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Covid – 19 pandemic and the future of Nigeria's university system: The quest for libraries' relevance



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ABSTRACT

The paper examined the role of academic libraries in the evolving paradigm shift in teaching methodologies in Nigerian universities as a result of the outbreak of Covid-19. It x-rayed the current global trends in online education and significant roles libraries can play. Responsive library website design and adoption, adoption of blended librarianship model and use of social networks among others were identified as best practices to adopt in order to secure a place for libraries in Nigeria in the face of the eminent change in teaching methodologies post Covid-19. Furthermore, the study considered perceived challenges libraries may be confronted with in deploying relevant ICT infrastructures geared towards transitioning from traditional to online provision of services in support of teaching and learning. The paper recommended dynamism in library service delivery, urgency in the acquisition of new skill sets by academic librarians in Nigeria, while also calling on relevant stakeholders to provide adequate funding for libraries in order to be able to deploy relevant ICT infrastructures needed to adequately support teaching and learning in a virtual environment.

Introduction

The novel Coronavirus (Covid-19) pandemic broke out in Wuhan, China in December 2019 (Kandola, 2020). In the early days of the crisis, most African countries including Nigeria focused their response on either repatriating or sending assistance to their students who were stranded in Wuhan. This response has changed, as the pandemic has since spread into African countries including Nigeria. On February 27, 2020, Nigeria confirmed and recorded her first case of Covid-19; the index case was an Italian who had just returned to Nigeria from his home country. From the initial cases of imported transmission, Nigeria recorded community- transmission cases. This has resulted in thousands of confirmed cases of covid-19 in the country. In a bid to curtail the spread of the virus, the initial response of the Nigerian Government was the closure of all schools, including universities beginning in March 2020. Consequently, all students ranging from undergraduate to post-graduate students had to leave their university campuses, putting an abrupt end to academic activities and disrupting academic calendars across various institutions.

There are one hundred and seventy-four (174) Universities in Nigeria (National Universities Commission, 2020); the mode of teaching has been the traditional method, which consists of lecturers or teachers having physical meetings with students in a classroom building

for the purposes of lecture, examinations, seminars and project/thesis defense. Ifijeh et al. (2015) observed that very few Nigerian universities operate e- learning platforms, which merely allowed for upload and download of lecture notes, as well as giving and submission of students' assignments. In the same vein, the methods of information provision by libraries in Nigerian universities have been traditional; these entail the acquisition and dissemination of information resources to members of the University community in furtherance of the attainment of institutional objectives. Information resources are organized and kept in different sections of the library building, with emphasis on hard copies. Some of the libraries also provide access to electronic resources using IP addresses or remotely through login details like usernames and passwords. Reference and information literacy services are carried out mainly through traditional methods (face-to-face meetings). However, these traditional methods employed by university and library systems in Nigeria have collapsed, since students left their campuses on account of the Covid-19 pandemic. Due to the need to keep students engaged at home and complete their academic calendars, Universities have begun to adopt online teaching and learning methodologies (University World News, 2020a, 2020b). Some universities are already thinking of adopting a hybrid teaching methodology, which involves a combination of traditional and online methods post Covid-19 (Atayero, 2020). Consequently, University libraries' traditional methods (which requires

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physical contact between the library and users) of meeting the information needs of users have become redundant during the current pandemic and may remain so post Covid-19. With competition from online information sources and University Managements' negative perception on the relevance of the library and librarians, University libraries are being challenged to adjust to new paradigm shifts as they strive for survival and sustained relevance (Iwu-James et al., 2020). This paper focuses on the role libraries could play in the emerging paradigm shift in the Nigerian universities' teaching methodologies post Covid-19.

Literature review

The development of the Nigerian University education system has come a long way. Otonko (2012) opined that the history of University education in Nigeria can be traced to the Elliot Commission of 1943, which recommended the establishment of the University College, Ibadan in 1948 as an affiliate of the University of London. Over the years, more universities have been established, culminating in the current figure of one hundred and seventy-four (National Universities Commission, 2020). Categorizing the Universities shows that 43 are owned by the Federal Government, 52 are owned by various State Governments and 79 are owned by private individuals and bodies. It is important to note these Universities were established along with libraries to meet the information needs of lecturers, students and other members of the University communities. Odimayo (2019) noted that the objectives of Nigeria University education are based on the National Policy on Education that implies the following:

- Education is an instrument for national development, and the interaction of persons and ideas are all aspects of education.
- Education fosters the worth of development of the individual, for each individual's sake, and general development of the society.
- The training of the mind in the understanding of the world around.
- The acquisition of appropriate skills and competencies as equipment for the individual to live in and contribute to the development of the society.

