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Re-imagining Library Services amidst the Covid-19 Pandemic & Beyond

Challenges and Opportunities



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Proceedings

Re-imagining library services amidst the Covid-19 pandemic & beyond : challenges & opportunities

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KENYA LIBRARIES & INFORMATION SERVICES CONSORTIUM

Creating an informed society

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Conference Theme

Re-imagining library services amidst the Covid-19 pandemic and beyond
challenges and opportunities

Objectives

To interrogate the role of library and information services in society in the context of the COVID-19 pandemic and beyond

To share practical strategies in mitigating the impact of COVID-19 on library services

To deploy new knowledge and technologies in library services to mitigate the impact of COVID-19

To forge collaborative partnerships for sustainable libraries during the COVID-19 pandemic and beyond

Sub-themes

Role of libraries in the society in the context of COVID-19 pandemic and beyond

Library management and service strategies in the context of COVID-19 pandemic and beyond

Publishing, book trade, and media services in the context of COVID-19 pandemic and beyond

Information, intellectual property rights, and ethics in the context of COVID-19 pandemic and beyond

LIS education, continued professional development, job security and alternative sources of income for LIS professionals in the context of the COVID-19 pandemic and beyond

Information needs, information-seeking behaviour, and information retrieval in the context of COVID-19 pandemic and beyond

Information management, archiving, and curation in the context of COVID-19 pandemic and beyond

Digital and information literacy in the context of COVID-19 pandemic and beyond

Library services for PWDs in the context of the COVID-19 pandemic and beyond



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† **Abstract only.**

‡ **Abstract only.**

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Presentation #1

Rejuvenation of Kenyan Academic Libraries Services in the Covid-19 Era & Beyond

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Abstract. The Covid-19 pandemic has presented unprecedented effects on academic institutions, which led to their closure. In particular, academic libraries that provide critical support for teaching and research success were equally affected as physical libraries also closed as a measure towards overcoming the spread of the Covid-19. The objective of this study is to review secondary data conducted locally and globally on the interventions available to libraries in rejuvenating their services during and after the Covid-19 era and to unearth challenges faced and how can be surmounted in the new normal with a view of rejuvenating library services post Covid-19 pandemic in Kenya. Kenyan academic libraries have heavily invested in the subscription to access of electronic resources through the Kenya Library Information Services Consortium (KLISC), relevant technological infrastructure and the utilization digital services and resources to meet the needs of their clientele. Notwithstanding, the Covid-19 pandemic led to the closure of physical libraries. Academic libraries were expected to continue providing their services by proactively embracing current technological trends in electronic resources, information access, dissemination, and capacity building of users and library staff. Hence, the need for rejuvenation of libraries in service delivery. A desk-top research was conducted by reviewing online published articles on libraries amidst Covid-19 pandemic with a view of identifying opportunities and challenges to help rejuvenate libraries in Kenya in the new normal. This study highlights interventions of services and resources such as use of e-apps, use of online platforms, zoom & webinars for trainings on use of e-resources, and social media among others in library service provision by libraries. Key insights on the application of varied media were unearthed to help rejuvenate academic libraries. However, the Lack of IT infrastructure and devices, insufficient digital competencies, lack of appropriate legislation and policies were identified as inhibiting challenges faced by libraries during Covid-19 pandemic that required to be addressed. Academic libraries need to proactively utilize computers and improve ICT infrastructure, invest in digital information resources and build capacity of users and library staff on digital literacy to reposition appropriately in the new normal.

Keywords: Academic libraries; Covid-19 Pandemic; Digital literacy; Digital Library; ICT in Libraries; Libraries

Introduction

Covid-19, a coronavirus strain, differs from other viruses circulating among humans and causes mild illness (e.g., the common cold) (Centers for Disease Control and Prevention 2020). Covid-19 is a novel virus identified on December 31, 2019, in Wuhan, Hubei city of China (WHO, 2020). The virus is highly contagious and has a death rate that is multiple times higher than the one of seasonal flu, fever, a dry cough, shortness of breath, and extreme tiredness. Covid-19 is a global pandemic spread within a short time. The virus affected several countries around the world. The World Health Organization (2020) recommended wearing masks, social distancing, washing of hands, and isolation for prevention to fight the virus. The Covid-19 guidelines reduced deaths worldwide.

All educational institutions, schools, and universities were closed, and employees had to work from home. During lockdown, educational institutions worldwide were adapting to distance learning approaches and shifting towards the provision of online courses. Libraries had to set up and provide online services to their users during the pandemic to support learning. Further, libraries had to explore new ways and develop initiatives of equipping their users with digital information skills to adequately utilize online resources. Noteworthy,, most libraries had progressively improved their services and resources to remote access by their users before the pandemic. Libraries had trained their users on use electronic resources for their research, study or assignment. Hence, library users have skills on information retrieval in electronic environment. Towards this end, well-trained professional library staff comes in handy in the effective provision of diverse print or online resources. Noteworthy, Libraries can utilize internet technologies in collection management, education, online services, provision to access space and equipment, gathering, analyzing, storing, and sharing information (Mohammadi, 2018). Mahadevan and Kumar's (2020) in their paper on the utilization of ICT on various sources of information assert that, libraries need to update policies on the use of ICT in the process of information identification, collection, storing, processing and dissemination and set aside adequate resources for group and disseminating digital information. Hence, libraries need to continue to provide their routine services through LAN, web-based, and through library systems, especially during the Covid-19 pandemic, and prioritize continuous training of staff and users regarding ICT-based resources and services.

Similarly, users should be prepared to enhance their capabilities by moving away from traditional approaches, and adapt to virtual practices (Ishtiaq et al., 2020). Most academic libraries have integrated ICT in their housekeeping functions of classification/cataloging, circulation, Online Public Access Catalogue (OPAC), reference services, serials control, and management. However, they are now faced with a paradigm shift where there is less emphasis on the physical library but on the virtual space, leading to 'digital' 'electronic' or a 'library without walls'. With the new norm, academic libraries need to reinvent and become more proactive to provide the pre-requisite support to teaching, learning, and research by creating new and innovative collections and services to support the emerging educational environment. They should also provide more services on social media platforms like facebook, telegram among others, improve their websites

to provide interactive feedbacks, information and to market electronic resources available by creating tutorials online. In particular, a study on use of telegram in library complex in Nigeria in the dissemination of library services despite Covid-19 crisis was found doable where the library provided both subscribed and free e-content online (Gabriel & Yusuf, 2020).

In Kenya there were limited visible studies on libraries during the Covid-19. However, a review of some websites revealed that, academic libraries have equipped libraries with modern infrastructure and have provided access to online resources through consortium of the Kenya Library and Information Services Consortium (KLISC) which was established in 2003 with the main objective of collective subscription to electronic resources to cope with the increasing cost of information resources. Notable, some libraries such as: University of Nairobi, Kenyatta University (uon, 2022), United States International University (usiu, 2022), The Catholic University of Eastern Africa (cuea, 2022), Aga Khan University(aku, 2022), Daystar University (daystar, 2022), Strathmore University (strathmore, 2022) among others have state-of-the-art learning resource centers. During Covid-19, these libraries embraced online services provision to their respective community. To emphasize, Kenyatta University ensured that academic staff and students have access to online libraries (Mugo et al., 2020). University of Nairobi provided latest updates on their website on Covid-19 and provided guidelines on the measures students and staff would take to combat Covid-19 while using library services (UON, 2022). Generally, with the continued spread of Covid-19 world-wide, Kenyan academic libraries had to adjust and provide a collection of reliable and current digital information to its patrons for research, teaching, study and assignments. Based on this background, the study undertakes desk-top research by reviewing secondary data collected from other libraries, hence building the study on existing knowledge. In particular, the study reviewed relevant online journal articles in order to unearth critical insights on the available interventions for libraries in rejuvenating them into supporting users during the Covid-19 pandemic and beyond.

Literature Review

The advent of the Covid-19 pandemic led to the indefinite closure of academic institutions worldwide. Academic libraries were not left behind, and their doors were equally closed. The role of the Academic library of facilitation and support was altered by the unsolicited Covid-19 pandemic and the resultant stay at home globally (Gabriel & Yusuf, 2020). These libraries are mandated to support their parent university in providing teaching, consultancy, and research services. Libraries and librarians can construct a better world by experimenting or serving their patrons with the latest technology. In this context, a library acts as an authentic platform where communication, interaction, and connectivity are enabled by technology. In addition, staff and users should be continuously trained to equip them with knowledge and skills to provide high-tech services.

Furthermore, Owusu-Ansah, Rodrigues, & van der Walt (2019) observed that university libraries could play a vital role in online learning through the formation of digital libraries. Libraries could also provide inquiry-based learning, correspondent, trans-formative learning, face-to-face



instructor and learner, learning platform, authoring space, teaching resources, fulfill demand, and support a satisfied community member at the appointed time. They also identified university libraries as learning tools for change rather than a provisional content provider. Hence, with the advancement of ICT, learners have different platforms for acquiring information and study. At the same time, learners are no longer confined into a four-wall learning environment but can access online resources with ease.

Librarian's knowledge, skills, and expertise in the latest technologies have now become handy in providing online services and resources to their patrons, especially in the era of Covid-19 pandemic lockdown. Ting Wang (2020) states that libraries' role in providing reliable information during crises and pandemics like Covid-19 has become more prominent and essential than ever before. The Kenyan government developed a three-pronged approach to aid the continuation of learning remotely, adhering to the international and national guidance for social distancing, quarantine and self-isolation (Areba, 2020).

Libraries are also getting to the community by utilizing available technological tools to engage communities. Recent studies indicate that libraries still depend on traditional services; for instance, Ishtiaq et al. (2020) identified that the skill level in digital literacy is still moderate among university libraries in the Sindh province of Pakistan. In a paper by Rafiq, Batool, Ali, & Ullah (2021) on University libraries response to Covid-19 pandemic findings highlighted the most useful resources used by users as: Higher Education Commission (HEC digital library), off-campus access, electronic document delivery services, theses and books repositories and open access resources. The Ministry of Education in Kenya developed online content through various channels to ensure uninterrupted access to education for learners in the country while they are at home during Covid-19. However this is riddled with a lot of challenges (MoE, 2020). The Libraries with hybrid collections responded well during Covid-19 pandemic as users had various options to information access.

Library services and resources to patrons during lockdown

Libraries are striving to meet their user's needs through provision of digital collections. Online services are now the current sources of information especially with Covid-19 guidelines in place. School librarians in the United Kingdom used a new menagerie of apps and platforms like Zoom as a mechanism for capturing and sharing information (Tammara, 2020 ; Wang & Lund, 2020). Through these approaches, library clientele developed digital skills, provided with reliable resources on the progress of coronavirus, ran reader development programmes, sourced cost-effective e-book licenses for staff and students, and delivered online 'library lessons' to support information literacy and critical thinking skills (Poole, 2021).

According to Garner et al. (2021), most libraries in Australia were closed to the public during the crisis, but public libraries continued to serve their users online. Learning Institutions started offering virtual programs and events (craft, chess, and Lego sessions, and movie clubs and book groups) and instituted new 'click and collect' services. Most library authorities expanded their existing provision of e-resources (databases, e-books, online audiobooks, etc.). Libraries managed to move many of their services to an online environment to curb the Covid-19 virus. During the

pandemic. The National Library of South Africa shared information on open-source databases to library users via social media and on their website. It used the Online Public Access Catalogue (OPAC) and electronic resources to assist students and academics in navigating through the abundance of collections (Shirley et al., 2021). Notably, libraries offered most of these services remotely.

Universities in Pakistan provided document delivery services according to disciplines and patron demand. Other services were Manuscripts archives, access to databases through VPN E-books, E-dissertation articles, and library instruction manuals (Ishtiaq et al., 2020). IFLA (2020) supported the National Library of Morocco in providing free eBooks. Other initiatives during the pandemic include, New York Public Library, which is running online book clubs, the Public Library in Aarhus, Denmark, provides services on their website. Canada is focused on learning new skills, building on its Simply E-app. Focusing on developing countries, the Library of Alexandria, Egypt, Kota public library in India, too, have increased their online services, promoting bibliotherapy as a means of helping users through the crisis and receiving helpful coverage in the local press by creating awareness on Covid-19 pandemic.

Others are the University of Mustansiriyah, Iraq, which provided an electronic thesis deposit service and webinars. The Al-Abbas Holy Shrine library provides a remote lending service for researchers and gives access to electronic resources. The Library of Congress offers virtual transcription to engage people remotely. National Library of Norway is encouraging users to access its podcasts audio material. Similarly, there are efforts to provide remote access services in university libraries through an online article request service at the Rhodes University, South Africa, at the East-West University in Bangladesh, Agricultural University Library of Colombia Veracruz University in Mexico, or through call-in hours.

Table 1. Library Online services and resources provision during Covid-19

Library	Services/Resources
Georgia Public Library	Online access to databases, access to e-books, e-audio books, digital magazines, and online articles, WiFi hotspots, mobile hotspots
Libraries in Pakistan	Using mobile apps, web-based live chat, social media platforms, and emails Google class to provide services and used VPN to access resources and document delivery
UK Library Association CILIP, Monash in Australia, National Library of Pozega in Serbia	Online story times, focused YouTube channel
The University of Malaya library, Sweden	Developing tools for online discovery and evidence retrieval of information on the Covid-19 pandemic and preparing a poster
The Central Library of the Al Ameer University in Iraq	Seminar on Covid-19 now available on YouTube
King Abdullah University of Science and Technology in Saudi Arabia and the Federal University of Rio de Janeiro	Produced a series of tutorials on the utilization of library materials
Greece	Organize art projects



Library	Services/Resources
Helsingborg libraries	Establish chat function on their website
Danish libraries	Online Ask-a-Librarian reference service
Huesca, Spain, Libraries	Developing new training materials
TS State Central Library Chandigarh, India	Sharing book reviews and other information through social media.
Dutch National Library	Provide an 'author on your screen' service

Inventions and critical best practices in libraries

With the new normal, libraries are expected to be at the forefront of using different learning and teaching aids to provide services to their users. Librarians should have the know-how of available web tools for the provision of efficient and effective information dissemination. Libraries provide information and answer queries to their users by using mobile apps, web-based live chat, interactive social media platforms, and emails. Use of social media is among the new platforms that facilitate dissemination and interactive services of the new normal during the Covid-19 era (Owusu-Ansah et al., 2019). Other libraries have further used Google class to provide services and used VPN to access resources and document delivery. Libraries are encouraging online participation through webinars and supporting with eagerness digital access to reading materials, books, periodicals and other library contents (Samanta, 2020).

Generally, Library users are requesting online access to databases, access to e-books, e-audio books, digital magazines, and online articles (Georgia Public Library Services (RPLAC) (April 2020). There has been free and open access to Wi-Fi hotspots, mobile hotspots for vital connection and learning to library users.

Many public and school libraries promote online story-times, focused YouTube channel, UK Library Association CILIP, Monash in Australia, National Library of Pozega in Serbia. Similar efforts in Greece have also allowed libraries to stay in touch with their users and even run art projects. In Huesca, Spain, Libraries have responded by developing new training materials for users to help them make the most of these possibilities. There are similar TS State Central Library Chandigarh, India, sharing book reviews and other information through social media.

Furthermore, the Dutch National Library has teamed up with a writers' organization to provide an 'author on your screen' service. Some public libraries patrons are having contact with librarians remotely. Danish libraries have set up an online Ask-a-Librarian reference service. Helsingborg libraries have also established a chat function on their website for the first time. In Sweden, the University of Malaya library is developing tools for online discovery and evidence retrieval of information on the Covid-19 pandemic and preparing a poster to explain the purpose of the service. King Abdullah University of Science and Technology in Saudi Arabia and the Federal University of Rio de Janeiro have produced a series of tutorials on the utilization of library materials. The libraries are also providing consultation via WhatsApp and videoconferencing. The Central Library of the Al Ameer University in Iraq supports reflection on Covid-19 through a seminar on the subject now available on YouTube. National Library of South Africa (NLSA) has digitize library services and harness technologies such as robotics, block chain, virtual reality and

artificial intelligence its services (Shirley et al., 2021). In Kenya, Public libraries at Kibera and Nakuru Kenya partnered with EIFL's Public Library by using social media to share books on promoting local language and information to patrons (IFLA 2020).

Table 2. Interventions of services and resources provided during Covid-19 Pandemic

Country/Libraries	Services	Resources
The Library of Congress	E-apps	e-books, virtual information
New York Public Library	Online book clubs	e-books
Canada	Online services	E-app
Public Library - Aarhus, Denmark	Services provision through websites	e-books, online databases
United Kingdom	Use of zoom platform to capture and share information	e-books, electronic resources
National Library of Norway	Electronic resources	Podcasts audio material
Morocco	Online services to access information	E-books supported by IFLA
Library of Alexandria, Egypt,	Online services Sharing information on Covid-19	Bibliotherapy – dissemination information about Covid-19
Public libraries – Kibera & Nakuru (Kenya)	Online services to access information, social media	E-books on local language supported by IFLA
National Library of South Africa	Shared information on open sources databases via social media and website	Use Online Public Access Catalogue (OPAC), Electronic resources
Pakistan	Manuscripts archives, access to databases through VPN Document delivery service through emails as well as scanned chapters of needed books and article	E-books, dissertation articles, and Library instruction manuals
Kota public library in India	Online services Sharing information on Covid-19	Bibliotherapy - dissemination information about Covid-19
University of Mustansiriyah, Iraq	Online services, webinars	electronic thesis deposit service
Al-Abbas Holy Shrine library, Iraq	Online services, lending	Electronic resources
Australia	Use of VPN access online resources	virtual programs and events (craft, chess, and Lego sessions, and movie clubs and book groups)

In Kenya, libraries had to step up and provide its online services to their patrons online. The table below shows how some libraries came up with interventions to meet their patron's needs during Covid-19 as revealed in their library websites.



Table 3. Interventions by Kenyan University Libraries

University	Services / Interventions for service provision amidst Covid-19
Strathmore University Library	Has links on research support, providing library resources and accounts for library users to use library services.
University of Nairobi	Have links on Covid-19 information and updates and how to use library resources during Covid-19
Kabarak University	
Kenyatta University library	Have information literacy tab and dates organized for trainings on referencing, plagiarism
Aga khan University	Has eCommons for digital research outputs and publications.
Daystar University	Has a quick link on digital library and guides on how to access print, online and audio visual materials

Research Methodology

A desktop research was conducted on the phenomenon under study. A Systematic review of the relevant online articles published in available Google scholar platforms, educational websites and databases was undertaken to enable the researcher gain insights and understanding from existing data (Bhattacharjee, 2012; Bowen, 2009; Corbin & Strauss, 2008). The review helped in tracking trends (Yin, 1994) in the library interventions and challenges during the Covid-19 pandemic which were critical in drawing conclusions of this study.

