinary Research Journal*, 1(11):17-19
- Lipsitch, M., Swerdlow, D. L., & Finelli, L. (2020). Defining the epidemiology of Covid-19 – studies needed. *New England Journal of Medicine*. 382:1194-1196
- McGowan, M. (2020, March 17). Coronavirus school closures: dozens of Australian private schools move to online learning | Australia news | *The Guardian*.
- B. A. & Dipak, P. G. (2012): The Impact of Electronic Library Services on Libraries, *International Journal of Advanced Research in Computer Science*, 3 (3), 741-744
- Muhammad, Y. A. (2020): The COVID-19 (Coronavirus) Pandemic: Reflections on the Roles of Librarians and Information Professionals. *Health Information & Libraries Journal*: 1-10
- National Digital Library of India (2020). COVID-19 Lockdown not to affect your study. Study through National Digital Library of India. <https://ndli.iitkgp.ac.in>
- Nayak, C. (2013): "Impact and challenges of e-learning in digital environment. *Asian Journal of Library and Information Science*, .5:76-80.
- Onyema, E. M. (2020). Pedagogical use of Mobile technologies during Coronavirus School Closures. *International Multidisciplinary Research Journal*, 8, 40–44.
- Onyema, E.M., & Deborah, E. C. (2019). Potentials of Mobile Technologies in Enhancing the Effectiveness of Inquiry-based learning. *International Journal of Education (IJE)*, 2(1), 1–25.
- Pomerantz, J. (2007). "The digital library as place". *Journal of Documentation*. 63 (4): 505–533
- Rosenberg, D. (2006). Towards the Digital Library in Africa. *The Electronic Library*, 24(3), 289-293.
- Sangsuree, V. (2011): Open Source Library Management System Software: A Review. *World Academy of Science, Engineering and Technology*, 2011, 77: 973-978.
- Shen, X. (2008): A review of the major projects constituting the China Academic Digital Library. *The Electronic Library*; 26 (1): 39-54.
- UNESCO (2020). Press release, 24th March, 2020 on COVID-19 <https://en.unesco.org>
- UNESCO: 290 Million Students Stay Home due to Coronavirus. (2020, March 7). Retrieved April 21, 2020, from learningenglish.voanews website: <https://learningenglish.voanews.com/a/unesco-290-million-students-stayhome-due-to-coronavirus/5317148.html>
- Velumani, K. V. (2013). An investigation into the impact of e-resources in modern Library and Information Centers. Retrieved from: <http://hdl.handle.net/10603/54204>
- Vishwanthan , K. R. (2001): Digital Libraries: development and principles, *Library Review*, 50 (1):10-16.
- Wilder-Smith, A., & Freedman, D. O. (2020). Isolation, quarantine, social distancing and community containment: pivotal role for old-style public health measures in the novel coronavirus (2019-nCoV) outbreak. *Journal of Travel Medicine*, 27(2), 1-20.
- Wrenn, V. (2015) *Effects of Traditional and Online Instructional Models on Student Achievement outcomes*. Doctoral Dissertation, Liberty University