From inception to now, the attainment of educational objectives in the Nigerian University system has been achieved through non electronic teaching and learning methodologies. Eze et al. (2018) posited that the traditional educational system required having students on campus and taking lectures, examinations, seminars and other academic assignments in classrooms in physical buildings. Other support services like library operations and services are built around this traditional system. Thus, most library services are modelled in such a way that users have to be on campus to utilize them. Asogwa et al. (2015) observed that most Nigerian academic libraries offered non electronic/internet-based services. Perhaps the only resemblance of an online service was the provision of electronic databases; the latter noted that only a few libraries could provide access to databases because of infrastructural and maintenance problems. However, the traditional methods adopted by universities and libraries attained some level of success in the achievement of educational objectives before the breakout of Covid-19 pandemic and the subsequent shutting down of universities in the country. University World News (2020a, 2020b) reported that Universities across Africa, including those in Nigeria are shifting to online teaching and learning, though most of these efforts are at their initial stages of implementation. Professor A. Atayero, the Vice-Chancellor of Covenant University, a privately owned institution in Nigeria, in a webinar on the future of education post Covid-19, opined that the shutting of universities and the subsequent adoption of online teaching and learning methodologies have opened a new window of opportunities for Nigerian Universities which can be further explored post Covid-19 (Atayero, 2020). The latter further posited that though the adoption of online teaching methodologies is not new in

developed countries, it is novel in Nigeria and have come to stay post Covid-19. Before now, the only resemblance of out-of-campus teaching and learning program was the distance education program run by a few universities in the country. However, no real online teaching takes place, as students are required to visit the campus periodically and are provided with materials which they take home for further studies; they are also required to visit the library for their information needs to be met. Atayero (2020) opined that Nigerian Universities may adopt a combination of traditional and online teaching methodologies like their counterparts in developed countries post Covid-19. Whatever be the case, libraries would need to find a place in the scheme of things if they must remain relevant in the University system in Nigeria. Literature indicates that university libraries in developed countries have always utilized online platforms for meeting the information needs of users, provide user education and information literacy, as well as conduct orientation for freshmen (Fernández-Ramos, 2016; Gonzales, 2014). In the course of the Covid-19 pandemic, many university libraries across Europe and America continued to render online services to their users during the lockdown. A good example is the University of Sussex, which did not only offer vital online services, but also provided academic materials made freely available by publishers during the lockdown (University of Sussex Library, 2020). On the contrary, literature did not report any Nigerian university library actively involved in providing online information resources to support the online educational activities of their institutions during the period of the lockdown; a routine and random check on the websites of some of the libraries indicated that nothing was ongoing to support the online education of users.

Global trends in online education and the role of libraries

Online teaching and remote learning (also referred to as online education) are part of educational processes that take place through the medium of internet (Stern, n.d.). They fall under the category of e-learning among other terms. Online teaching and learning methodologies are the latest media for carrying out distance education. They could be synchronous or asynchronous in nature. Stern (n.d.) outlined the advantages of online teaching and learning methodologies to include the following:

- Convenience: 24/7 access from any online computer; accommodates busy schedules; no commuting, no searching for parking.
- Enhanced learning: research shows increased depth of understanding and retention of course content; more meaningful discussions; emphasis on writing skills, technology skills, and life skills like time management, independence, and self-discipline.
- Leveling of the playing field: students can take more time to think and reflect before communicating; shy students tend to thrive online; anonymity is guaranteed in an online environment.
- Interaction: increased student-to-teacher and student-to-student interaction and discussion; a more student-centered learning environment; less passive listening and more active learning; a greater sense of connectedness, synergy.
- Innovative teaching: student-centered approaches; increased variety and creativity of learning activities; address different learning styles; changes and improvements can translate to on-ground courses as well
- Improved administration: time to examine student work more thoroughly; ability to document and record online interactions; ability to manage grading online.
- Savings: accommodate more students; increased student satisfaction, higher retention and fewer repeats.
- Maximize physical resources: lessen demand on limited campus infrastructure; decrease congestion on campus and parking lots.
- Outreach: give students options; reach new student markets; appeal to current students, thus increasing enrollments.