Challenges faced by Libraries in Service Provision during the Covid-19 Pandemic

The Covid-19 emergency highlighted the differences of libraries in the north and south, based on minimum indicators such as acquisition, budget, and qualified staff (Cognigni, 2020). Furthermore, the pandemic has exposed problems that have never been resolved in libraries, such as job insecurity, chronic scarcity of funds, outsourcing, recourse to volunteering to make up for the lack of professionally trained staff, lack of legislation and policies, and the lack of vision (Agnoli, 2020; Valenza, 2020). In the advent of the Covid-19 emergency, libraries have learned the importance of networking to innovate and address economic problems (Baldi, 2020). The pandemic has tasked distribution of responsibilities between regions, national governments, institutions, and libraries to coordinate. The biggest obstacle to digital transformation has undoubtedly been the digital divide. The lack of infrastructure, IT devices, and the lack of sufficient digital competencies was also evident (Baldi, 2020). Noteworthy, social media has been used intensively, pushing information and not interacting with communities. Online events, games, reading, and writing competitions saw libraries interacting with participatory communities for the first time. However, the lack of ability to maintain connection and interaction with communities has been evident. Copyright was a big obstacle. It was not possible to digitize the textbooks or even requesting publishers for authorization. In Particular, the Nilde network wrote to the Publishers' Association AIE to get exceptions, with negative results. However, the Nati per leggere (Born to Read) Project of AIB (Italian Library Association) obtained authority from AIE to make

video-readings of 300 books during the emergency (Cognigni, 2020). Like other sectors, libraries are also undergoing a paradigm shift from physical to digital. However, this shift is complex for developing countries. Underdeveloped countries are facing numerous problems including lack of digital literacy skills, finance, infrastructure, technology and restricted electronic collections (Rafiq et al., 2021).

Recommendation and Way Forward post Covid-19 Pandemic.

In the new technological environment, the library is challenged to equip its patrons with skills and knowledge, pre-requisites to find online information in a given context effectively. According to Baldi (2020), based on experiences occasioned by the Covid-19 pandemic, libraries must not limit themselves to lending and reading, but they must open up to communities. Libraries should revise their policies and strategic plans to meet the changing needs of their patrons in the digital environment. More so, libraries should continuously update their websites with the latest information on their online services, develop and upload tutorials on how to use library resources during pandemic, offer of online information literacy programs, work on one spot access to all resources.

With continuous technological advancement in information dissemination, librarians need training on the new advances. This view is further supported by Ishtiaq et al. (2020), whose findings implicate that some university libraries will not manage disasters efficiently until they are trained in digital literacy. Therefore, Libraries should create awareness through open day forums, conferences, seminars, training on new technological concepts on information collection, dissemination, sharing, and archiving and training to such librarians evaluated after training.

Libraries should increase their budgets in support of empowering patrons' needs in the electronic environment both e-resources and e-services. To improve financial resources, they should develop the library system according to the new environment by providing appropriate equipment and materials. A centralized training program should be conducted to minimize the financial barriers.

Furthermore, libraries should provide modern technologies, improved ICT infrastructure and resources to the library staff to explore newly acquired knowledge and share skills with their users. Libraries now are adopting webinars trainings focused to motivate and encourage librarians to enhance their digital skills to keep pace with the present digital age.

As libraries re-open, they may still provide the loan service. However, most of the other services are limited by social distance (Tammara, 2020). A time has come for libraries to think of innovative services that takes cognisance of the experience of the Covid-19 pandemic (Agnoli, 2020; Baldacchini, 2020; Baldi, 2020; De Vecchis, 2020; Solimine, 2020). Libraries are challenged to provide most of their services digitally. At the same time, Libraries should embrace the use of social media in current awareness and the marketing of new arrivals, user education, and the digitization of local institutional content for ease of access. The service of 'Ask a Librarian' should be fully exploited for patrons to submit their queries and immediate feedback presented.



Inventions like the use of Internet of Things (IOT) should be applied in various libraries services and collections libraries. IOT technologies can be useful for collection management, online services, education and providing access to spaces and equipment, gathering, analyzing, storage and sharing information. IOT is applied to libraries in order to monitor users' activities, feedback of users, effectiveness of services, (Mohammadi, 2018)

In conclusion, Libraries especially in the south, should enhance and develop e-collections, digitize existing print resources, embrace Open Education Resources (OER), and engage in resource-sharing agreements and consortiums, self-service models, virtual alternatives and even modern approaches in robotics and artificial intelligence in service delivery. These libraries should also embrace social media by taking library services to their clientele remotely. Towards this end, the library website, as the primary path to interaction for patrons, should evolve to embrace more user-friendly, responsive with more customizable features for efficiency and effectiveness in service delivery. It is, therefore, inevitable that libraries have to provide their services online during the Covid-19 pandemic lockdown and beyond owing to the fact the communities are now accustomed to online services.

References

1. Areba, G. N. (2020). Covid-19 Pandemic Impact on Kenyan Education Sector: Learner Challenges and Mitigations. *Journal of Research Innovation and Implications in Education*, 4(2), 128–139. <https://jriie.com/Covid-19-pandemic-impact-on-kenyan-education-sector-learner-challenges-and-mitigations/>
2. Battacherjee, A. (2012), *Social Science Research: Principles, methods and practices*, 2nd ed., textbooks Book 3. http://scholarcommons.usf.edu/oa_textbook/3
3. Bowen, G. A. (2009). Document Analysis as a Qualitative Research Method, *Qualitative Research Journal*, 9(2), 27–40
4. Corbin, J. & Strauss (2008). *Basics of Qualitative Research: Techniques and Procedures for developing Grounded Theory*, Sage
5. Gabriel, K. M., & Yusuf, A. (2020). Experience of an Academic Library During the Covid-19 Pandemic. *Library Philosophy and Practice*, 2020(December), 1–14.
6. Garner, J., Hider, P., Jamali, H. R., Lymn, J., Mansourian, Y., Randell-Moon, H., & Wakeling, S. (2021). 'Steady Ships' in the Covid-19 Crisis: Australian Public Library Responses to the Pandemic. *Journal of the Australian Library and Information Association*, 00(00), 1–23. <https://doi.org/10.1080/24750158.2021.1901329>
7. Ishtiaq, S., Sehar, N., & Shahid, A. (2020). Information Dissemination during Covid-19 and Lockdown: The Role of University libraries of Sindh, Pakistan. *Library Philosophy and Practice*, 2020(September), 1–18.
8. Mohammadi, M. (2018). IOT: Applied New Technology in Academic Libraries. *International Conference on Distributed Computing and High Performance (DCHPC 2018)*, July, 1–12. https://www.academia.edu/39875574/IOT_Applied_New_Technology_in_Academic_Libraries
9. MoE (2020). Kenya Basic Education Sector COVID- 19 Emergency Response Plan, 2020.Nairobi, Kenya.
10. Owusu-Ansah, C. M., Rodrigues, A. da S., & van der Walt, T. B. (2019). Integrating digital libraries into distance education: A review of models, roles, and strategies. *Turkish Online Journal of Distance Education*, 20(2), 89–104. <https://doi.org/10.17718/tojde.557742>
11. Poole, N. (2021). British librarianship in the time of Covid-19. *Alexandria: The Journal of National and International Library and Information Issues*, 095574902198958. <https://doi.org/10.1177/0955749021989580>
12. Rafiq, M., Batool, S. H., Ali, A. F., & Ullah, M. (2021). University libraries response to Covid-19 pandemic: A developing country perspective. *Journal of Academic Librarianship*, 47(1), 102280. <https://doi.org/10.1016/j.acalib.2020.102280>



13. Samanta, M. (2020). Library Access Policies Post Covid-19 Pandemic. *SSRN Electronic Journal*, May 2021, 1–6. <https://doi.org/10.2139/ssrn.3610042>
14. Shirley, J., Mawire, B., & Baloyi-Sekese, M. (2021). Covid-19 and the National Library of South Africa: Adapting to the new normal. *Alexandria: The Journal of National and International Library and Information Issues*, 095574902110020. <https://doi.org/10.1177/09557490211002095>
15. Tamaro, A. M. (2020). Covid-19 and Libraries in Italy. *International Information and Library Review*, 52(3), 216–220. <https://doi.org/10.1080/10572317.2020.1785172>
16. Wang, T., & Lund, B. (2020). Announcement Information Provided by United States' Public Libraries during the 2020 Covid-19 Pandemic. *Public Library Quarterly*, 39(4), 283–294. <https://doi.org/10.1080/01616846.2020.1764325>
17. Aga Khan University. <https://www.aku.edu/library/Pages/home.aspx>
18. Daystar University. <https://www.daystar.ac.ke/library.html>
19. Kabarak University. <https://kabarak.ac.ke/library/>
20. Strathmore University. <https://library.strathmore.edu/>
21. University of Nairobi. <https://uonlibrary.uonbi.ac.ke/>

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Presentation #2

The Role of Librarians in the Wake of the Covid-19 Pandemic

A Nigerian Perspective

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Abstract. Librarians' role goes beyond the delivery of service in libraries. It involves helping people to comprehend and participate in issues of importance through the provision of media and information literacy support. One of the recent issues is curtailing the spread of the Covid-19 pandemic. The study is set to determine the Medium of communication by librarians in disseminating information on the Covid-19 pandemic, the roles of librarians in preventing the pandemic, and the challenges in sharing information on Covid-19 pandemic. To probe the study's objectives, a descriptive survey and a structured questionnaire were designed using Google form. Google form links were sent to the online forum of librarians in Nigeria. A population of 759 was derived from various online library platforms. A convenience sampling method was used to pick the sample size of 250 respondents. The return rate is 127 librarians. The study's findings revealed that librarians used formal and informal channels to disseminate information to society in the wake of the pandemic. It further revealed that WhatsApp group, Facebook, flyers, and visiting media houses were the most used channels. The findings also revealed that librarians play a critical role in preventing the pandemic spread by Posting cleaning, safety measure and social distancing information on various WhatsApp groups they belong to and by translating information on cleaning and safety measures Covid-19. The study recommends that government and international organizations endeavor to provide funds to enable the provision of more hand sanitizers and washing soap that could help prevent the spread of the pandemic. The study also concludes that when the government at all levels adequately tackle the identified issues, the role of librarians could reduce the spread of the Covid-19 and any other outbreak that could arise in the future.

Keywords: Librarians, Covid-19, Information dissemination, Communication channels, Social media, Pandemic

Background

In 2019, the World Health Organization announced the Covid-19 pandemic. Before this time, the infection was novel, with little awareness of its existence among researchers, doctors and the general public. As a result, methods and actions to limit its spread and control were put in place by health practitioners. Social places, including libraries, were closed sometimes to comply with public health requirements on Covid-19 pandemic prevention. The preventive measure has led to a paradigm shift in our day to day lifestyle, thereby introducing new normals such as social distance, use of sanitizers, improved hygiene, face mask, online learning and teaching, and online meetings, to mention but a few.

Libraries collect information sources and make them available to the public through various means, whether for education, information, or personal growth and knowledge. Whether public or academic, Libraries are meant to provide information resources for problem-solving with the help of professional librarians. The main goal of libraries in Nigeria is to serve as a critical source of knowledge for members of the society where services are required and to provide meaningful information to members of the society on health-related matters in the wake of Covid-19 pandemic. According to Nagarkar (2020), libraries provide trustworthy information that is crucial for the development of vaccines and sensitization of the public on how to improve healthy living during and after the outbreak.

People will be better off using the library to find out about pandemic rumors and misinformation instead of hearing them from strangers. People can get online information services from librarians now that there aren't as many physical libraries as before. Many libraries are running information literacy programs to tell people about Covid-19, which is coming up next year. Reading and writing can be done when people are locked down. This is because, through directed reading, bibliotherapy can be used as a therapeutic aid. Bibliotherapy can also be used in medicine and psychiatry to help people solve their problems. If you need help with what to read because of the pandemic and lockdown, you can get help from the librarians through electronic media, which could help ease your pain. List of websites and groups that give you free access to millions of online books on various subjects.

Problem Statement

The Covid-19 new normal has posed more challenges to the services provided by libraries in Nigeria. Libraries struggle to acclimatize themselves with the new paradigm shift of service delivery to the general public, especially in creating awareness of the effect and precaution measures expected from members of the society in the wake of Covid-19. This position has grown increasingly significant in the aftermath of the Covid-19 epidemic, which has resulted in several limits on the services provided by the library to society. Librarians have had several problems in providing promotional services after the Covid-19 outbreak. As a result, most libraries now rely on technology to provide Services. The paper seeks to investigate the role of librarians in the aftermath of the Covid-19 outbreak in Nigeria.



Objective

The objective of the study is to:

1. determine the Medium of communication by librarians in disseminating information on Covid-19 pandemic,
2. Assess roles of librarians in preventing the Covid-19 pandemic
3. To identify the challenges in disseminating information on Covid-19 pandemic.

Literature Review

Role of librarians in the wake of the Covid-19 pandemic

Libraries Staff learn the facts about this public health catastrophe, inform the public, and modify services and programming to suit changing community needs (WebJunction, 2020). Libraries are intended to gather print and electronic information for users. According to Okike (2020), librarians play an essential role in providing Covid-19 related information and resources to the public via the various technological channels at their disposal, especially since most people may not visit the library or the library may be closed during the Covid-19 pandemic.

Information and Communication Technology (ICT), particularly computers and the Internet, in library functions has enabled libraries to provide remote reader services regardless of location, time, or distance. Thus the library is in a better position to play a role in the current pandemic. As a result, in this present epidemic, libraries must design a new method of gathering, organising, and sharing factual information on Covid-19 while keeping social distance in mind to prevent physical contact. In light of the preceding, Okike (2020) claims that there are new ways to disseminate authentic and fraudulent information; it is up to librarians to bring out the actual information for their readers to avoid misinformation.

The coronavirus has hit libraries just like it has hit any other public and private institution. All activities have been stopped except for essential services. Libraries, by nature, can be helpful during the pandemic because they can spread information about the virus that will make people more aware of it (Nagarkar, 2020),

According to Feather et al. (2012), Libraries give information on the epidemic to improve public awareness. Feather et al. further argue that the availability of essential information during pandemics aids in lowering public concern, which is vital in preventing new infections. Knowledge gained from diverse study materials is critical in assisting public health professionals in developing preventative strategies. Wang and Lund (2020) did a similar study to Feather et al. (2012) on the function of libraries in pandemics. They discovered that libraries were critical sources of trustworthy information during the Covid-19 pandemic. The study's authors emphasise that libraries are in a better position to acquire, assess, publish, and share information with the public due to their dependability, expertise, and experience in delivering information without producing fear or worry.

Majid and Rahmat (2013) argue that providing timely and accurate information during pandemics aids in controlling the spread. However, a significant problem was that library users did not comprehend some of the phrases used during public interactions, prompting them to seek further information on the Internet, where Google Trends came in useful. According to Wang and Lund (2020), librarians are taught to teach the public how to distinguish between reliable and non-credible sources, as well as valid and incorrect data. Ma et al. (2018) agree with the claims and add that librarians are better positioned to advise on the reliability of sources since they have spent most of their careers processing information, which includes interactions with publishers. According to Majid and Rahmat (2013), libraries create a multi-stakeholder society since they are active in many sectors and execute activities to streamline procedures in these areas. Allen and Taylor (2017) go on to say that they collaborate with a variety of people to provide services in both the commercial and governmental sectors.

Ma et al. (2018) posit that libraries collaborate with researchers and serve as research assistants and outreach agents to disseminate research findings to the public. Researchers are striving to develop a vaccine and treatment for Covid-19, and libraries are playing a vital role in providing the necessary information to enable the study as well as publicizing the research findings and making them available to the public. Databases, according to Latif et al. (2020), provide information about Covid-19 to raise public awareness. According to the study, users may use library services such as electronic books to keep them occupied during the pandemic time, minimizing their worry and the psychological repercussions of the shift in lifestyle. Similarly, Allen and Taylor (2017) discovered that libraries provide e-learning platforms. Due to school closures, the library has been quite helpful in allowing kids to continue their education from home and gain new skills, thereby preventing boredom. Consequently, it is apparent that libraries are particularly useful during pandemics.

Methodology

The study adopted descriptive survey and a structured questionnaire was designed using Google form. Links were sent to the online forum of librarians in Nigeria. A population of 759 was derived from various online library platforms. A convenience sampling method was used to pick the sample size of 250 respondents. The return rate is 127 librarians. The data collected from the filled Google forms were analyzed using simple percentage count.

Findings and Interpretation

Demographic response based on the types of libraries

LISBDNETWORK (2022) identify various types of libraries where professional librarians can provide services, such as public, academic, special, and school libraries, among others. The researcher posted a google form question on the librarian WhatsApp platform to identify available types of librarians. Out of 250 sampled, only 127 filled the online google form.



The graph below aims to identify the type of library the librarians work with and how they have been able to manage information services during the pandemic period.

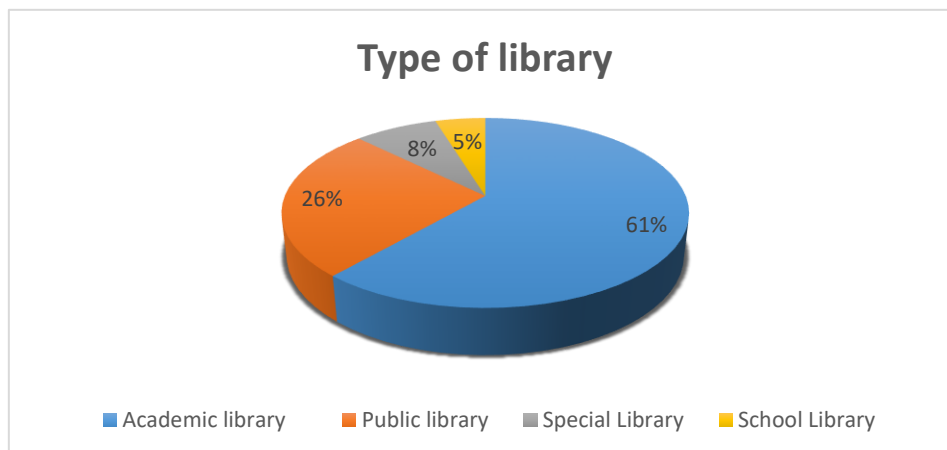


Figure 1: Respondents grouped by type of library

61% of the respondents are from academic libraries, and 26% of the respondents work with public libraries. While only 8% and 5 % respectively work with special and school libraries. The implication is that the majority of the respondents are from academic libraries. Yaya (2019) agreed with this data in his article on Job satisfaction among librarians in Nigerian public universities. He found that academic libraries are the highest employer of labour in Nigeria.

Qualification of the respondents

Academic qualification refers to the minimum level of knowledge expected of those working in a specific field (Goad 2002). Education qualification data was captured in terms of the respondents' level of education such as BLIS/B.Tech, MLS/M.Tech, PhD. To understand the respondent's disposition and literacy level on the Covid-19 pandemic. Out of 250 sampled, only 127 filled the online Google form.

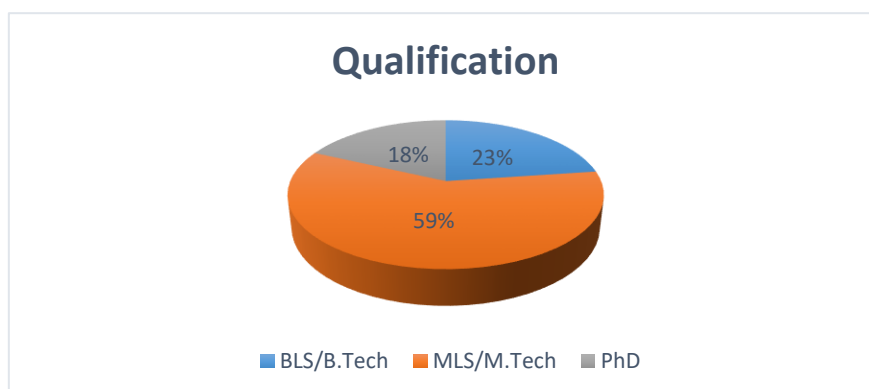


Figure 2: respondents grouped by qualification

The figure on the preceding page shows that 59% of the respondents have masters in library science/ technology, and 23% have a bachelor of library science/ technology. Only 18% of the respondents have a PhD in information science. The import of this is that the respondents are literate enough to understand the concept of library services in the wake of the Covid-19 pandemic.

Medium of communication by librarians

A medium of communication is a channel through which information (the message) is transmitted between a speaker or writer (the sender) and an audience (the receiver). Graph 1.3 below shows the means of communication by librarians in the process of providing services to patrons. Out of 250 sampled, only 127 filled the online Google form.

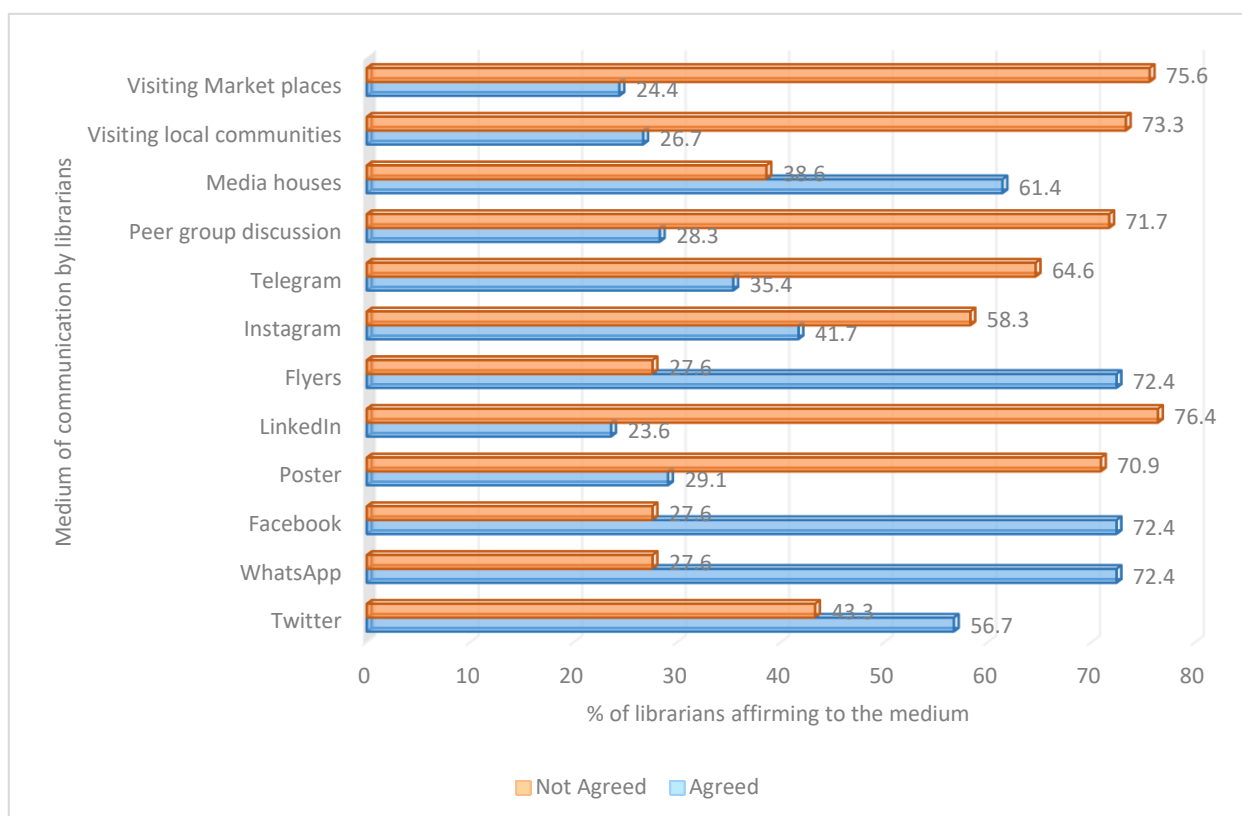


Figure 3: Medium of communication by librarians

The means of communication during Covid-19 were WhatsApp, Facebook (72.4%), flyers (72.4%), media houses (38.6%) and Twitter (56.7%). Similarly, the respondents disagreed that LinkedIn (76.4%), visiting market places (75.6%), visiting local communities (73.3%), peer group discussion (71.7%), and Instagram (58.3%) are means of communication during the Covid-19 pandemic. The meaning of this is that librarians are not exploring all the means of communication to provide services in the wake of Covid-19. This data seems to agree with the findings of Whittlesey (2020) titled communications during a pandemic. He found out that Libraries may use

third-party video conferencing services such as email, social media, or other forms of communication. Texts, emails, phone calls, teleconferencing, voicemails, and handwritten notes are examples of spoken, written, and electronic communication.

Role of the library in preventing Covid-19

The data below shows the role of librarians in preventing Covid-19 pandemic. Out of 250 sampled, only 127 filled the online Google form. This data aims to show the role librarians have played in preventing the spread of the virus as information professionals.

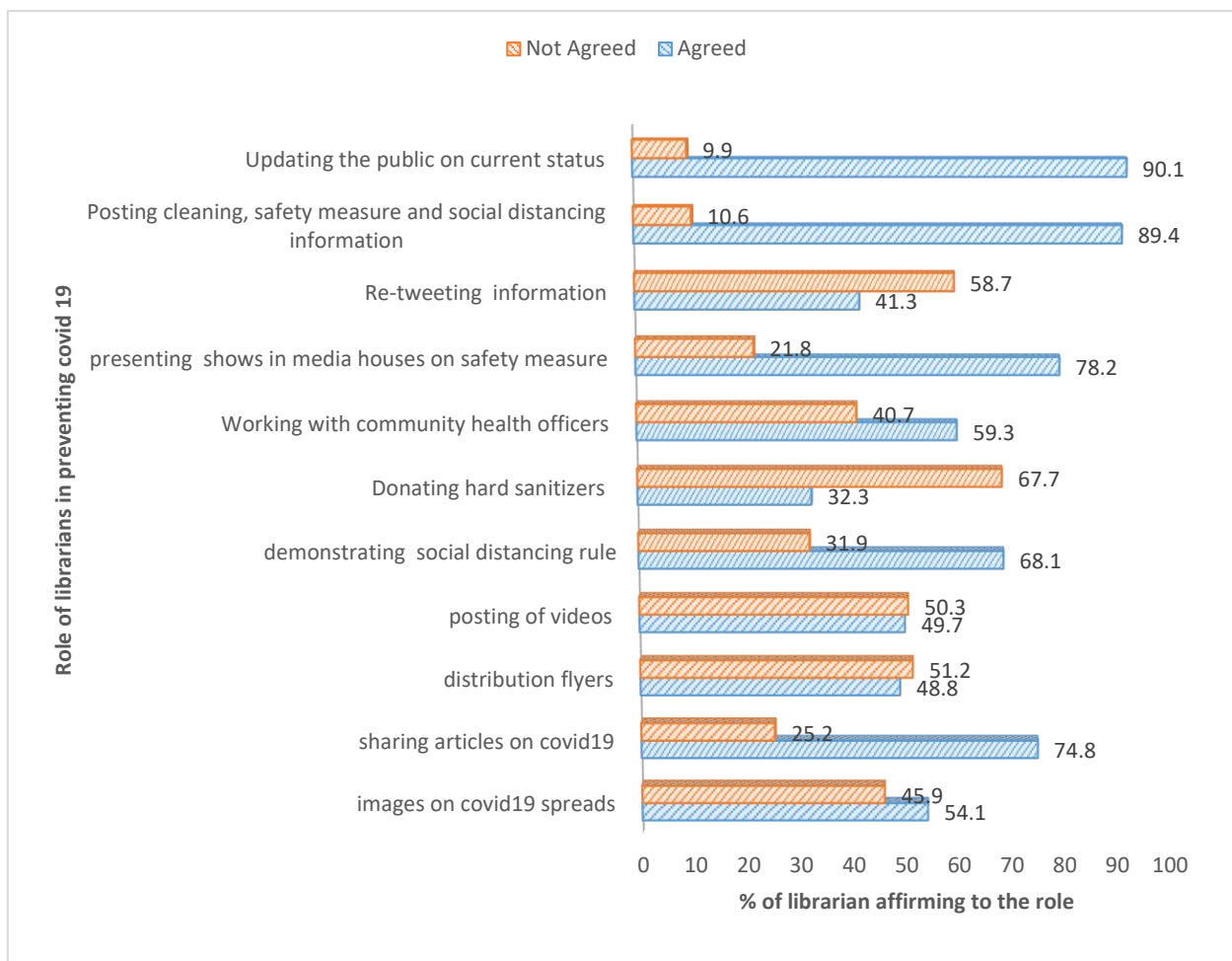


Figure 4: Role of librarians in prevention

The data shows that librarians play the role of updating the public on the current status (90.1%), posting cleaning, safety measure and social distancing information (89.4%), presenting safety measures shown in media houses (78.2%), sharing articles on Covid-19 (74.8%), demonstrating social distance rules (68.1%) and image display on Covid-19 (54.1%). Also, the respondents disagreed that librarians play the role of distributing flyers (51.2%), re-tweeting information (58.7%), donating hand sanitizers (67.7%), posting of videos (50.3%). The import of this data is

that although librarians are playing some roles in preventing Covid-19 in the process of providing services, some other key preventive measures are not covered to prevent Covid-19 spread.

Challenges faced by librarians during the Covid-19 pandemic

The graph below shows the numerous challenges faced by librarians during the wake of Covid-19 pandemic

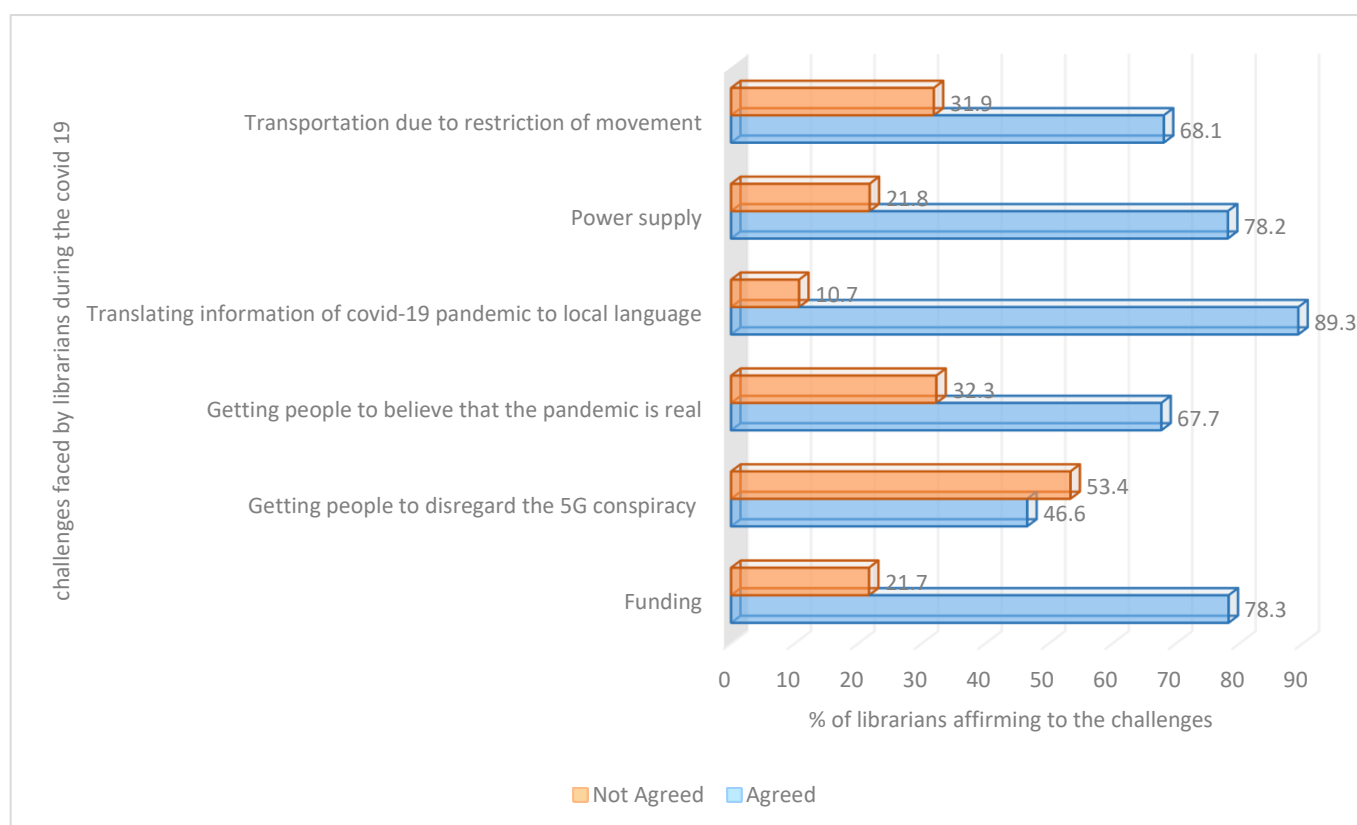


Figure 5: Challenges faced by librarians

The responses show that majority of the libraries in Nigeria are faced with such challenges as translating information of covid19 pandemic to the local language (89.3%), funding(78.3%), power supply (78.2%), transportation due to restrictions of movement (68.1%), getting people to believe that the pandemic is real (67.7%). The meaning of this is that librarians face a lot of challenges in providing various services in the libraries.

Discussion of Findings

The findings show that the majority of the libraries only use a few channels of communication, such as Twitter, WhatsApp, Facebook, and media houses, has been honest in sensitising the users on Covid-19 pandemic, Thereby living other vital means of communication that can be deployed



to sensitise users on Covid-19 pandemic, such as visiting market places, visiting local communities, peer group discussion, use of telegram, among others.

Even though libraries have played some vital roles in preventing Covid-19 spread, libraries have not been able to play other significant functions such as re-tweeting information, donating hand sanitizer posting videos, and distributing flyers.

The finding also shows the numerous challenges that the libraries faced during the Covid-19 pandemic, such as power supply, translating Covid-19 related information to local languages, making people believe the reality of the pandemic, funding, and others.

Conclusion

The role of librarians as agent of change in the society has continue to increase in different aspect of lives. Despite the effort of International organizations and government at all levels, little achievement has been attained in curtailing the spread of the Covid-19 pandemic. Therefore, the study concludes that the libraries under study are not using all channels of communication to educate and prevent the spread of the Covid-19 pandemic, limiting their ability to prevent the pandemic's spread. It is also concluded that libraries under investigation as information custodians did not play all of the expected roles in preventing the spread of the Covid-19 pandemic. The study also concludes that the libraries under investigation face a variety of challenges that have prevented them from fulfilling their role as information managers in society.

Recommendations

1. Government should also help in trying to stabilized the power sector so that constant power supply will be made available to users of the mobile phones
2. Local Language translators should be encourage to support the course of curtailing the spread of the pandemic
3. Librarians should create more awareness programs that will showcase their role in the society
4. Government policy should also highlight the role of librarians as a change agent in the society.

References

1. Allen LE, Taylor DM. (2017) The role of the academic Library Information Specialist (LIS) in teaching and learning in the 21st century. *Information Discovery and Delivery*.
2. Featherstone RM, Boldt RG, Torabi N, Konrad SL. (2012) Provision of pandemic disease information by health sciences librarians: a multisite comparative case series. *Journal of the Medical Library Association: JMLA*. 100(2):104.
3. Latif F, Bashir MF, Komal B. (2020) Role of electronic media in mitigating the psychological impacts of novel coronavirus (Covid-19). *Psychiatry Research*. 113041.
4. Ma J, Stahl L, KnottsE.(2018) Emerging roles of health information professionals for library and information science curriculum development: a scoping review. *Journal of the Medical Library Association: JMLA*.; 106(4):432.