For Universities in developed countries of North America, Europe and parts of Asia and Africa, the concept of online education is not novel. Some of them have embraced the concept in the form of blended learning or collaboration with external bodies that run Massive Open Online Courses (MOOCs). However, the outbreak of the Covid-19 pandemic has necessitated the adoption of online education by Universities across the world (Czerniewicz, 2020). Hodges et al. (2020) refer to this temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstance as Emergency Remote Teaching (ERT). However, for Universities in developing countries like Nigeria, the traditional instruction delivery methods may not be retained post Covid-19. Atayero (2020) observed that Universities in Nigeria have adopted online teaching and learning as a response to Covid-19 pandemic emergency; he further noted that this trend will continue post Covid-19, as it has opened Universities to educational opportunities, which were not hitherto considered. Nigeria Universities may adopt blended learning methodologies – a combination of traditional instructional delivery and online teaching methods; they may also extend online teaching to holiday periods, when the students are at home. Some universities may even venture into online certificate programs. Consequently, University libraries especially in developing countries like Nigeria would need to follow the paradigm shift in the provision of teaching, learning and research materials in order to remain relevant. In this regard, they have a lot to learn from their counterparts in developed countries.

Historically, libraries have always been tasked to be involved in distance education programs including online teaching and learning. Lebowitz (1997) opined that ‘as the growth of online education has increased and become popular over the years, the need and demand for library resources and services has also grown’. Consequently, Groeling and Boyd (2009) observed that not only have the type and format of resources available been changing in academic libraries, the role and designation of the librarian have also been redefined. In many Universities in North America and Europe, librarians are now designated as “embedded librarians” in line with their roles in both campus and distance education programs. In a survey carried out in six institutions on the involvement of libraries and librarians in online courses, students, faculties and instructors reported that libraries and librarians were very effective in providing teaching and learning resources for the success of the programs (Hoffman, 2011). In the past, libraries could only provide limited services through email reference, document delivery and inter-library loan. With the advent of technologies that enabled course contents to be accessed anywhere and at any time, and the capability of libraries to provide documents and other resources through the internet, librarians have become pivotal in running of online programs. For example, Oldham (2008) reported that since the early 2000s, the University of Scranton library in the United States became so strong in virtual presence, that the library’s website literally became the library for distance education students (Oldham, 2008). The latter reported that ‘in 2002, the university designated one librarian specifically as the distance education library services coordinator with the task of providing resources and services to the growing online distance education community’. Cassner and Adams (2012) summarized the role that librarians and libraries can play in online education as initiating and managing programs and services through the application of information and communication technologies, especially the internet in: (1) helping with searching and locating resources for assignments; (2) teaching users how to use these resources; and (3) supporting their educational needs. It is also important to note that libraries also support online education through the provision of electronic databases and repositories. The electronic resources are often listed on the library websites and are accessible through hyperlinks.

Apart from the provision of document delivery, reference and information services through dynamic and user-friendly library websites, many universities have embraced the concept of an ‘embedded

librarian’ in the operation and management of online education. In this context, blended librarianship entails placing the librarian in the electronic classroom, where he can directly interact with both the instructor and students, and contribute to the attainment of educational objectives through the provision of relevant teaching and learning resources. The benefit of having a blended librarian within the online education setting is that the librarian is able to interact directly with the instructor and learners using the same online platform (Corbett & Brown, 2015); in some universities, the embedded librarian plays the role of a co-instructor, whose responsibility is to provide required teaching and learning resources for a specific course or program, thus helping the instructor to spend less time answering questions and searching for relevant materials to prepare the course content (Hoffman, 2011). It is however important to note that in developing countries, such as Nigeria, not many academic libraries and librarians have full understanding of their expected roles in the blended learning environment (Adebayo et al., 2019).

Many university libraries have also embraced the use of social media platforms in information and reference services delivery. From a survey on the use of social media in over 1200 libraries across Europe, Allen (2010) observed that social media platforms like Facebook, blogging, widgets and microblogging were used by libraries in maximizing library exposure, modernizing library image, and promoting specific content offers. Social media platforms are also helpful in online reference and information services, as well as library orientation and information literacy programs. Cook (2015) reported that the American Public University used social media to connect online students with library resources. This trend is common among libraries in developed nations. The use of social media networks for library services is still at infant stage in most developing countries, including Nigeria (Adewoyin et al., 2017).

Applications and implications for Nigeria University libraries

As earlier observed, libraries should find a place in the emerging change in teaching methodologies in Nigerian universities post Covid-19. University libraries in Nigeria have a lot to learn and adopt from best practices around the world. Some of these practices as well as their applications and implications for Nigeria University libraries are discussed below:

Responsive library website design and adoption

A major feature of online education is the fact that teaching and learning takes place in a virtual space. In order to satisfy the information needs of online users, libraries have to design and adopt e-discovery tools. A very important e-discovery tool is the library website. A library website is designed to publicize library, information and reference services as well as enhance document delivery. Gbaje and Kotso (2014) opined that for a library website to meet the information needs of visitors and conform to best practices, it should include the following:

- a. provide a single point of access to library resources
- b. allow teaching staff to direct students to useful resources more easily
- c. promote the resources held by the library, including subscription
- d. improve navigation of library resources
- e. improve access to scholarly and educational web based resources
- f. provide more efficient access to e-resources
- g. improve information service delivery
- h. provide library services 24/7
- i. facilitate access to library and information services remotely

In a study of the Library websites of Federal Universities in Nigeria, Gbaje and Kotso (2014) observed that some Nigeria University libraries do not have websites; they further noted that among the forty (40)

Federal University Libraries who had websites, only few met the standards and requirements of global best practices. In a similar study, Mohammed et al. (2016) revealed that many Nigeria University libraries do not have functional and updated websites. Perhaps the beginning point for libraries' participation in the emerging Nigeria University online education system is the designing and adoption of responsive websites.

Library patrons use various devices to access the internet. These devices include desktops, laptops and mobile devices like androids, iPhones and others. In designing effective websites, libraries should adopt the responsive web design approach to accommodate various user behaviors and preferences especially with regards to devices. Responsive web design is 'the approach that suggests that design and development should respond to the user's behavior and environment based on screen size, platform and orientation' (Smashing Team, 2011). This is important because as users switch from one device to another, the website is enabled to automatically switch to accommodate different resolutions, image sizes and scripting abilities. These features make online exploration of library and information resources and services very exciting and interesting. A very good model of responsive library website is that of The Grand Valley State University Libraries in the United States (accessible at <https://www.gvsu.edu/library/>). Libraries would need to engage the services of professional Web Designers and Software Engineers to develop effective and responsive websites. They could either outsource the development, management and maintenance of their websites to vendors or employ the aforementioned professionals as full time staff. It is important to note that the library website should be well secured and protected against the activities of hackers and virus attacks. Contents on the websites should be updated from time to time.

Adoption of the blended librarianship model

Blended librarianship is a relatively new concept in developing countries like Nigeria. It suggests the combination of 'the traditional skill set of librarianship with the instructional technologist's hardware/software skills and the educational designer's ability to apply technology appropriately in the teaching-learning processes (Bell & Shank, 2007). Fig. 1 below illustrates the model:

The concept promotes the direct and automatic integration of librarians and library resources in the teaching - learning process on

online platforms. Dabengwa et al. (2019) opined that blended librarianship is the 'magic formulae' that will portray the relevance and performance of the academic librarian in the teaching, learning and research processes. There are many e-learning platforms (also known as virtual learning environments) that can facilitate blended librarianship. They are categorized into commercial and open source software. Examples include Moodle, Blackboard and a host of others. One of the most commonly used is the Modular Object-Oriented Dynamic Learning Environment (Moodle). It is easily adaptable because it is open source and relatively cheaper to install and maintain. The learner support block in Moodle 2.7 provides the library's guide for learners. Other blocks in Moodle like tutorials, library reading lists, embedding search widgets and embedding a librarian provide support for blended librarianship. The University of Louisiana libraries have successfully deployed the Moodle platform in embedding librarians and library materials in the teaching- learning process of the University (University of Louisiana libraries, 2020). This system can be adopted by Nigeria University libraries. Some Nigerian Universities (like Covenant University) are currently deploying Moodle for online lectures as a result of the Covid-19 lockdown. Libraries in these Universities could take advantage of the platform to promote the concept of embedded librarianship. However, it is best to embed librarians in online classes on the basis of subject specialization. A subject librarian has a degree in a subject area or academic discipline, in addition to librarianship. Subject librarians are able to provide professional services and assistance tailored to individual users.

Use of social networks

Social media networks are growing rapidly as channels of communication and interaction among individuals. The major advantages of social media networks are their abilities to establish and build relationships and build social interaction; thus helping libraries to connect with the information needs of users. For online users, social networks help libraries to create awareness and promote new information material and services. Social networks also promote the exchange of queries and answers among librarians and library users; thus librarians are able to provide answers to the queries of online users. Some of the social networks used by libraries include Facebook, YouTube, Blogging, Whatsapp, telegram, twitter and others. Online orientation and user training programs can be promoted through these platforms. University

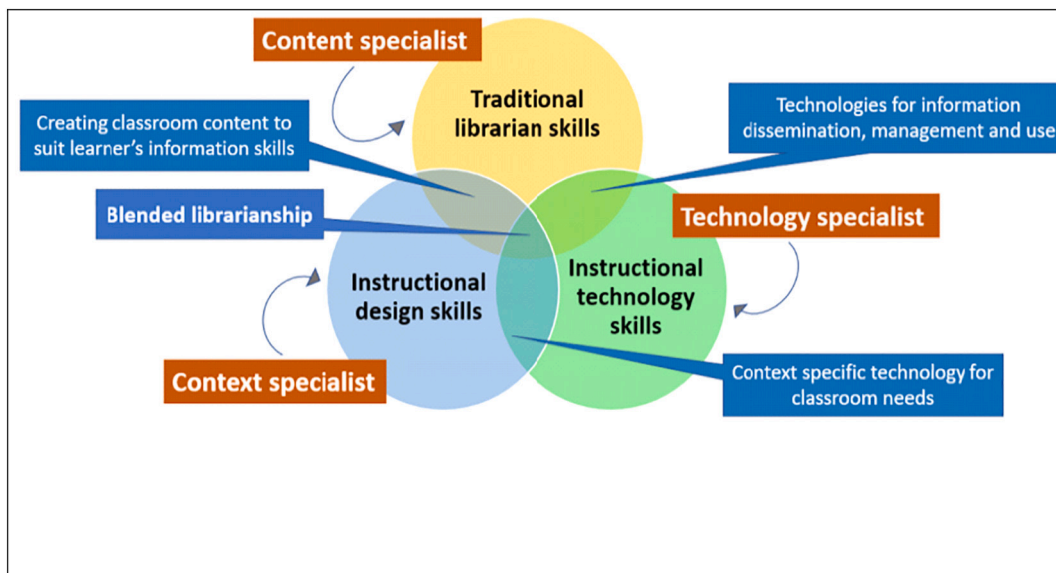


Fig. 1. The blended librarianship model. Adapted from: (Bell & Shank, 2004, 2007, 2011; Corral, 2010).

libraries in Nigeria could also leverage on these networks to promote information resources and services to online users. Details of these networks should be available on the libraries' websites for easy identification and access.

Perceived challenges

There are perennial challenges hindering libraries from executing information and communication technology (ICT) projects in Nigeria. Available literature have shown that issues of apathy towards libraries and librarians, poor technological infrastructure, inadequate funding and librarians' poor ICT skills should be resolved for libraries to be able to render electronic- based services (Ifijeh, 2014; Mohammed, 2013). Some of the challenges are outlined below.