5. Majid S, RahmatNA. (2013) Information needs and seeking behavior during the H1N1 virus outbreak. *Journal of Information Science Theory and Practice*. 1(1):42-53.
6. Nagarkar, S (2020) Covid-19: The Role of a Library During Pandemic. <https://www.sakaltimes.com/opinionnation/Covid-19-role-library-during-pandemic49537>.
7. Okike, B. I (2020) Information dissemination in an era of a pandemic (Covid-19): librarians' role. <https://www.emerald.com/insight/content/doi/10.1108/LHTN-04-2020-0040/full/html>. Viewed on 22 August 2020
8. Wang T, Lund BD. (2020) Announcement information provided by United States' public libraries during the 2020 Covid-19 Pandemic. <https://doi.org/10.1080/01616846.2020.1764325>
9. Wang T, Lund BD. (2020) Announcement information provided by United States' public libraries during the 2020 Covid-19 Pandemic. <https://doi.org/10.1080/01616846.2020.1764325>
10. WebJunction (2020) Libraries and the Coronavirus: Evolving Information and Resources. <https://www.webjunction.org/news/webjunction/libraries-and-the-coronavirus.html>.
11. Yaya, J.A (2019) Job satisfaction among librarians in Nigerian public universities. *Journal of Library Services and Technologies*. 1(1), 73-92. Retrieved from <https://credencepressltd.com/journal/uploads/archive/201915589465449473560481.pdf>
12. Whittlesey, A (2020) communication during a pandemic. regulatory affairs professional society. Retrieved from <https://www.raps.org/news-and-articles/news-articles?author=aab8918c-ee2e-418f-b627-09d5881decf8b>

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Factors Affecting Accessibility and Utilization of Information Resources during the post Covid-19 era in Academic Libraries

A case of the Reuben Marambii Library, Meru University of Science and Technology and the Post-Modern Library, Kenyatta University

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Abstract. The core functions of a University library core functions include supporting teaching, learning, research, and innovation and providing information resources throughout the university's operation. This study aimed to investigate the factors affecting the accessibility and utilization of information resources in academic libraries, taking the Reuben Marambii Library of Meru University of Science and Technology (MUST) and the Kenyatta University Post Modern University library as a case study during the post-Covid-19 pandemic. The Specific objectives of the study were to: determine the necessary skills possessed by librarians in supporting accessibility and utilization of information during the pandemic, find out the innovative methodologies employed by the library staff in facilitating access to library resources/services, the challenges faced by library staff and users during the pandemic and the importance of Information Technology (ICT) in improving information resources usability and consumption. The research adopted a descriptive survey research design with mixed methods. The researcher conducted the study in two university libraries; Kenyatta University Post Modern University library and the Reuben Marambii Library of Meru University of Science and Technology. The researcher randomly distributed questionnaires to staff and users through purposive sampling. The researcher collected data from 20 library staff and 309 library users out of 26 sampled library staff and 357 sampled library users drawn from Kenyatta University Post-Modern library and Reuben Marambii library of Meru University of Science and Technology. This study revealed that 81% of the librarian users prefer online search (OPAC and Internet search) information resources. The majority of the users (41%, n=128) prefer physical textbooks to e-resources. Only 16.5%(n=51) of the users preferred e-books and e-journals. Inadequate computers (32%, n=99) and unreliable internet connection (25.7%, n=85) were the main challenges affecting the library users' access and utilization of information resources. The librarians identified uncooperative library staff, inadequate digital library skills, understaffing, and poor network as the main hindrances to facilitating access and utilization of information resources in the library. The study recommends more capacity building and training library staff and reengineering the ICT infrastructure and capacity to promote access and utilization of information resources in this post-Covid-19 era.

Keywords: Covid-19 pandemic, Information Resources, Information Access, Information Utilization.

Introduction

The Corona Virus Disease (Covid-19) is a fatal infection that affects the human respiratory system and can result in death. It is an infectious disease caused by a recently discovered type of coronavirus (IFLA, 2020). The World Health Organization (WHO) describes Covid-19 as a Public Health Emergency of International Concern (PHEIC). The virus spreads between two people at a conversational distance. It can spread from an infected person's mouth or nose in droplets when they cough, sneeze, speak, sing or breathe. The virus is also contracted when the infectious particles contact the eyes, nose, or mouth. It also spreads in poorly ventilated and crowded indoor settings, where people tend to spend longer time, such as social gatherings like a school, church, or party set-up (WHO, 2019). These features complicate the management of the spread of the virus, which triggered a nearly global response.

Kenya recorded the first Covid-19 case on March 12th, 2020. To stop the spread of the pandemic, the Kenyan government ordered the shutdown of all public meetings, including all learning institutions. Since it was unpredictable to determine when the pandemic would lapse, the Government of Kenya directed a phased resumption of learning but under strict adherence to the laid containment protocols. The steps taken include blended learning, and prioritizing online with few in-person classes. The global outbreak of Covid-19 has sped up a challenge amongst all institutions, communities, and libraries, as witnessed by the lockdowns, deaths, and shocking infection statistics during the peak of the pandemic in 2019-2020. It has set off an essential need to reexamine how libraries can build imaginative approaches to continue serving users.

Traditionally, a library is charged with the care of collection of information resources and facilitating their access and use. Academic libraries, as fountains of knowledge, provide services to support the learning and research activities of the parent institutions. Libraries play a significant role in supporting both traditional and electronic modes of learning (Tsekea & Chigwada, 2020). Covid-19 pandemic mutually affected the library and its users by disrupting its operations and service delivery (Fasae et al., 2020).

Problem Statement

University libraries serve diverse user categories. It ought to fulfill the expectations of helping its customers achieve their diverse information needs. The availability and accessibility of information resources influence their utilization by users (Onye, 2016). Readers tend to use information sources that require the slightest effort to access. Availability of information source does not necessarily imply its accessibility since there could be some hurdles within that hinders access (Asom, 2018). Academic libraries might possess the requisite information resources but the user fails to access and utilize them.

The Covid-19 pandemic posed a challenge to academic libraries in providing information resources and the traditional support to users due to the closing of parent institutions during the pandemic lockdown. Despite the hurdles, the library did not close its services; librarians came up with innovative methods to remain relevant and serve its users better during and after the Covid-



19 pandemic (Mehta & Wang, 2020). Some of the methods employed were Web 2.0 tools such as instant messaging, Facebook, WhatsApp, and Twitter; and subscriptions to online resources through consortia.

To conform to the directives of the Ministry of Health on Covid-19 containment measures, both the Reuben Marambii Library of Meru University of Science and Technology and the Kenyatta University Post Modern libraries revised their circulation policies. First, the physical interaction between the librarians and the patrons were minimized. The user orientation, training, and support were, therefore, virtualized. Second, the library halted loaning of print resources as patrons were encouraged to embrace library e-resources. Third, the libraries significantly reduced the reading space to enable social distancing within the reading space. Many patrons could not access the facility within their convenient schedules and program. The two libraries adopted technological approaches in to serve their patrons. For instance, among other initiatives, they designed self-taught user service tutorials, expanded their subscriptions to databases, and increased online training and user education.

However, this necessary shift was embraced sluggishly by the library patrons. This study, therefore, endeavoured to critically examine the actual hindrances limiting the accessibility and utilization of information resources during the post-Covid-19 era in academic libraries, taking Reuben Marambii Library of Meru University of Science and Technology and the postmodern Kenyatta University Library as a case study. No previous research has been conducted in Kenya to ascertain these factors. This paper, therefore, bridges this gap and further proposes proper mitigation measures to actualize these new vital adjustments in academic libraries.

Research Objectives

The study aimed to investigate the factors affecting the accessibility and utilization of information resources at the Reuben Marambii Library of Meru University of Science and Technology and the Kenyatta University Post Modern University library during post-COVID- 19 pandemic era.

The specific objectives were:

1. To determine the necessary skills possessed by librarians in supporting accessibility and utilization of information at the Reuben Marambii Library of Meru University of Science and Technology (MUST) and the Kenyatta University Post Modern University library during the post-Covid-19 pandemic.
2. To find out innovative methodologies employed by the library staff in facilitating access to library resources/services.
3. To investigate the challenges faced by library staff and users during the pandemic
4. To explore the role of information technology (ICT) in improving information resource usability and consumption.

Review of Relevant Literature

Throughout history, libraries have played a significant role in providing information services during times of crisis. Students, faculty, and researchers rely on academic libraries as a primary source of knowledge. Since its inception, libraries have been renowned for providing legitimate and reputable information sources to meet the various information needs of their users. (Pereira, 2022). This section reviews literature that relates to accessibility and utilization of library information resources in academic libraries based on the study's objectives.

Library and information resources

Print, non-print, and electronic information resources are the most widely used in university libraries, according to the data (Aladeniyi & Temitope, 2018). Textbooks, journals, handbooks, newspapers, periodicals, manuals, reports, dictionaries, atlases/maps, encyclopedias, the internet, computers, abstracts, and audiovisual materials are all examples of these. The library's aim may not have been met until these resources reach their maximum capacity and usage by clients (Onye, 2016). Libraries' primary aim has been to choose, gather, organize, and make information more accessible and usable. The availability and use of information sources and services are critical components of a successful educational system.

Skills possessed by librarians in supporting accessibility and utilization of information during the pandemic

Appropriate skills are essential for librarians in facilitating accessibility and utilization of information resources to library users. Adequate skills enable librarians to obtain accurate and valid information resources of different types and forms to their users. Librarians not only need to improve their skills in mastering new technologies and information but also be capable to promote their services and products.

The COVID-19 Pandemic has prompted librarians to assess, modify, and expand their existing online offerings rather than requiring them to start from scratch (Walsh & Rana, 2020). The digital library skills, which were initially causally handled, have become essential for information professionals. For example, library professionals should possess digital skills to provide digital services, which is now the only way to extend the library services to the users during the lockdown period.

The study by Ali and Gatiti (2020) observed the roles of the library professionals during the Covid-19 pandemic to include creating awareness through public health education and providing researchers and students with library facilities and support information services.

Innovative methodologies employed by the library staff in facilitating access to library resources/services

Adil, (2020) has focused on the new service models and technical implications for libraries during Covid-19 pandemic crisis. The author further suggested that librarians should help library



users by gathering different lists of online e-resources and posting them on library websites, providing online information literacy classes via social media, and developing online institutional repositories and user centric library guides. One of those opportunities is the possibility of creating a single information architecture and knowledge organization structure that facilitates easy access and retrieval from online tools. Some of the methodologies introduced by librarians were the use of web 2.0 tools such as social network sites like Facebook and WhatsApp, e-mails, chats and, instant message to connect and communicate with the users.

Apart from social networking sites, Lobo and Dhuri (2021) asserted that organizing webinars on different topics, blogging, updating library websites, and uploading YouTube videos were some of the methods used to keep users informed of the latest services, trends, and practices. Some of the libraries that have adopted the new normal are the academic libraries in Italy, Pakistani academic libraries, Ankang University library in china, Kenyatta University library, Kenya Methodist University, Meru University library among others.

Challenges faced by library staff and users during the Covid-19 pandemic

The pandemic of Covid-19 had a detrimental impact on university library operations and functionality. Despite reopening the libraries, the directive to limit in-person access to library information resources remained an obstacle to library users (Chakraborty & Jana, 2021). The libraries restricted the loaning of information resources, thus limiting users from utilizing information resources. Most libraries worldwide were noted to be recommending the access and utilization of online resources to reduce the spread of Covid-19 (BMORRIS, 2020).

University librarians felt that the digital divide, lack of digital literacy skills, and slow internet speed were the main barriers in their transition from physical to online mode and less use of the library's online resources and web portals, Brown, W. K. (2020).

Role of information technology (ICT) in improving information resource usability and consumption

The emergence of ICT has had a great impact on the quality of the information provided through libraries. ICT has also made it possible to provide proper and appropriate library services to library users from all disciplines (Adebayo et al., 2018). Development of ICTs has radically changed how all types of libraries operate (Mahanta, 2019). For example, the paradigm shift from stand-alone libraries to library and information networks is available through the internet. Many library routines and operations that were initially performed manually have now been automated. Innovative technologies have simplified the collection, processing, management, access, retrieval, and utilization of information (Adebayo et al., 2018).

The use of information and communication technology (ICT) in libraries has provided enough chances to automate libraries, develop digital libraries, provide resource sharing networks, provide value-added information services, and launch capacity-building programs for library staff and users. ICT in libraries has improved security and met the demands of users according to their specifications. It was also utilized to provide new information services and improve library

productivity and efficiency. By utilizing electronic storage medium, digital, and virtual libraries, ICT-based resources aid in the reduction of library space.

Amao (2020) observes that the use of ICTs in libraries has tremendously changed the management of resources or housekeeping operations as well as the ways of service delivery. Shaikh, (2019) in his article titled “Application of Information and Communication Technology in Libraries. Prospects and Constraints underlined the critical significance of libraries in delivering a variety of services to patrons. The role played by ICT in today’s world in disseminating quality information to its users. This study paper discussed the different issues and current advances in the subject of technology in libraries, as well as providing library professionals with training possibilities.

In general, the Covid-19 situation showed the necessity for a digital library transformation strategy, a new digital paradigm, and research into public perception changes of libraries (Tammara, 2020). Some of the digital library techniques that have been launched have made use of technological innovations.

Methodology

This study employed a descriptive survey research design and utilized mixed research methods. The research was conducted in two university libraries that are Post Modern Library at Kenyatta University and the Reuben Marambii Library of Meru University of Science and Technology. Data were collected using structured questionnaires issued to a total sample of 357 respondents (331 students and 26 staff). The sample was determined using the Krejcie and Morgan table from an average total of 5000 active patrons from both libraries. 20 library staff and 309 students responded properly. Ethical clearance was obtained from Meru University Institutional Research and Ethics Review Committee, MIRERC No. MU/1/39/28 Vol. 2 (19) and the National Commission for Science, Technology & Innovation (NACOSTI/P/21/12411). The data collection was authorized by the two institutions: Meru University of Science and Technology (Ref. MU/1/17/RES/4/1(227) and Kenyatta University (Ref: KU/DVCR/RCR/VOL.3/327). Only those who consented participated in the study. Descriptive data were analyzed using Statistical Package for social sciences (SPSS) version 28. The findings were presented using figures and tables.

Results and Discussion

The study received responses from 20 out of the 26 sampled librarians and 309 out of 357 sampled frequent library users. This translates to a response rate of 76.9% for librarians and 86.6% response rate for frequent patrons. Since they are above the average, the response qualified for a generalization of the entire target population.

The knowledge, abilities, and skills possessed by librarians are necessary drivers of both library performance and user satisfaction. The competency and proficiency of a librarian are contributors to performance. The study identified different qualifications of the librarians who participated in answering the questionnaires as shown in Table 1 on the following page.



Table 1. Librarians Qualifications

	Frequency	Percent	Valid Percent	Cumulative Percent
Masters	4	20.0	20.0	20.0
Bachelor	10	50.0	50.0	70.0
Diploma	6	30.0	30.0	100.0
Total	20	100.0	100.0	

This study established that the majority (80%, n=16) of the librarians have diploma and bachelors' degree that is considered and are deployed at the technical level. At the technical level librarians engage with users directly. While master's holders are in the management level, where library administrative and management work is handled. Seventy percent (n=14) of the librarians from this study have degrees and thus can serve learners, teachers, and researchers in their academic and research endeavors (Adomi & Oyovwe-Tinuoye, 2021).

Skills possessed by librarians in supporting accessibility and utilization of information during the pandemic

Librarians are recruited based on their qualifications: skills, knowledge, and abilities specified in the job description. Cherinet (2018) observes that the contemporary skills, abilities, and knowledge of librarians are but are not limited to these: online customer service, online information marketing, online searching, virtual training, subject database knowledge, ability to assist users remotely, online professional communication skills and digital selective dissemination of information. These skills are necessary to deliver library services including circulation, information literacy training, searching and retrieval, selective dissemination of information, current awareness, acquisition, classification, and cataloging among other library operations. The findings of this study revealed the proportion of the librarians with requisite skills shown in Table 2 below. Table 3 on the following page shows how librarians acquire these skills.

Table 2. Librarians with Requisite Skills

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	18	90.0	90.0	90.0
No	2	10.0	10.0	100.0
Total	20	100.0	100.0	

Ninety percent (n=18) of librarians believe they possess the requisite skills to serve their patrons. During a librarian's recruitment, necessary knowledge, skills, and abilities are tested to establish if the librarian can deliver. It is worth noting that 10% (n=2) confessed their lack of library skills

Table 3. *Methods of Acquiring Skills*

		Frequency	%	Valid %	Cumulative %
Valid	Formal Training	12	60.0	60.0	60.0
	Seminar/Conference	6	30.0	30.0	90.0
	Job Learning	2	10.0	10.0	100.0
	Total	20	100.0	100.0	

To equip their team with some of the lacking skills and knowledge or emerging new techniques, the library management put strategies in place to supplement the requisite skills with capacity building and training programs. Wittenberg et al. (2018) emphasize that a Librarian Training Program should focus on training liaison librarians in research data management principles and fostering a community of practice among libraries that assist research data.

The study revealed that formal training, which includes scheduled training and workshop, was the most used mode (60%, n=12). Seminars/ conferences were also adopted mode of skill-sharing (30%, n=6). Another mode of skill sharing that is under-utilized is job learning (10%, n=2), where librarians learn from each other; they share knowledge, skills, and experiences. Job learning constitutes learning by doing it. This mode of learning requires interpersonal skills, self-driven, and commitment. Being an informal method, it has challenges thus discouraging its adoption. Though informal method, if well utilized it has great feedback and is cheap, and requires minimal planning.

Innovative methodologies employed by the library staff in facilitating access to library resources/services

Conventionally, physical library operations and management are commonly practiced in normal circumstances. Most people prefer manual access to physical textbooks and in-person assistance since humans are social beings. Table 4 on the following page highlights the library patrons' most preferred access method, technique, and library resource.



Table 4. Users' preferred Information resources, access methods and techniques

	Type	Frequency	Percentage
Access Method	Manual	79	25.6%
	Electronic	226	73.1%
	None	4	1.3%
Searching Technique	OPAC	106	34.3%
	Internet Search Engine	145	46.9%
	Ask a librarian at the counter	31	10.0%
	Ask a fellow user	25	8.1%
	Browse through the shelves	2	0.6%
Commonly used library resource	E-books	42	13.6%
	E-Journals	9	2.9%
	Textbooks	128	41.4%
	Past papers	35	11.3%
	Newspapers	14	4.5%
	References	49	15.9%
	Theses	3	1.0%
	Others	14	4.5%
	None	15	4.9%

Since lending of items (books, patch cables, CDs, DVDs, newspapers, magazines, print journals, policies, booklets, etc.) was paralyzed, users embraced e-resources. The study revealed that 74.3% (n=228) of the users preferred online services (electronic) while 25.6% (n=79) of the users preferred manual access to information resources. The most preferred tool for searching information resources is internet search engines 46.9% (n=145) and OPAC 34.3% (n=106). However, some patrons prefer asking the librarians at the counter, 10% (n=31) while 8.1% (n=25) prefer asking a fellow user. It is worth noting that 41.4% (n=128) prefer physical textbooks. These patrons were inconvenienced so much by the lockdown. On the other hand, 13.6% (n=42) of the users prefer e-books.

Minimizing the physical operations in the library as a containment measure of Covid-19 made it necessary to design and promote a digital/virtual environment to address these challenges to guarantee continuous library operations (Vassilakaki & Moniarou-Papaconstantinou, 2021). To support users and revamp librarian-user interactions, the libraries introduced innovative mechanisms to revamp their user services. For instance, the two libraries introduced WhatsApp, Ask librarian/LiveChat with a librarian, phone call, email, SMS, and other social media to serve patrons virtually.

Challenges faced by library staff and users during the Covid-19 pandemic

By disrupting the normal library operations, Covid-19 hit the library staff and users alike. The study identified the challenges that users faced in accessing and utilizing library resources and those that affected the library staff in their line of duty. Table 5 below summarizes the main challenges identified.

Table 5. Challenges faced by users

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Inadequate staff	25	8.1	10.2	10.2
	Lack of Computers	99	32.0	40.4	50.6
	Unreliable Internet	85	27.5	34.7	85.3
	Limited Skills and competence	31	10.0	12.7	98.0
	Others	5	1.6	2.0	100.0
	Total	245	79.3	100.0	
Missing	System	64	20.7		
Total		309	100.0		

As a preventive move, the Ministry of Education prepared a directive to reopen the universities. Before delivering services, the library must meet the criteria outlined in this regulation. The findings revealed that 10.2% (n=25) of the respondents agreed that the libraries are understaffed, and 40.4% (n=99) said libraries are not installed with enough computers that can help them do their research online efficiently. 34.7% (n=85) agreed that internet service at the library is not reliable hence inconveniencing them from doing their research online, 12.7% (n=31) of the respondent revealed that librarians lack skills relevant to assist the researchers. 2% (n=5) of the respondents gave other reasons that inconvenienced them from accessing the library resources like “lack of technical skills”, “inadequate space”, “outdated collection” and “unaware of the services or training”. Although the libraries had set some of the strategies with the bare minimum to reopen libraries the challenges encountered call for the re-engineering of the library support of access and utilization of the information.

Further, the staff respondents registered some of the challenges they encountered when they reopened, as shown in Table 6 on the following page.



Table 6: Librarians Challenges brought by the pandemic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	null	2	10.0	10.0	10.0
	Consideration for people with special needs	1	5.0	5.0	15.0
	Inability to access information	1	5.0	5.0	20.0
	Inadequate digital skills	2	10.0	10.0	30.0
	Inadequate IL	1	5.0	5.0	35.0
	Lack of cooperation	6	30.0	30.0	65.0
	Poor network	2	10.0	10.0	75.0
	Staffing	4	20.0	20.0	95.0
	Stigma due to Covid-19	1	5.0	5.0	100.0
	Total	20	100.0	100.0	

The library staff identified the following challenges brought by the pandemic: 5% (n=1) of the respondents revealed that new measures introduced at the library to counter Covid-19 did not consider people with special needs. Another 5% (n=1) said that inability to access information is a challenge due to internet connectivity, while 10% (n=2) of the staff respondents lacked digital skills, 5% (n=1) of the staff disclosed inadequate information literacy training is a challenge since the new delivery method was introduced to counter Covid-19 but enough training was not done. 30% (n=6) of the librarians complained of a lack of cooperation hence hindering teamwork to support users virtually. 10% (n=2) of the librarians complained of the poor network during the pandemic, and 20% (n=4) of the librarians mentioned that understaffing was a challenge that affected service delivery. 5% (n=1) of the librarians complained of the stigma due to Covid-19 that made users and staff avoid accessing the library services.

Covid-19 challenges libraries all around the world to provide library services. Despite the challenges, according to Adela (2021), ministries of education gave directives that were cascaded to the parent institution of the libraries and to the libraries leaving them to handle the matter and make decisions after the re-opening. The libraries are left with no choice but to cope with the situation and develop survival mechanisms to continue supporting access and utilization of information.

Role of information technology (ICT) in improving information resource usability and consumption

The COVID pandemic will go down in history as the year of an eye-opener on the power of ICT as a driver in the information service industry. The findings revealed that all the library staff (100%)

agreed that the library currently depends on ICT information resources. Table 7 details the users' preferred access methods.

Table 7. Library users preferred Information resources Access Method

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manual	79	25.6	25.7	25.7
	Electronic	228	73.8	74.3	100.0
	Total	307	99.4	100.0	
Missing	System	2	0.6		
Total		309	100.0		

The majority of the library users, 73.8% (n=228), preferred online access. Interestingly, 25.6% (n=79) opted for manual access to library resources, and they must have been greatly inconvenienced by the new normal.

Table 8 below highlights the access tools, techniques, and commonly used resources.

Table 8. Librarians Preferred Information Access Methods, Tools, ICT dependence and E-resources

Feature	Type	Frequency	Percentage (%)
Access Methods	Manual	0	0.0
	Electronic	2	10.0
	Hybrid	18	90.0
ICT Dependent	Yes	20	100.0
	No	0	0.0
Access Tools	OPAC	19	95.0
	Search Engine	1	5.0
	Indexes/Databases	0	0.0
	Others	0	0.0
Resources	E-books	16	80.0
	E-Journals	2	10.0
	Audio-visual	1	5.0
	Others	1	5.0

The study revealed that librarians preferred a hybrid (both manual and electronic) method to access information resources, 90% (n=18). Ten percent (n=2) of the librarians chose online only. It is worth noting that no librarian selected manual access. All the librarians declared that they depend on ICT for their day-to-day operations and confirmed the current library collections are ICT-dependent. The two libraries mainly applied the Online Public Access Catalog (OPAC), 95%



(n=19) in their operations. The most commonly used electronic information resource is E-books (80%, n=16).

Both Post Modern Library at Kenyatta University and Reuben Marambii Library of Meru University of Science and Technology libraries utilize both online and traditional methods to serve their students. The institution libraries' have adopted ICT technology to aid in their service delivery during the post-Covid-19. From the results, 74.3% of the patrons preferred online access/service which is more convenient for them. Therefore, ICT-dependent resources give libraries a platform to serve their patrons virtually (Adomi & Oyovwe-Tinuoye, 2021). The study areas have shown that ICT is used to aid in offering on and off-campus access services, Database access, Repositories, Online search engines, and Online Customer service. According to Petrowicz (2020) after the reopening of universities libraries immediately responded and adapted operations, services, and procedures, and the transition to delivering library services mostly digitally. Even though the online support of access and utilization of information is the most recommended alternative, it comes with its challenges. The university librarians considered the digital divide, lack of digital literacy skills, and slow internet speed to be the most significant hurdles to their migration (Rafiq et al., 2021).

ICT has been utilized in pre- Covid-19, more during Covid-19, and post Covid-19 mostly to facilitate online library services. ICT has eased the way of doing things in the library both for the librarians and the patrons. Despite the benefits, the patrons decried inadequate computer and ICT facilities, poor network connectivity, lack of know-how, and high cost of internet bundles (especially off-campus) as the impediments to embracing digital library services.

Conclusion

This study focused on investigating the factors affecting the accessibility and utilization of information resources at the Post Modern Library of Kenyatta University and Reuben Marambii Library of Meru University of Science and Technology Library during the post-Covid-19 pandemic era. The study established the deficiency of the librarians' digital skills due to a lack of training and other capacity-building programs. The study found that factors affecting the accessibility and utilization of information are the challenges that resulted from the burden of Covid-19. However, some challenges are due to unpreparedness and lack of upgrading most services from conventional to modern. Modern methods of offering services employ technology for both functional and operational roles of the libraries.

The study noted that some of the innovative strategies put in place during the reopening of the libraries inconvenienced some users. They include early closing of the library due to curfew hours, reduced library reading capacity, halting lending service, and limited users from accessing library information resources. These greatly affected the access and utilization of information resources in the two libraries.

Recommendations

To adapt to the 'new normal, both staff and patrons must be skilled and capable of dealing with technologies, just as the pandemic crisis. The end of post-Covid-19 'new normal' is still unclear. Libraries should therefore rethink their position to prepare for future services. The library management should prioritize training staff and users to bridge the digital divide and transform them into tech-savvy since it is necessary. New best practices such as use of the hybrid method of support of users on access to information, the use of AI technologies, and standard policies to be developed by experts to guide libraries during a disaster like the Covid-19 pandemic.

The administration must integrate current information with dedicated online platforms and communications technology, including high-bandwidth Internet connectivity. Technological infrastructure such as internet networks, computers, and related devices are needed to be improved, which the funders of the libraries should consider. Further, this research calls for the policymakers to feature new measures in the libraries that will protect both the user and librarians. The results of this study call for further research to be done in specific library services to draw solutions to the associated challenges posed by the Covid-19 burden.

References

1. Abubakar, J. D. (2020). Availability and accessibility of information resources in university libraries for students' academic use: A case study of pharmaceutical science students of the university of Jos. *Library Philosophy and Practice*, 1-19. <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=7907&context=libphilprac>
2. Adebayo, O. A., Ahmed, Y. O., & Adeniran, R. T. (2018). The Role of ICT in Provision of Library Services: A Panacea for Sustainable Development in Nigeria. *Library Philosophy & Practice*. <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=5305&context=libphilprac>
3. Adil, S. A. (2020). Libraries beyond the Covid-19: New service models implications. In Paper presented at the 2nd international conference on emerging issues of information landscape (ICEIL2020), Pakistan: University of Sargodha
4. Adomi, E. E., & Oyovwe-Tinuoye, G. O. (2021). Covid-19 information seeking and utilization among library and information science professionals in Nigeria. *IFLA Journal*, 034003522110315. <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2282&context=libphilprac>
5. Aladeniyi, F. R., & Owokole, T. S. (2018). Utilization of Library Information Resources by Undergraduate Students of University of Medical Science Ondo, Ondo State, Nigeria. *American International Journal of Contemporary Research*, 8(4). <https://doi.org/10.30845/aijcr.v8n4p9>
6. Ali, M. Y., & Gatiti, P. (2020). The COVID-19 (Coronavirus) Pandemic: Reflections on the Roles of Librarians and Information Professionals. *Health Information & Libraries Journal*, DOI: 10.1111/hir.12307.
7. Amao, M. A. (2020). Use of Information and Communication Technology in Library Services, Impact and Challenges. *African Scholar Publications & Research International*, 19(8). <https://www.africanscholarpublications.com/wp>
8. Bakti, L. A., Prasetyadi, A., Nugroho, D. W. A., Trianggoro, C., Rosiyan, N. R., & Subagyo, H. (2020, December). Innovation in Library Services Post Covid-19 Pandemic. In *Proceeding of International Conference on Documentation and Information* (Vol. 3, pp. 25-33). <https://doi.org/10.14203/icdi.v3i.20>
9. Barfi, K. A., Afful-Arthur, P., & Agyapong, E. M. (2018). Utilization of library resources by lecturers in University of Cape Coast. *International Journal of Library and Information Science*, 10(1), 10-16. <https://doi.org/10.5897/ijlis2017.0775>
10. Adela, F. (2021). Reopening Ethiopian higher education institutions library in the context of Covid-19. *International Journal of Information, Library & Society*, 9(2), 38-43.
11. BMORRIS. (2020, March 26). *Handling Library Materials and Collections During a Pandemic* [Text]. Association for Library Collections & Technical Services (ALCTS). <https://www.ala.org/alcts/preservationweek/resources/pandemic>



12. Chakraborty, S., & Jana, S. (2021, June). *Challenges and Opportunities of Academic Libraries in India Because of Covid-19* (Journal Article (Paginated) No. 2). *Annals of Library and Information Studies; Council Of Scientific And Industrial Research–National Institute Of Science Communication And Information Resources (CSIR–NISCAIR)*. <http://eprints.rclis.org/42252/>
13. Cherinet, Y. M. (2018). Blended skills and future roles of librarians. *Library Management*, 39(1/2), 93–105. <https://doi.org/10.1108/LM-02-2017-0015>
14. Connell, R. S., Wallis, L., & Comeaux, D. (2021). The Impact of Covid-19 on the Use of Academic Library Resources. *Information Technology and Libraries*, 40(2), Article 2. <https://doi.org/10.6017/ital.v40i2.12629>
15. Diana Petrowicz. (2020). The effects of Covid-19 on Libraries <https://www.springernature.com/gp/librarians/the-link/blog/blogposts-news-initiatives/the-effects-of-Covid-19-on-libraries/18507278>
16. Fasae, J.K., Adekoya, C.O. and Adegbilero-Iwari, I. (2021), "Academic libraries' response to the Covid-19 pandemic in Nigeria", *Library Hi Tech*, Vol. 39 No. 3, pp. 696-710. <https://doi.org/10.1108/LHT-07-2020-0166>
17. IFLA. (2020, July 7). IFLA Guide to Reopening Libraries After Covid-19 Shutdowns. *Information Today Europe*. <https://www.infotoday.eu/Articles/News/Featured-News/IFLA-Guide-to-Reopening-Libraries-After-Covid-19-Shutdowns-141658.aspx>
18. Lara Ewen. (2020). How to Sanitize Collections in a Pandemic. *American Libraries Magazine*. <https://americanlibrariesmagazine.org/blogs/the-scoop/how-to-sanitize-collections-Covid-19/>
19. Lobo, Jovita Ms and Dhuri, Keshav R. Dr, "Positive Impact of Covid-19 Pandemic in Enhancing Digital Literacy Skills Among Library Professionals: A Study" (2021). *Library Philosophy and Practice (e-journal)*.5243. <https://digitalcommons.unl.edu/libphilprac/5243>
20. Maison, D., Jaworska, D., Adamczyk, D., & Affeltowicz, D. (2021). The challenges arising from the Covid-19 pandemic and the way people deal with them. A qualitative longitudinal study. *PLOS ONE*, 16(10), e0258133. <https://doi.org/10.1371/journal.pone.0258133>
21. Mahanta, P. K. (2020). Application and Utilization of ICT in the Degree College Libraries of Assam. *Library Philosophy and Practice*, 1-14. <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=7167&context=libphilprac>
22. Mehta, D. and Wang, X. (2020), "Covid-19 and digital library services – a case study of a university library", *Digital Library Perspectives*, Vol. 36 No. 4, pp. 351-363. <https://doi.org/10.1108/DLP-05-2020-0030>
23. Moniarou-Papaconstantinou, V., Vassilakaki, E. and Tsatsaroni, A. (2015), "Choice of Library and Information Science in a rapidly changing information landscape: A systematic literature review", *Library Management*, Vol. 36 No. 8/9, pp. 584-608. <https://doi.org/10.1108/LM-04-2015-0022>
24. Onye, U. U. (2016). Availability, Accessibility and Utilization of Library Information Resources by Student of the Federal University of Technology, Owerri (FUTO), *Information & Knowledge Management*. 6, (10).
25. Rafiq, M., Batool, S. H., Ali, A. F., & Ullah, M. (2021). University libraries response to Covid-19 pandemic: A developing country perspective. *The Journal of Academic Librarianship*, 47(1), 102280. <https://doi.org/10.1016/j.acalib.2020.102280>
26. Shaikh, T. (2019). Application of Information and Communication Technology in Libraries: Prospects and Challenges. *Research Gate*, <https://www.researchgate.net/publication/330848325>
27. Tamaro, A. M. (2020). Covid-19 and Libraries in Italy. *International Information & Library Review*, 52(3), 216–220. <https://doi.org/10.1080/10572317.2020.1785172>
28. Tsekea, S. and Chigwada, J.P. (2021), "Covid-19: strategies for positioning the university library in support of e-learning", *Digital Library Perspectives*, Vol. 37 No. 1, pp. 54-64. <https://doi.org/10.1108/DLP-06-2020-0058>
29. Walsh, B. & Rana, H. (2020). Continuity of academic library services during the pandemic: The University of Toronto Libraries' response. *Journal of Scholarly Publishing*, 51(4), 237-245. <https://doi.org/10.3138/jsp.51.4.04>

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Equity and Inclusivity in Library Services for People with Disabilities in Public University Libraries in Kenya during the “New Normal”

A Case Study of Kaimosi Friends University (KAFU) Library

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Abstract. The study sought to investigate the level of preparedness of KAFU library in service provision to people with disabilities (PWDs) with a view to providing strategies aimed at ensuring equity and inclusivity in service provision. Specific objectives that guided the study included: - to investigate the level of preparedness of the library in providing services to PWDs; to explore the types of services available for PWDs; to establish the opportunities and challenges PWDs encounter in accessing services; provide strategies to mitigate against these challenges and enhance equity and inclusivity in service provision. The study was informed by the social model of disability. The research adopted qualitative research design. The study population included users with physical challenges, visual and hearing impairment and service providers. Purposive sampling technique was employed targeting information rich sources. Data was obtained through face-to-face interviews complemented by the observation method. Data was analyzed thematically and aligned to the objectives of the study. The findings of the study indicated that the library was inadequately prepared to provide services for the PWDs. It lacked the requisite physical facilities, equipment, amenities, alternative formats of resources and specialized staff to cater for needs of PWDs. That notwithstanding, construction of the ultra-modern library was underway to address these inadequacies. The study recommended advocacy for a sound legal and policy framework aimed at ensuring requisite infrastructure is in place in new universities; lobbying for increased funding to new universities to facilitate the acquisition of equipment, assistive technologies, alternative formats of resources and recruitment of sign language interpreters to ensure the achievement of equity and inclusivity in service provision.

Keywords: People with disabilities, Remote Services, Assistive technologies, Virtual Services, Covid-19-Pandemic, New normal.

Introduction

The role of the library in providing conducive study spaces, resources and services to all users equitably cannot be underscored. This was the case until the Covid-19 pandemic set in. Teaching, learning and research were transferred to the virtual platform completely thereby necessitating the library to rethink its position by providing all its services in the virtual platform until normalcy resumed. Decker (2021) opines those modifications to academic library service models takes place gradually, systematically, in response to dynamic patron priorities, paradigm shift in education and information landscapes, and novel technologies. The library environment did not have the luxury of time when the Covid-19 pandemic hit the world and imminent closure of the library buildings was inevitable.

These unanticipated changes provided a unique opportunity for the library to reevaluate and re-imagine existing service models towards enhanced users experience through streamlined processes and modifications to the library environment. Planning on how this would be executed was done without careful consideration of the specialized group of users who are the people living with disabilities.