Apathy towards libraries and librarians

In most Nigerian Universities, subject/course departments and lecturers are seen as the 'major stakeholders' in the University community. The roles of libraries and librarians as well as other non-teaching units/staff are considered as supportive. Consequently, the University Management pays more attention and provides more resources to these 'stakeholders' while libraries and other non-teaching units are relegated to the background. Though librarians are accorded 'academic status', they have to prove and constantly remind their fellow colleagues and/or heads of institutions of their eligibility to be treated equally as other teaching faculty members. There are inequalities and discriminations in nomenclature, appointments into University Committees and other privileges. Libraries are relegated to the background; they only become relevant during accreditations by regulatory bodies. For example, it will be an uphill task to convince University authorities and teaching faculty to integrate librarians into the teaching-learning process in the form of blended librarianship; the reason is simple: they do not consider librarians as faculties who should be directly involved in teaching. Similarly, with the advent of internet and the emergence of open access and search engines like Google and others, libraries are treated as the first casualties of budget cuts.

This apathy further manifests in the form of non-approval of training programs for librarians and sometimes lack of remunerations to facilitate librarians' participation in capacity building workshops and conferences (Agbaja, 1999; Itsekor, 2011).

Inadequate funding

Any endeavor that involves the deployment of ICTs is capital intensive; libraries are not exempted from these costs. It has however been established that academic libraries in Nigeria are poorly funded. Daniel (2013) observed that lack of funds is the major reason for the underdevelopment of libraries in Nigeria. University libraries get their funding mainly from the 10% recurrent budgetary allocation of their parent institutions as stipulated by the government. This is barely enough to cover recurrent expenditure. Though information on specific estimates of Nigerian university and library budgets are not available in public domain, Deji-Folutile and Oketola (2014) reported that an average Nigerian university gets an estimated annual income of N3.6 billion (about \$7.2 million) from government allocations and internally generated revenue (from school fees and other sources). The university library is expected to get 10% of the estimated income, which will amount to about \$720,000. However, Alabi et al. (2013) observed that many libraries do not get up to 10% of their university budgets because much of the income is spent on other priority areas like staff salaries and allowances, administrative operational costs, research and capital projects like building of hostels, classroom blocks, and others. They also noted that library budgets are never fully implemented due to lack of funds. Consequently, most academic libraries spend a greater proportion of their income on book acquisitions, subscriptions to online

databases, and journal and newspaper acquisitions, with nothing left to cater for other projects.

In the 2019 national budget, the Federal Government of Nigeria allocated about \$1.2 billion for both capital and recurrent expenditure for all federal government owned institutions (secondary and tertiary) in the country (Ameh & Aluko, 2019). This amount is not sufficient for massive ICT infrastructural development required in higher institutions of learning and their libraries. Arising from the global economic melt-down and currency inflationary crisis, the government is not prepared to increase budgetary allocation to education any time soon.

Poor technological infrastructure

Nigerian library professionals are aware of benefits of ICT and it is evident that they are positively disposed to introducing ICT to their traditional services. Library services can better support teaching and learning by leveraging on the benefits of ICT. This awareness has prompted libraries to propose several ICT projects; however technological infrastructural challenges seem to be the major barriers to execution of such projects. It has been observed by Davies et al. (2019) that technological infrastructure that could facilitate projects in Nigeria and other developing countries, has not received the required attention from relevant authorities. Libraries are subdivisions of their parent bodies and several of their projects depend on decisions from such bodies. Low attention to such infrastructures from the parent bodies makes libraries appear as though they have no capabilities to execute ICT projects.

It has been consistent in literature that technological infrastructure suffer poor management, theft, low electricity supply, poor manpower engagement and total neglect (Gillwald et al., 2018). Hardware and software needed to maintain constant support for educational activities by libraries in Nigerian institutions of learning may not be possible due to meager budget. These technologies are constantly updated to higher versions to meet current demands and if libraries do not enjoy financial support, it becomes practically impossible for libraries to keep up with new trends.

Gross inadequacy of technological infrastructure has stalled deployment of initiatives that could have better projected the services of librarians leading to quality service delivery in support of virtual teaching and learning. Furthermore, libraries which are generally non-profit oriented are perceived by parent bodies as not deserving maximum attention, hence the poor technological infrastructural support (Esew & Ikyembe, 2013).

Lack of skilled personnel

Traditional methods of administering library services aimed at providing support for teaching, learning and research in higher institutions of learning has experienced tremendous change as a result of ICT. Libraries now operate beyond the walls of their buildings tilting more towards the virtual environment (Thanuskodi, 2015). The need for librarians in Nigeria to improve their ICT skills with the urgency it deserves therefore cannot be overemphasized. No matter the level of sophistication of ICT infrastructure deployment in the library, librarians must possess relevant ICT skills to be able to maximize their use in meeting the dynamic information needs of users and to contribute meaningfully in the emerging change in teaching methodologies. Literature has however shown that a number of librarians in Nigeria are low on ICT skills needed to provide efficient library services in support of teaching and learning (Nkamnebe et al., 2015). Unless librarians take up the challenge of acquiring new skill sets necessary to operate in an environment of constant change, their future relevance may be in doubt.

Conclusion and recommendations

The outbreak of the Covid-19 pandemic has redefined the narrative especially in the education landscape across the globe. Traditional

teaching methods have been rendered near useless as institutions of learning had to be shut down in order to protect learners from the risk of contracting the virus. Nigeria institutions of learning are among the worst hit due to lack of infrastructures to seamlessly migrate to the virtual learning space. Most academic libraries in Nigeria have also been trapped in this web. The need to be more intentional and dynamic in rendering library services should form major focus of librarians

especially in higher institutions of learning. This is to ensure their sustained relevance post Covid-19. Furthermore, librarians in Nigeria should, as a matter of urgency, develop new skill sets tailored towards providing and redirecting library service delivery in support of learning in a virtual environment. Also, academic libraries in Nigeria should be given their pride of place as academic hubs, through adequate funding to be able to meet up with global best practices.

Appendix A

Table 1

Reading platforms.

Source: African Library and Information Associations and Institutions. (<https://web.aflia.net/suite-of-covid-19-resources-for-librarians/>)

Reading platforms	Web address	Summary
African Storybook	https://www.africanstorybook.org/	Easy to access digital storybooks and other reading materials for children's literacy, enjoyment and imagination.
Anybooks	https://www.anybooks.app	The platform is a treasure trove of bestseller novels of different genres with quite a number of biographies, educational and motivational books. The app is easy to install and navigate.
Book dash Global Digital Library	https://bookdash.org www.digitallibrary.io/	This site has colourfully illustrated books that children will fall in love with. Has beautifully illustrated books for children of different ages in English and different African languages including Hausa, IsiNdebele, Kambi and Shona among others. The site also has Read Aloud books that children can listen to.
StoryWeaver	http://storyweaver.org.in	This is a digital repository of stories and other reading materials for children. AFLIA has a Library on this site with children's stories in different African languages.
World Digital Library	https://www.wdl.org/	Has close to 20,000 resources about countries from 8000 BCE to present times. The resources are contributions from many Institutions including the Library of Congress and UNESCO. They can be followed on Twitter for news on new additions @WDLorg
Worldreader	https://read.worldreader.org	This site has books and stories for children that support the curriculum of many African countries.

Table 2

Resources.

Source: African Library and Information Associations and Institutions. (<https://web.aflia.net/suite-of-covid-19-resources-for-librarians/>)

Resources	Web address	Summary
Byjus	https://byjus.com/	This platform has videos, tests, quizzes, games, interactive lessons and much more for young people to download and learn at home. It is presently providing free access. The content is aligned to India's curriculum.
Discovery Education	https://app.discoveryeducation.com/	Contains instructional resources about viruses and outbreaks. The site puts young people through on the science behind viruses, history, updates and essential guidelines on staying healthy during outbreaks.
Khan Academy	https://www.khanacademy.org/	This site has schedules for children and young people aged between 4-18 yrs. to keep them learning even though schools are closed. The platform enables students to learn at their own pace, filling in gaps that closure of schools would have widened.
LabXchange	https://www.labxchange.org/	LabXchange brings together high-quality content from a variety of sources in the form of online learning assets, including videos, assessments, and simulations. The platform promises resources for everyone – teachers, parents, students.
Mindspark	http://mindspark.in/	This computer-based online self-learning site is presently offering 60 days free access to students to improve on Mathematics as a subject.
One Course	https://onebillion.org/	This site is for children with a comprehensive course in different modules to help children learn how to read, write as well as to understand numbers.
Siyavula	http://www.siyavula.com/	The content in this site is aligned with South Africa's curriculum in Mathematics and Science. Free, open resources are also available on the site.
Ubongo	https://ubongo.org	Children love watching TV. This site uses entertainment such as cartoons with African backgrounds and characters to deliver effective localized learning.
ULesson	https://ulesson.com	The platform is tailored mainly for Nigeria's secondary school curriculum in Biology, Chemistry, Mathematics and Physics.
Ustad mobile	https://www.ustadmobile.com/lms/	This platform can deliver educational content without Internet or WiFi once set up.