The term disability has myriad definitions but this paper adopted the definition advanced by the UNSCPWD (2013), which defines persons living with disabilities (PWDs) to include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.

Although there are various types of disabilities as classified by WHO (2018), this study focused on three of these, most specifically the physical, visual and hearing impairments. The Kenya National Bureau of Statistics (2019) indicated that the population of people with physical disabilities in Kenya stood at 0.4 million, visual impairment at 0.3 million and hearing-impairment at 0.2 million, respectively. Each specific form of disability had its own unique needs which needed to be addressed to enhance equity and inclusivity during library services design. Accuracy of the PWDs statistics may be in question due to the stigma associated with acknowledging disability which may have prevented accurate reporting and hence impacted the 2019 census as indicated in the status of disability report. Lack of knowledge on the need to register with the Kenya National Council for Persons with Disabilities, may also have had a bearing on the accuracy of the statistics.

Statement of the Problem

The current dispensation provides for a paradigm shift from the norm to the new normal occasioned by the sudden and unexpected outbreak of the Covid-19 pandemic which presented unique and unprecedented challenges for institutions of learning and the library in terms of service provision. This led to the closure of all learning institutions and the decision spilled over to the library. The lockdown occasioned by the pandemic led to the closure of educational institutions, disrupted learning and the education calendar which impacted on all learners. However, the vulnerable and marginalized learners, that is PWDs bore the brunt of this misfortune

(UNESCO, 2020). The pandemic further laid bare the inequalities in our world. PWDs have been in the past, and continue to be, the most vulnerable and marginalized individuals in the society (World Bank, 2020). These inequalities are further escalated to the libraries.

Transition of learning to the e-platform prompted quick responses from the library of providing real-time services to users in the virtual platform remotely. This transition brought about myriad challenges of accessibility due to the digital divide and lack of accessible reading materials (ARM) for these group thus further widening the gap towards ensuring equity and inclusivity during the pandemic. Ali and Gaiti (2020) assert that in every crisis, a need for information exists. Based on this premise, librarians needed to be nimble and proactive in a bid to address this need.

Disability is a complex, diverse and growing global concern, whose unique needs require addressing in tandem with the mission of the library of offering equity of access to resources and services to all its patrons. From the information service perspective if nothing is done, the PWDs were least likely to benefit from the remote library solutions rolled out to ensure continued accessibility to resources during the pandemic and post-pandemic period. Breslin (2020) observes that prior to the pandemic, there was neither the luxury of time, impetus nor support to make changes to library services.

Myriad studies have been conducted on PWDs and library services on the national and global sphere, including but not limited to, Decker (2021) whose study focus was reaching academic library users during the Covid-19 pandemic. Ayres (2020) focused on mechanisms of addressing broadband inequity and digital poverty through leveraging information technology in libraries. Young, Baada and Baayel (2020) studied access to the library services and facilities by persons with disability. Walsh and Rana (2020) focused on the continuity of academic library services during the pandemic while Monda (2018) focused on the role of librarians in meeting the information needs of the visually and hearing impaired students. Kiambati (2015) focused on the challenges faced by visually impaired students in accessing library resources. This paper therefore aims to build on from these previous studies and add to the body of knowledge in ensuring the new university libraries are adequately prepared in addressing the needs of PWDs in order to achieve equity and inclusivity in library services provision.

Literature Review

The role of the library as a place and space is to provide equitable library services to its clientele, their ability status notwithstanding. Information providers were striving to achieve this objective of inclusivity despite the myriad challenges experienced in their quest to attain this, until the major setback in the form of Covid-19 pandemic set in, which disrupted the university almanac globally. However, the setback occasioned by the new normal, reactive building closures and the unexpected reductions in budgetary allocation had far reaching ramifications to the libraries disproportionately compared to the other cost centers on campus.

The study focused on the social model of disability which addresses the barriers inherent in the environment that limited the patrons with disability. The model lays emphasis on inclusivity, eliminates stigma and inspires creative design. This model addresses environmental factors such



as access to information, building design, fear, attitude, inaccessible transport, lack of parking space, lack of access loop steps or interpreters, isolation and exclusion (Carson, 2009).

The “new normal” prompted a paradigm shift of course delivery from classroom instruction onto the virtual platform to alleviate total disarray of the university activities. This prompted the libraries to follow suit and enhance the virtual library to complement teaching and learning on the e-platform since they closed their doors to physical use. Ma (2020) reiterated that the pandemic presented a unique opportunity for prompting the academic librarians to rethink their key roles and core values in supporting teaching and learning in their institutions. Jones (2020) opined that this crisis presented an opportunity for the library to regroup and reconsider reallocating of funds and limited resources to resonate with the dynamic user needs in the academic library setting.

Mehta and Wang (2020) alluded to the fact that the advent and prevalence of Covid-19 pandemic prompted university libraries, as a matter of necessity, to shift focus from the print resources which supported classroom-based instruction and lay more emphasis on electronic resources and services to support e-learning and distance learning in a bid to ensure continued accessibility of the library in tandem with limited physical or face-to-face university activities. Ayre and Craner (2020) posited that libraries should develop solutions to facilitate provision of services on the virtual platform as well as enhance working remotely during closure of library buildings.

Breslin (2020) opined that the pandemic ignited the digital switch to ensure the libraries remained relevant and continued to provide services during the new normal. Fletcher and Griffiths (2020) and Pokorná, Grman, Stepanovsky and Smetánková concurred by observing that the new normal had bestowed to the digital libraries their space as pathways to remote resources and services to alleviate disruption of services. However, the pros and cons towards realizing the transformation to complete virtualization of library services necessitated a fundamental rethink and futuristic strategies as the library gears its efforts towards adopting emerging technologies.

During this transition of new normal, no utmost consideration or if any little consideration was given to the PWDs as the redesign of library services was being undertaken, which further marginalized them from ease of accessing library resources and services. This was reiterated by Pionke (2020) who asserted that the manifestation of the Covid-19 pandemic created new tech savvy information needs thus posing challenges of limited access to technology. To alleviate these challenges, myriad academic institutions and libraries strived to provide hotspots and laptops without utmost consideration for the needs of the patrons with disabilities. This further widened the digital divide between the mainstream users and the PWDs. The absence of assistive technologies/equipment to facilitate access to electronic resources, assistive reading materials places them at a high risk of being left behind (UN, 2020; World Bank, 2020). New universities such as Alupe, Turkana University College, Kaimosi Friends University, Koitalel Samoei University College, Tom Mboya, etc. have the opportunity to factor these assistive technologies during the construction of libraries in their institutions in order to achieve equity and inclusivity in service provision to PWDs.

The literature surveyed decried the fact that although university libraries provided services to the PWDs, the objective of attaining equity and inclusivity was still far from being achieved. These findings were in concurrence with previous studies conducted by Phukubje and Ngoepe (2017)

whose findings indicated that students with disability in majority of the institutions were not content with the library services provided. Tudzi (2017) and Carson (2009) opined that barriers in the external and internal environment of buildings render the environment hostile and unfriendly to PWDs. From the surveys conducted annually, the new universities can use the data obtained to address the areas of concern of the PWDs to ensure they are content with the services provided. Additionally, the special facilities and amenities can be prioritized during construction of the new library buildings, given most of them inherited library spaces from their predecessor institutions.

Research Methodology

The study adopted a qualitative research design which was exploratory in nature and it sought to elicit depth and complexity as opposed to generalizations.

The population sample was drawn from the PWDs as subjects of the study, service providers, who included the lecturers, Dean of Students, disability mainstreaming committee (DMC), students governing council (SGC) and librarians. The institution does not currently have completely visually impaired users. Therefore, the partial visually impaired users stood in the gap. This was informed by the fact that two of the three visually impaired respondents, had one eye that was completely impaired and one of them could barely see without his spectacles which had very thick lenses.

The researcher employed purposive sampling technique to select respondents, targeting the information rich sources (Campbell, 2020 & Silverman, 2017). Due to the small number of PWDs at KAFU, the entire population represented the sample.

The study utilized face to face interviews as the primary technique of data collection. Open-ended questions permitted the researcher to probe deeper into the initial responses provided and this provoked further details to the phenomenon under study as echoed by Creswell (2014) and Silverman (2017). This was complemented by the observation method which elicited other unspoken responses that augmented the spoken word. Oltmann (2016) and Morgan (2016) opined that observation method provided additional information participants may be unwilling to divulge or unaware of and it equally permitted examination of contextual factors. The research subjects were observed in their natural environment through disguised naturalistic observation. The researcher observed the way the subjects under study interacted with the resources and other users, the way they navigated through the library spaces, accessed the library building and the circulation counter, etc.

Piloting of the research instruments was done prior to the actual data collection exercise to eliminate any ambiguities and enhance their reliability and validity, thereby ensuring elicitation of the desired results.

Ethical considerations adhered to included, the provision of sufficient information to the participants regarding the purpose of the study to enable them make informed consent on the decision to voluntarily participate without coercion. Adequate level of confidentiality of the information provided by the respondents was strictly adhered to. Prior consent was sought from



the participants before any photo session. Objectivity in reporting the research findings was also adhered to. Sources consulted during the study were duly acknowledged and cited.

Findings, Analysis, Interpretation of Results, and Discussions

The findings of the study were aligned to the objectives of the study and discussions are presented under the four following objectives that guided the study: Objective 1: the level of preparedness of the library in providing services to PWDs, objective 2: type of services available for PWDs, objective 3: opportunities and challenges encountered by PWDs in accessing services, as well as objective 4: strategies to be employed to ensure inclusivity and equity in service provision to PWDs.

The study categorized the respondents into two groups: persons targeted by the study, and secondly, the service providers who interact with these specialized users. These respondents are tabulated in tables 1 and 2.

Demography of the respondents

Table 1 presented the details of the persons targeted by the study including the five (5) physically challenged and the three (3) visually impaired users. The respondents were students and staff including three (3) diploma level students, one (1) undergraduate level student, three (3) postgraduate level students and one (1) academic staff. The hearing-impaired users are currently not available but some questions were posed to the service providers guided by the IFLA checklist to facilitate adequate planning for posterity.

Table 1. Demography of the Respondents (PWDs) n=08

#	Gender	Type of Disability	Level of Education	Year of Study	No	Age	%
1	Male	Partial Visual Impairment	Masters	2 nd	01	33	12.5
2.	Male	Physical (Lower limb)	Masters	2 nd	01	35	12.5
3.	Female	Physical (upper limb)	Masters	1 st	01	28	12.5
4.	Female	Physical (hunchback)	Undergraduate	1 st	01	21	12.5
5.	Male	One completely blind eye	Diploma	1 st	01	45	12.5
6.	Female	Physical (lower limbs)	Diploma	2 nd	01	22	12.5
7.	Male	Physical (Crutches)	Diploma	2 nd	01	25	12.5
8.	Female	One complete blind eye	Academic Staff		01	47	12.5
TOTAL Physical and Visual Impairment					08		100%

Table 2 presents the other respondents providing services to this targeted group including ten (10) lecturers, one (1) dean of students, two (2) members of the student governing council, two

(2) members of the disability mainstreaming committee and five (5) librarians, two (2) of these at management level and three (3) at operational level.

Table 2. Demography of the Service Providers (n=20)

#	Gender	Cadre of Staff	Level of Education	No	%
1	Male	Academic Staff	PhD	05	25
2	Female	Academic Staff	PhD	05	25
3	Male	Library Management	Degree	02	10
4	Female	Operational	Diploma	03	15
5	Male	Disability Mainstreaming Committee	Masters	01	05
6	Female	Disability Mainstreaming Committee	Degree	01	05
7	Male	Dean of Students	Masters	01	05
8.	Male	Student Governing Council	Undergraduate	01	05
9	Female	Student Governing Council	Undergraduate	01	05
TOTAL				20	100

The response rate was 100% due to the primary data collection method employed which was face to face interviews complimented by the observation method. The study findings were aligned to the objectives guiding the study and are discussed in below.

Objective 1: The level of preparedness of the library in providing services to PWDs

The study sought to investigate the level of preparedness of the library in providing services to PWDs with regard to infrastructure, physical facilities, the availability of assistive devices and technologies to facilitate accessibility to resources and services. The population sampled included the mobility challenged users. The study utilized the IFLA Standing Committee Checklist Model for Libraries Serving Disadvantaged Persons as the yardstick in gauging the level of preparedness. The respondents were provided with the opportunity to provide suggestions that would improve their experience in accessing services and resources. The following tables summarize the responses elicited from the interview.



Table3. Responses on adequacy of the library in service provision to PWDs (Physically Challenged Users, n=5)

S/N	Assistive Devices currently in place	Yes	No (%)	Total
1.	Clear Signage and Pictograms	40%	60%	100%
2.	Accessible service counter	0%	100%	100%
3.	Accessible OPAC	100%	0%	100%
4.	Accessible entrance	80%	20%	100%
5.	Accessibility within the building (lifts, ramps)	0%	100%	100%
6.	Adequate space for the wheel chair movement	50%	50%	100%
7.	Designated parking spaces	80%	20%	100%
8.	Designated water closets	0%	100%	100%
9.	Cabro pavement for ease to ease uneven pathways	100%	0%	100%
10.	Usability of the Reading Carrels	80%	20%	100%
11.	Comfort of the Chairs	60%	40%	100%
12.	User friendliness of the staff	80%	20%	100%

It can be deduced from the table above that based on the IFLA LSPD (2015), that the library was inadequately prepared to cater for these specialized users. The facility lacked ramps or a lift to facilitate the accessibility of mobility challenged users to the upper floor.

The Positive attributes in terms of physical access included the fact that the entrance to the library was spacious and facilitated the turning of a wheel chair. The space within the facility was spacious for a wheel chair user to navigate around the library with ease. However, they cited challenges of movement during peak periods when the library was filled to capacity. The carrels were user-friendly for users with disabilities. However, the chairs were not very comfortable for users with hunchbacks.

Books have been placed on ground floor to facilitate access. OPAC workstations for these specialized users placed at a lower level and similarly, the computers for e-resources accessibility set aside. The inadequacies deduced from the study were that the users with upper limb impairments are challenged in utilizing these computers. That outdistancing, the shelves were beyond the reach of some mobility challenged users.

Preparedness of the library in service provision (visually impaired)

The study also sought to investigate how adequately the library was prepared to provide services to the visually impaired users. The three (3) visually impaired users including one (1) Diploma student, one (1) postgraduate student and one (1) academic staff were interviewed and the responses are summarized in the table on the following page.

Table 4. Responses on adequacy of the library in service provision to PWDs (Visually Impaired Users, n=20)

S/N	Assistive devices	YES	NO	TOTAL
1.	Accessible OPAC	20%	80%	100%
2.	Accessible Shelf guides	20%	80%	100%
3.	Accessible Library web page	20%	80%	100%
4.	Ease of movement within the library	50%	50%	100%
5.	Designated water closets	0%	100%	100%
6.	Clear signages	0%	100%	100%
7.	Alternative formats of resources	0%	100%	100%
8.	Accessible entrance	80%	20%	100%
9.	Cabro pavement for ease of movement with the cane	100%	0%	100%
10.	Designated parking spaces	40%	60%	100%
11.	Accessible Service Counter	80%	20%	100%
12.	User Friendly Floor	20%	100%	100%

The findings of the study brought to the fore the fact that the visually impaired users appreciated the existence of the existing assistive devices. They further indicated that despite there being accessible assistive devices, the fonts were too small thus inhibiting visibility. The spine labels were too small, the shelf guide fonts were too small, the newspaper fonts were too small to the naked eye, the fonts on the computer were too small including those of the library webpage which made it strenuous for them to read. User friendliness of the floor within the library was an issue since the tiles were slippery and could result in accidents. World bank report (2020) highlights the barriers to full socio-economic inclusion of PWDs as inaccessible physical environments and transportation, unavailability of assistive devices and technologies, gaps in service delivery, discrimination and stigma.

Preparedness of the library in service provision to the hearing-impaired users

The study investigated the availability of assistive devices for users with hearing impairment. The findings of the study indicated that currently the University does not have these users on board. However, based on the IFLA (2015) checklist model, the library lacked staff equipped with the requisite skills to communicate with the hearing-impaired users or serve the visually impaired users. This is further alluded to by Iroezé, Choma, Nneka and Opara (2018) whose research findings indicated the inadequacies in the information resources for the deaf and hard of hearing. Sampling was done in preparation for receipt of such users in the near future.

Preparedness of the library in service provision to PWDs from the service providers' perspective

The study sought to investigate how adequately the library was prepared in providing services to PWDs from the service providers perspective. The respondents included lecturers, dean of



students, the students governing council (SGC), disability mainstreaming committee and the librarians. The responses elicited are summarized in the table below.

Table 4. Responses on adequacy of the library in service provision to PWDs (Service Providers, n=20)

S/N	Assistive devices	YES	NO	TOTAL
1.	Clear Signage and Pictograms	50%	50%	100%
2.	Accessible Service Counter	40%	60%	100%
3.	Accessible OPAC	80%	20%	100%
4.	Accessible entrance	80%	20%	100%
5.	Accessibility within the building (lifts, ramps)	60%	40%	100%
6.	Adequate space for ease of movement within the library	80%	20%	100%
7.	Designated parking space	100%	0%	100%
8.	Designated water closets	0%	100%	100%
9.	Cabro pavement for ease of uneven pathways	100%	0%	100%
10.	Usability of the reading carrels	80%	20%	100%
11.	Comfortable Chairs	60%	40%	100%
12.	Accessibility of the Shelve guides	80%	20%	100%
13.	Accessibility of the Library web page	80%	20%	100%

The responses above indicated that the library was inadequately prepared to provide services to PWDs due to the fact that it lacked ramps thus inhibiting the movement of mobility challenged users, social amenities, specialized personnel to provide services to PWDs, inaccessible service counter among other issues discussed in the tables above. Of impetus is the lack of amenities in the facilities for these users who have to seek these outside the library.

Objective 2: The services available for these specialized users

The study sought to explore the specialized services available for the PWDs aside from those provided to the mainstream users. The responses elicited are summarized in the chart on the following page.