Table 3

Meeting and presentation platforms.

Source: African Library and Information Associations and Institutions. (<https://web.aflia.net/suite-of-covid-19-resources-for-librarians/>)

Platform	Web address	Summary
Google Hangouts	https://hangouts.google.com	This is a standalone Google product that enables teams to collaborate easily and efficiently as it allows video conferencing, screen sharing with chat features.
Lark	https://larksuite.com	This is a collaborative platform for work that combines chat, calendar and document features.
Skype	https://www.skype.com	This is an application that has features for video chats, voice calls and messaging.
Teams	https://teams.microsoft.com	This site includes support for 300 persons to chat, meet, call and/or collaborate
Zoom	https://zoom.us	The platform has features that support video conferencing, web conferencing and webinars. It is useful for teaching and can be used for free for 40mins or for longer periods with subscription.

Table 4

Massive open online course platforms.

Source: African Library and Information Associations and Institutions. (<https://web.aflia.net/suite-of-covid-19-resources-for-librarians/>)

MOOCs Platform	Web address	Summary
Alison	https://alison.com	This site has free online courses and certificates.
Coursera	www.coursera.org	The platform has courses on modern day concepts and skills-suites from Yale University, University of Michigan, and Stanford University among others.

Other sites for MOOCs are Canvas (<https://www.canvas.net>) edX (<https://www.edx.org>) Future learn (<https://www.futurelearn.com>) Saylor (<https://www.saylor.org>) Udemy (<https://www.udemy.com>) UoPeople University of the People (<https://www.uopeople.edu>)

Table 5

Tools.

Source: African Library and Information Associations and Institutions. (<https://web.aflia.net/suite-of-covid-19-resources-for-librarians/>)

Tools	Web address	Summary
Buncee	https://www.edu.buncee.com	This site is useful as a creation and presentation tool. It allows learners of all ages to visualize, express and present concepts.
Kaltura	https://corp.kaltura.com	This site has features for the creation of videos for learning experiences.
Nearpod	https://nearpod.com	The site comes in handy for creating engaging and informative learning content
Squigl	https://squiglit.com	This is an interesting site that transforms text into engaging animations thereby making learning easier even when not in the classroom.

Free resources from publishers

<https://novel-coronavirus.onlinelibrary.wiley.com/>
<https://www.tandfonline.com/action/doSearch?AllField=%22coronavirus%22>
<https://www.springernature.com/gp/researchers/campaigns/coronavirus>
<https://www.elsevier.com/connect/coronavirus-information-center>
<https://s.docworkspace.com/d/AFYwjz7NhZMgoOiXo5ydFA> (from SAGE)
<https://www.lexisnexis.com/en-us/about-us/media/press-release.page?id=1584340441681141>
<https://www.bmj.com/coronavirus>
<https://www.emeraldgrouppublishing.com/promo/coronavirus.htm>
<https://www.cambridge.org/core/browse-subjects/medicine/coronavirus-free-access-collection>
<https://www.igi-global.com/newsroom/archive/race-vaccine-coronavirus/4398/>
<https://www.thelancet.com/coronavirus>
<https://clarivate.com/coronavirus-resources/>
<https://www.annualreviews.org/doi/abs/10.1146/annurev.mi.44.100190.001511>

Source: African Library and Information Associations and Institutions (<https://web.aflia.net/suite-of-covid-19-resources-for-librarians/>)

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