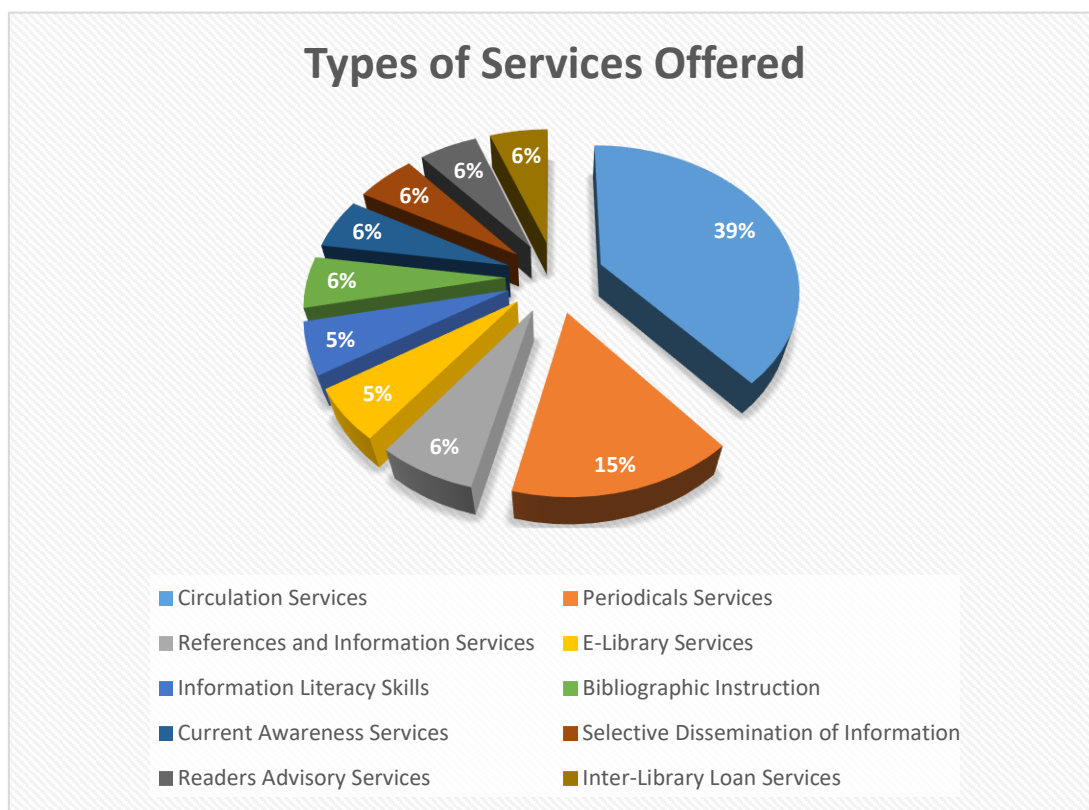


Figure 1: Responses on the type of services offered to PWDs

It can be deduced from the pie chart above that there were no specialized services nor information resources provided to the PWDs. The services were offered across the board to the subjects under study and the mainstream patrons.

Objective 3: Opportunities and challenges encountered by the PWDs during access of library services

The study sought to establish the opportunities available for the PWDs as well as the challenges encountered in their quest to access resources and services available in the library.

Opportunities available to PWDs in accessing library services

The study sampled responses from the users under study and the service providers to establish the opportunities available for these specialized users.

The findings of the study established that the following opportunities were available to the PWDs as they accessed library services

1. The newly elected leaders should be held to account on the pledge they made to the electorate during the campaign period to support this noble course in order to leave a legacy, thus giving them mileage and assurance of a second term in office during the next elections.

2. In tandem with the appointment to government positions already taking place, the University should ensure slots were available for these PWDs on the Students Governing Council (SGC) to enable them champion their rights.
3. Sensitization and awareness campaigns were being intensified University-wide to the service providers to empower them with the knowledge and skills of serving these specialized users.
4. The Ultra-Modern Library building currently under construction would bring on board equipment in terms of associated works therefore providing an opportunity for inclusion of some of these assistive technologies.
5. One of the deliverables of the Ultra-modern library was a vehicle dedicated to the library, this will be utilized to transport these specialized users.

These issues above were in tandem with Tudzi et al. (2017) who indicated that the physical barriers in the library environment can be eliminated by deploying adaptive technologies such as installing elevators or constructing ramps for physical disabilities and fixing of rails for the visually impaired users.

Challenges encountered by PWDs in accessing services

The study sought to determine the challenges encountered by the PWDs in their quest to access library services and it was established that the PWDs encountered the following challenges:

1. Susceptibility to high-risk exposure rates of contracting Covid-19 due to heavily relying on service providers to assist them navigate through the library.
2. They were in constant touch with the “high touch” surface areas (assistive devices) as they move around the library due to their vulnerability.
3. Lack of assistive technologies prompted by inadequate funding to the universities which has a ripple effect to the library.
4. Lack of specialized personnel to assist these users access library services.
5. Lack of specialized furniture to cater for their specific needs.
6. Lack of alternative and diverse formats of resources for each specific group of impairment.
7. Inadequate space for these users to navigate the library spaces and services especially during peak periods.
8. Discrimination, inequality and non-inclusivity displayed by the people around the PWDs as underscored by reiterated by KNSPWD report (2018).
9. Communication challenges, that is, lip-reading and facial expressions obscured during sign language usage inhibited due to wearing masks. Lefrak (2020) concurred by observing that these safety measure directives occasioned by the pandemic posed challenges for the hearing-impaired users.
10. Inaccessible online catalogues (OPACs) and library websites due to the small fonts utilized

The challenges above were reiterated by Young, Baada and Baayel (2020) who asserted that none of the academic libraries in Ghana were adequately equipped with learning aids, and adaptive technologies for reading materials in alternative formats hence these users could not intellectually access resources of their respective libraries. Users with disabilities in most institutions were not content with the library services provided due to the fact that very few

resources were in accessible and alternative formats. This is a violation of the UN (2020) declaration of “leaving no one behind” by discrimination and exclusion due to disability or gender issues. Kiruki & Mutula (2021) further observed that the library websites were not accessible and usable by visual and physical disabled students in public universities in Kenya due to the fact that the website design were not user friendly for disabled users and secondly, these specialized patrons were not aware of the existence of the library websites and e-resources available through them.

Conclusion

The study established that the library had the following strengths including: - a Disability Mainstreaming Committee had been appointed and trained to build its capacity and empower it in discharging its mandate to ensure the University facilities had conducive environments for PWDs. Construction of the ultra-modern library was currently underway with all the requisite spaces and facilities for these users clearly defined and factored in the new building as evidenced by the concept note and the bills of quantities (BQs.).

That notwithstanding, moments of crisis dictated that the library be proactive and rethink its position with regard to equity and inclusion during planning to ensure all-inclusive remote library services to all users. As a matter of principle, it needed to prioritize accessibility to its spaces during the design stage and bring on board assistive and adaptive technologies and other assistive devices to enhance the vulnerable users’ experience. The library could leverage on opportunities and optimize the capabilities presented by the social media platforms as useful tools of remote service provision to these vulnerable patrons during lockdowns occasioned by the new normal. Taking the library to their doorstep would equally ensure convenience and access during the rainy season given KAFU’s location (proximity to the rainforest), thus portending challenges of rainfall throughout the year. This concept of the library in the PWDs pockets would serve to bridge the digital divide and enhance equity and inclusivity in service provision. Imparting of information literacy skills on the utilization of assistive technologies would facilitate optimal accessibility to multiple formats or resources. Imparting of information literacy skills would equally ensure the PWDs safety while accessing the social media platforms, enhance communication that was hampered by the wearing of face masks, engage the users otherwise separated by social distancing and facilitate the captioning and sharing of videos and any other content the library deemed fit.

Strategies to alleviate the challenges encountered with the aim of ensuring equity and inclusivity of library services to PWDs

The challenges cited by the PWDs served to evaluate the inadequacies of the current facility. Having established shortcomings from the elicited responses, the study has emanated strategies to alleviate the challenges ensure equity and inclusivity in service provision is achieved. The study recommends the following strategies:



1. Revision of the Collection Development Policy (CDP) to broaden the scope and include the alternative formats of resources such as Braille and hard copy braille books, digital talking books, purchase of scanning and reading software
2. Revision of the Library Use Policy to include the specialized spaces, assistive devices and technologies, operating elevators with speech recognition and pictograms in braille, handheld magnifying lenses for reading newspapers, braille translating software and software that will translate the print book into an audio book
3. Sensitization and awareness promotion to the library staff on the knowhow of handling and serving these specialized users.
4. Enhance the scope of IL skills programme to take into account the technique of effectively utilizing assistive technologies; accessing the alternative resource materials; audio recordings sessions of library events for PWDs such as orientation, bibliographic instruction and information literacy skills sessions, or any notices and announcements.
5. Make the discovery tools user friendly for these specialized users in terms of increasing the fonts, the use of an accessible format of the OPAC (braille and audio)
6. Engagement of a library staff with sign language interpretation skills to be on call 24/7 in order to facilitate communication with the hearing-impaired users.
7. Engagement of a System's Librarian equipped with technical skills to activate the screen magnifications software to enlarge the fonts on the computer to enhance usability of the OPAC and accessibility of the library website and e-resources for the visually impaired users.
8. Lobby at national level with the members of parliament to have legislation enacted in parliament to ensure that money is set aside in the national budget to kick-start and sustain the issue of infrastructure and acquisition of assistive devices in the newly established public universities and constituent colleges.
9. Establish linkages and partnerships (PPP) with like-minded institutions in the Country and beyond (internationally) to establish infrastructure at KAFU and source for donations to purchase equipment (assistive technologies) and alternative resource materials (ARM). KAFU will then serve the adjacent Counties of Kakamega, Nandi, Kisumu, Bungoma and Busia.

References

1. Addai-Wireko, A.; Nkupe, P. & Frimpong, A. D. (2020). Adaptive technology for supporting persons with disability in selected public academic libraries in Ghana. *Library Philosophy and Practice* (e-journal), 4435. <https://ditalcommons.unl.edu/libphilprac/4435>.
2. Aguilar, Catalina Devandas (2019). Empowering people with disabilities. *Bulletin of the World Health Organization*, 97(1), 8-9.
3. Ali, M. Y.; & Gatiti, P. (2020). The Covid-19 Pandemic: Reflections on the roles of librarian and information professionals. *Health Information & Libraries Journal*, 37 (2), 155-168. <https://doi.org/10.1111/hir.12307>. Retrieved (17/02/2022).
4. Ayoung, D. A.; Naazi-Ale B.; Baayel, P. (2020), Access to library services and facilities by Persons with Disability: Insights from academic libraries in Ghana. *Journal of Librarianship & Information Science*, 53(1), 167-180. <https://doi.org/10.1177/0961000620917723>. Retrieved (14/02/2022),
5. Ayre, L. (2020). What more can we do to address broadband inequality and digital poverty?. *Information Technology & Libraries*, 39(3), 1-6. <https://doi.org/10.6017/ITAL.V39I3.12619>. Retrieved (12/04/2022).
6. Ayre, L, & Craner, J. (2020). Libraries are open: Only buildings are closed. *Collaborative Librarianship*, 12(1), 14-189. Retrieved (14/04/2022),



7. Breslin, J. (2020). Shelved forever? How the pandemic has helped flick the digital switch. *Legal Information Management*, 20(3), 133-136. <https://doi.org/10.1017/S1472669620000316>. Retrieved (14/04/2022).
8. Campbell, S. [et al.] (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing*. <https://doi.org/10.1177/1744987120927296>.
9. Carson, G. (2009). The social model of disability. *Scottish Accessible Information Forum*, <http://www.saifscotland.org.uk/wp-content/uploads/2014/04/social-model-of-disability.pdf>.
10. Creswell, J. W. (2013). *Research design: Qualitative, quantitative and mixed method approaches*. 3rd ed., Los Angeles: Sage Publications.
11. Decker, E. (2021). Reaching academic library users during the Covid-19 pandemic: New and adapted approaches in access services. *Journal of Access Services*, 18(1). DOI: <https://doi.org/10.1080/15367967.2021.1900740>. Retrieved (17/04/2022).
12. Fletcher, G. & Griffiths, M. (2020). Digital transformation during a lockdown. *International Journal of Information Management*, 55, 102-185. Retrieved (14/04/2022).
13. Goddard, J. (2020). Public libraries respond to the Covid-19 pandemic, creating a new service model. *Information Technology & Libraries*, 39(4), 1-4. DOI: <https://doi.org/10.6017/ital.v39i4.12847>. Retrieved (17/04/2022).
14. Lefrak, M. (2020). New Coronavirus safety measures pose challenges for the deaf and hard of hearing. <https://www.npr.org/2020/04/29/847925057/new-coronavirus-safety-measures-pose-challenges-for-the-deaf-and-hard-of-hearing>. Retrieved (12/04/2022).
15. IFLA (2015). International Federation of Library Association Manifesto for libraries serving persons with print disability, available at: <https://www.ifla.org/publications/ifla-manifesto-for-libraries-serving-persons-with-a-printdisability>. Retrieved (17/02/2022)
16. Iroeze, P.; Chinasa, C. J.; Ngozi, A. N. & Opara, G. (2018). Availability and utilization of information resources in the special education center libraries in South East Nigeria. *International Library Journal of Library and Information Science Studies*. 4(3), 12-25. Retrieved (22/03/2022).
17. Jones, S. (2020). Optimizing public library resources in a post Covid-19 world. *Journal of Library Administration*. 60(8), 951-957, DOI: 10.1080/01930826.2020.1820281. Retrieved (28/03/2022).
- 18.
19. Institute of Development Studies (2020). *Kenya National Survey on People living with disabilities (KNSPWD) report: Disability inclusive development: Kenya situation analysis*. Retrieved 22/03/2022).
20. Kiambati, F.G. (2015). Challenges in accessing information resources by students with visual impairments at Kenyatta University Post Modern Library (Doctoral Dissertation, Kenyatta University). Retrieved (02/04/2022).
21. Kiruki, B.W. & Mutula, S. M. (2021). Accessibility and usability of library websites to students with visual and physical disabilities in public universities in Kenya. *Journal of Knowledge Content Development & Technology*, 11(2), 66-77.
22. Ma, L. F. H. (2020). Academic Library Services during Covid-19: The experience of Chinese University of Hong Kong Library. *International Information & Library Review*, 52(4), 321-324. <https://doi.org/10.1080/10572317.2020.1834251>. Retrieved (07/03/2022).
23. Marrakesh Treaty implementation Act, S. 2559, 115th Congress (2018), available at:
24. <https://www.congress.gov/bill/115th-congress/senate-bill/2559>. Retrieved (02/02/2022).
25. Mathews, J.R. (2020). COVID=19 and public libraries: A real paradigm shift. *Public Library Quarterly*, 39(5), 389-390. <https://doi.org/10.1080/01616846.2020.1796431>. Retrieved (10/04/2022).
26. Mehta, D. & Wang, X. (2020). Covid-19 and digital library services: A case study of a university library. *Digital Library Perspectives*, 36(4), 351-363, DOI:10.1108/DLP-05-2020-0030. Retrieved (11/04/2022).
27. Morgan, S. J. ...[et al.] (2016), Case study observational research: A framework for conducting case study research where observation data are the focus, *Qualitative Health Research*, 27(7), pp. 1060-1068. DOI: 10.1177/1049732316649160. Retrieved 14/03/2022).
28. National Council for Population and Development (2013). *Kenya population situation*
29. *analysis report*. Retrieved (13/02/2022).
30. Oltmann, Shannon M. (2016). Qualitative Interviews: A Methodological discussion of the interviewer and respondent contexts [37 paragraphs]. *Forum: Qualitative Social Research*, 17(2), Art. 15, <http://nbn-resolving.de/urn:nbn:de:0114-fqs1602156>. Retrieved (07-04-2022).
31. Pokorná, L., Indrák, M., Grman, M., Stepanovsky, F., & Smetánková, M. (2020). Silver lining of the Covid-19 crisis for digital libraries in terms of remote access. *Digital Library Perspectives*, 36(4), 389-401. <https://doi.org/10.1108/DLP-05-2020-0026>
32. Persons with Disabilities Act, chapter 133, revised ed., Kenya, National Council for Law Reporting. Retrieved (02/02/2022).



33. Phukubje, J. Ngoepe, M. (2017). Convenience and accessibility of library services to students with disabilities at the University of Limpopo in South Africa. *Journal of Librarianship and Information Science* 49(2), 180-190.
34. Pionke, J.J. (2020). Library employee views of disability and accessibility. *Journal of Library Administration*, 60:2, 120-145. DOI: 10.1080/01930826.2019.1704560. Retrieved (24/03/2022).
35. Pionke, J. J.; Manson, J (2018). Creating disability LibGuides with accessibility in mind. *Journal of Web Librarianship* 12(1), 63–79.
Pionke, J.J. (2017). Towards holistic accessibility: Narratives from functionality diverse patrons. *Reference & User Services Quarterly*, 57(1), 48-56. DOI: <https://doi.org/10.5860/rusq.57.1.6442>. Retrieved (24/03/2022)
36. Special Issue Kenya Gazette Supplement No. 213 (Senate Bills No. 29). Republic of Kenya: The Persons with Disabilities (Amendment Bill, 2020). Retrieved 11/04/2022).
37. Silverman, David (2017), *Doing qualitative research*, London: Sage Publications.
38. Tudzi, E.P., Bugiri, J.T. & Danso, A.K. (2017). Deterrent libraries: denying persons with disability. *Journal of Science and Technology*, 37(1), 113-126. <http://dx.doi.org/10.4314/jst.v37i1.10>.
39. United Nations: Office of the Human Rights Commissioner (2020). *Covid-19 and the rights of persons with disabilities*. https://www.ohchr.org/Documentation/Issues/Disability/Covid-19_and_ThePersons_with_Disabilities.pdf. Retrieved (17/02/2022).
40. UNCPWD (2017), *Implementation of the United Nations Convention on the rights of persons with disabilities*. Available at: <http://inclusionscotland.org/wp-content/uploads/2022/01/CRPD-shadow-report-GB-Feb-2022-PDF-1.pdf>.
41. UNESCO (2020). *Including learners with disabilities in Covid-19 education responses*. <https://en.unesco.org/news/including-learners-disabilities-Covid-19-education-responses>. Retrieved 11/03/2022).
42. United Nations (2020). 'Leaving no one behind: The Covid-19 crisis through the disability and gender lens'. *UN/DESA Policy brief#69*. Rome: UN: Department of Economic and Social Affairs. Retrieved 11/04/2022).
43. Walsh, B., & Rana, H. (2020). Continuity of academic library services during the pandemic: The University of Toronto Libraries' response. *Journal of Scholarly Publishing*, 51(4), 237-245, <https://doi.org/10.3138/jsp.51.4.04>. Retrieved (04/04/2022).
44. World Bank (2020). Leveraging lessons from the Covid-19: Crisis for learners with Disabilities: Global seminar. Washington D.C.: World Bank, www.worldbank.org. Retrieved (11/04/2022).
45. World Health Organization (2018). international classification of functioning disability and health, available at: <http://www.who.int/classifications/icf/en/>. Retrieved (04/02/2022)
46. World Health Organization (2020). Disability considerations during the Covid-19 outbreak. <https://apps.who.int/iris/bitstream/handle/10665/332015/WHO-2019-nCov-Disability-2020.1-eng.pdf?> (Retrieved 10/02/2022)
47. World Intellectual Property Organization (2018). "Marrakesh Treaty to facilitate access to published works for persons who are blind, visually impaired or otherwise print disabled" available at: <http://www.wipo.int/treaties/en/ip/marrakesh/>. (Retrieved 04/02/2022)
48. Yin, R. K. (2014). *Case study research: Design and methods* (5th ed.). Thousand Oaks, CA: Sage.

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Every “Reader” His or Her “Book”

Information Services to Persons with Disabilities in Tangaza University College

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Abstract. Shiyali Ramamrita Ranganathan, an Indian librarian and mathematician, in 1931 developed what has come to be known as the *Five Laws of Librarianship*. Principles drawn from these laws undergird the design and delivery of library services to date. The second law states that “every reader his or her book”. This implies that libraries should deliver services and resources which are customised for the specific needs of unique categories of their users. The degree to which academic libraries in Kenya offer appropriate services to persons with disabilities (PWDs), particularly in the post-Covid-19 era, is unknown. This paper identifies and evaluates the services offered to PWDs by academic libraries in Kenya using Tangaza University College Library as a case study. The specific objectives of the study are to assess the preparedness of academic libraries in Kenya to meet the information needs of PWDs, identify the services and resources offered to PWDs by academic libraries in Kenya, evaluate the suitability and use of the services, and propose a framework for designing and deploying information services to PWDs in academic libraries in Kenya in the post-Covid-19 era. This paper is anchored on mixed methods research through which data was collected from librarians and PWDs using semi-structured questionnaires. The librarians who participated in the study were selected through information-oriented purposive sampling while PWDs were selected using snowballing. The findings of the study reveal the degree to which academic libraries in Kenya are living up to the expectations of Ranganathan’s second law in regard to PWDs. The findings contribute to the discourses on the emerging role of libraries in safeguarding the information and communication rights of PWDs in Kenya and abroad in the post-COVID era.

Keywords: Persons with disabilities, PWDs, Ranganathan’s Laws, academic libraries, post-COVID, Kenya

Introduction

A right is what is ethically acceptable (Veriava & Paterson, 2020). Information rights specify claims and obligations regarding communication, collection, access, use, and management of information. Information rights include rights to free expression, access to information, privacy, and intellectual property (Danilyan et al., 2018). Many national governments have adopted the concept of information rights in their constitutions as an integral component of their citizens' rights, as defined in the United Declaration of Human Rights (UDHR) Article 19. Article 19 of the UDHR states that "everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers" (Howie, 2018, p. 13).

Human contact and involvement are dependent on the ability to receive, process, store, and produce messages. Understanding and being understood allows people to communicate their basic needs and desires, as well as engage and participate on a family, community, national, and global level. Information and communication rights involve the legal requirements for the management, usage, and reuse of information and enable governments to embrace openness and accountability. Every citizen, regardless of their age, religion, or social background, has the freedom to send and receive information (McLeod, 2018). Libraries are service institutions; they do not only acquire information materials for each category of users but also actively advocate causes such as information literacy, access to information for every age, personal development including leisure and recreation, and offer a wide range of services. Library services are a core source of information since they provide personal assistance to library users in accessing suitable resources to meet their information needs (Durney, 2021). According to Pugh (2018), libraries offer a variety of library and information services aimed to meet the information needs of the clientele which include all members of the community. These include the youths, adults, students, special groups of people such as PWDs, those in prisons, and hospitals.

Ranganathan's five laws of librarianship provide guidelines for operating the library system. The first law states that books are for use. This law emphasises the use of books rather than on their storage. The second and the third laws state that every reader has his or her book and every book its reader. They lay emphasis on the fact that books in a library are supposed to be accessed and used freely by the library patrons regardless of their age, race, religion, or economic status. Every book should also be facilitated to find an appropriate reader. The fourth law requires librarians to save the time of the library users (readers). Thus, every user should be able to locate the library and the materials they desire quickly and efficiently. The fifth law describes the library as a growing organism. This means that the library is a social institution and will keep growing just like a living organism, in terms of readers, staff, and documents (Kwanya et al., 2010; Leiter, 2003).

Rights of persons living with disabilities

PWDs are people who have one or more forms of disability. However, in general, a person with disability is someone who has a physical, mental or emotional condition that prevents them from living a fully-functional life that their peers consider normal. Disability is a natural feature of the

human condition and everyone is potentially at risk of encountering it in some form or the another, whether permanently or temporarily (World Health Organization, 2011, p. 3). There is no universally-accepted definition of disability (Mitra, 2016, p. 236). The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) acknowledges that “disability is an evolving concept” (Hendricks, 2007). “Persons with disabilities include people who have long-term physical, mental, intellectual or sensory deficits that may prevent someone from fully and effectively participating in society on an equal footing with others” (UNCRPD, 2006, p. 4). An impairment, on its own, would not lead to disability if there is a completely inclusive and comprehensively accessible environment which includes addressing attitudinal barriers such as stereotypes, prejudices and other forms of paternalistic and patronising treatment (Rothe et al., 2018). Academic libraries accommodate people with all forms of disability. The forms of disability may include, but not limited to, vision impairment, deaf or hard of hearing, mental health conditions, intellectual impairment, acquired brain injury, autism spectrum disorder, or physical disability.

The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), supports the dignity and human rights of all people with disabilities and rejects the notion that capacity and impairment are mutually exclusive (Stein, 2007). UNCRPD does not grant any new rights but it does state unequivocally that “persons with disabilities have equal access to and a right to full effective enjoyment of all human rights” (World Health Organization, 2011). The Constitution of Kenya (2010), Chapter Four (Bill of Rights), brought more liberal approaches to human rights and provides for the right of access to information under Article 35. Article 35, which states, “every citizen has the right to access information held by the State and held by another person and required for the exercise or protection of another right”. This article applies to all citizens without prejudice. PWDs’ rights are protected by legal and policy measures which are enshrined in the Constitution of Kenya (2010) and the National Council for Persons with Disabilities (NCPD).

Literature Review

According to Pionke (2020), throughout the years, librarians and their professional organisations have taken various steps to improve services to PWD and provide barrier-free environments. Librarians are trained on the use of assistive technologies available in the library and to liaise with disability inclusive offices in their institutions to learn more about their users who are differently-abled, the kind of assistance they could offer, hiring librarians living with disabilities, developing collections, and strengthening infrastructural facilities. Some researchers such as Addai-Wireko et al. (2020) argue that with the introduction of various special media formats such as talking books, video books with subtitles and/or sign language, and the invention of assistive devices such as screen readers, braille devices, screen magnifiers, and special keyboards, the library profession has taken an interest in library services for PWDs, thereby, extending the reach of information services.

Several variables, including the accessibility of the physical building and resources, define readiness for adoption of best practices of inclusive academic library and information. One of the



essential rights guaranteed by the Kenyan constitution is unrestricted access to facilities, information sources, and services. Promputius (2020) states that excellent practices for inclusive libraries include offering assistive technology and reading materials to persons with impairments. For PWDs, removing obstacles and providing opportunities to access services and resources is critical. Libraries are among the institutions working to make themselves more accessible by creating reachable spaces for PWDs and using appropriate information retrieval methods. As explained earlier, IFLA's checklist in "Access to libraries for persons with disabilities" (Irvall, 2009), and ALA's "library services for people of disabilities policies" are both excellent tools for libraries to assess their current level of accessibility and improve where necessary.

Rayini (2017) asserts that PWDs frequently require that information be transcribed into alternate formats such as audio, large print or braille, as well as accompanying technologies, in order to fully participate in academic activities. For PWDs, simply having information available is insufficient; the materials must be transformed into accessible formats. Ayong et al. (2021) note that the library's physical space should also be accommodative with accessible facilities such as wheelchair accessible elevators, wide aisles and spacious angled bottom shelves to help PWDs to avoid too much bending and self-checkouts. Librarians should also offer computer training or lessons to PWDs to develop essential skills for using advanced technology, provide orientation mobility instructions to visually impaired students to acquaint themselves with their surroundings, encouraging free and independent movement, convert print materials into braille for the visually impaired, as well as aid in the purchasing of braille audio books and journals and coming up with appropriate procedures for loaning them. According to Phukubje and Ngoepe (2016), libraries should also provide services through assistive technologies which play a big role in equalising informational opportunities for PWDs.

Sanchez-Rodriguez and LoGiudice (2019) argue that academic libraries are being challenged to explore innovative methods to provide information services as the number of PWDs grows. Smith and Lowrey (2017) advocate for Ronald Mace design. Ronald Mace, a pioneer in the creation of accessible architecture and industrial products, established Universal Design for Instruction (UDI) in 1970 to identify ways to make everything accessible to PWD. Rao et al. (2017) explained that the UDI framework may be used by librarians to create an inclusive information literacy criteria curriculum. They further explain that it is hardly unexpected that UD ideas have influenced the library industry given their significance in architecture and education. The library services for PWDs policy was enforced by ALA states that libraries should work towards facilitating their full participation in society by implementing the Universal Design principles of perceivable, operable, understandable, and robustness. The use of universal design techniques can guarantee that library policy, resources, and services satisfy the needs of all individuals (Peacock & Vecchione, 2020). An improved accessibility of physical and website architecture, providing materials in multiple formats, developing assistive technology resources, and training library staff on effective ways to interact with PWDs are just a few of the UD applications described by library literature.

According to Bricout (2021), for PWDs, digital technologies remove conventional obstacles to communication, engagement, and information access. The expanding number of mainstream, daily ICTs that may be used as access devices, along with increased public and commercial service

supply through ICT, is shifting the paradigm of technology-enabled development for people with disabilities. PWDs are increasingly using ICTs to level the playing field in terms of access to lifelong education, skill development, and employment opportunities. The Internet also provides many avenues through which people may access openness, accountability, and monitoring of development initiatives and services. Email, text messaging, phone conversations, and video are among the delivery channels utilised for communication and service delivery. The second is that an increasing number of mainstream, daily ICTs, such as mobile devices, and desktop computers, now have functions that help PWDs communicate and access information (Park, 2020). Thompson (2018) adds that text to speech and voice recognition as well as the ability to modify, contrast and colour schemes, touch and gestures input, and screen magnification, were previously only available through specialist independent software and hardware. PWDs can obtain information material in the manner that they can comprehend and prefer, thanks to digital technologies.

Post-COVID information services to PWDs

The first wave of Covid-19 hit hard in 2020. The resulting lockdowns exacerbated existing inequalities. During the lockdown, as much as most of the society migrated online, inaccessible digital infrastructure made it difficult for those with impairments to access information (Santos & Mare, 2021). Since then, libraries have had to develop new ways to serve their patrons. Total and partial lockdowns occurred with academic institutions reopening under radically different circumstances (Palau et al., 2021).

Sing et al. (2021) argue that virtual and hybrid learning approaches have replaced in-person learning in libraries. Even though these models are not new, more digital tools are required now than they were before the pandemic. These digital technologies offer services that may be accessed at any time, from any location via any device. After COVID, there is continuous access to research resources and updated library services. Howes et al. (2021), note that the libraries' databases are all accessible via remote access for the most part through the library webpage. Craft (2021) affirms that PWDs have a right to full and equal access to information, and for the period of the Covid-19 pandemic, users with impairments who are unable to come to the libraries are eligible to modified library services, such as full document delivery of library resources. These comprise e-books, book chapters, and journal articles. These documents are restructured to the PWDs' special requirements. Libraries should prepare for five big developments in 2021 and beyond. LexisNexis (2020) suggests five trends that would impact libraries. These themes are broad in scope but might apply to libraries, archives, and museums in particular:

- **Trend 1 - Adapting to the changing character of education:** To support social distancing measures emerging from Covid-19 pandemic, virtual or hybrid classrooms are required, therefore the use of digital resources is unavoidable.
- **Trend 2 - Enabling literal and media literacy:** Overcoming information overload and recognising high-quality media sources are crucial abilities for every user. In this post-pandemic period, libraries may assist their clients with this task.



- **Trend 3 - Embracing artificial intelligence (AI) in libraries:** AI allows libraries to utilise predictive analytics to anticipate patron requirements, or to deploy chatbots as a support channel for virtual clients.
- **Trend 4 - Addressing social justice system, systematic racism, and climate change:** Libraries are urged to reacting to demands for action on topics such as radical gender injustice as well as sustainability.
- **Trend 5 - Improving accessibility:** Libraries must address this demand to provide accessible information to all users, including those with special needs.

Context, Rationale and Methodology of Study

Tangaza University College located in Karen was established in 1984 by the Religious Superiors' Association of Kenya (RSAK), now Religious Superiors' Conference of Kenya (RSCK). RSAK established a team to investigate the viability of a single initiative for student academic development. Theological Center for Religious (TCR) was founded in 1985. Tangaza University College was incorporated in 1989. Tangaza University College is jointly owned by 22 member religious congregations; Benedictine Fathers, Camilians, Consolata Missionaries, Congregation of the Holy Cross, Passionist Fathers, Holy Ghost Fathers, Salesians of Don Bosco, Capuchin Franciscan Fathers, Discalced Carmelite Friars, Conventual Franciscan Friars, Franciscan Friars Minor, Missionaries of Africa, Institute of Charity, Society of Divine World, Brothers of the Christian Schools, Dominican Friars, Congregation of the Mission, Society of African Missions, Order of St. Augustine, Congregation of the Marianhill Missionaries and St. Patrick's Mission Society. Tangaza University College has its origins in the Catholic faith, established and nurtured by missionaries in East Africa (the AMECEA region). Tangaza University College offers undergraduate degrees, master's degrees, Diploma programs, and several certificate programmes in its various institutes (Jong, 2013). Tangaza is currently recognized as a constituent college of the Catholic University of Eastern Africa (Commission for University Education, 2019). The mission and vision of Tangaza University College are to be a university rooted in the gospel values and distinguished for academic excellence by offering a free environment that is responsible for providing quality education, research, and community service.

As explained earlier, there are no local guidelines for offering library and information services to PWDs in Kenya. Although librarians in Kenya have been encouraged to apply the guidelines proposed by international bodies such as IFLA, little is documented about the degree to which academic libraries in Kenya apply these guidelines to offer appropriate services to persons with disabilities (PWDs). Furthermore, given that Covid-19 has introduced new challenges for PWDs, little is known about the preparedness of academic libraries in Kenya to offer effective services to PWDs in the country. Using Tangaza University College Library, this paper identifies and evaluates the services offered to PWDs by academic libraries in Kenya. The specific objectives of the study are to assess the preparedness of Tangaza University College Library to meet the information needs of PWDs, identify the services and resources the library offers to PWDs, evaluate the

suitability and use of the services, and propose a framework for designing and deploying information services to PWDs in academic libraries in Kenya in the post-Covid-19 era.

This study was conducted using mixed methods research. Three main research approaches have been applied in library and information sciences. These are qualitative, quantitative and mixed methods approaches. According to Silverman (2020), qualitative research involves collecting, analysing and interpreting non-numerical data to understand phenomena under study. Hennink, Hutter and Bailey (2020) add that qualitative research typically relies on the experiences of the population of the study. Bloomfield and Fisher (2019) explain that quantitative research relies on numerical data collected which is often analysed and interpreted statistically to test, unravel or predict phenomena under investigation. Goertzen (2017) emphasises that quantitative research uses large data sets to facilitate generalisation of the findings to a broad population base. Kwanya (2022) explains that mixed methods research is a blended approach to scientific inquiry which uses both quantitative and qualitative approaches and data. This study applied mixed methods research so as to maximise the benefits of both qualitative and quantitative data. Primary data was collected from 11 librarians and 6 PWDs using a semi-structured questionnaire. Due to restrictions on physical interactions as a response to the Covid-19 pandemic, the questionnaire was administered online using Google Docs. The librarians who participated in the study were selected through information-oriented purposive sampling while PWDs were selected through snowballing. The collected data was analysed thematically.

Findings

The findings of this study are hereunder presented according to the main themes of the study which are preparedness of the library to offer services to PWDs, the bouquet of information services currently delivered to PWDs, information resources PWDs access in the library, the challenges both the library and PWDs face in delivering and accessing suitable services and resources respectively, and how these challenges can be surmounted.

Preparedness of the library to attend to PWDs

According to the findings, 54.5% of the librarians interviewed believe that Tangaza University College has a policy on service delivery to PWDs, whereas 45.5 % are of the opinion that the university lacks such a policy. These findings imply that the existence of a policy on PWDs is a common knowledge to many librarians in the College. Therefore, it is unlikely that the library can attain the targets set out in the policy without this awareness. This finding is not unique to Tangaza University College. Tagaki (2021) most libraries do not have policies on PWDs because of the diversity of disabilities they encounter. Even where policies on PWDs are properly formulated, Ayoun et al. (2021) explained that many academic libraries do not fully implement them. Tanuwidjaja et al. (2019) as well as Omimo (2020) emphasised that policies are critical in guiding the conceptualisation and delivery of appropriate services to PWDs. This not only calls for the formulation of the right policies but also for their effective implementation and monitoring. Kiruki



and Mutula (2021) suggested that these policies should be as broad as possible to cover the major areas of services encompassing both the traditional and emerging digital realms.

The findings also revealed that whereas 72.7% of librarians affirmed that Tangaza University College has an office in charge of PWDs, 27.3% were of the contrary opinion. Tangaza is one of the few institutions of higher education in Kenya which have offices dedicated to serving the interests of PWDs. Such offices ensure that their parent institutions mainstream PWDs in their service delivery (Omino, 2020). These institutions prepare for PWDs even before they arrive on campus. Ample preparedness leads to the delivery of comprehensive and effective services to PWDs.

All (100%) the librarians confirmed that the university currently has PWDs. In regard to the types of PWDs that exist in the university community, 100% of the librarians agreed that the university has visually impaired and physically disabled students, 72.7 % said there are hearing impaired, and 27% were of the opinion that the university has students with cognitive disability. These findings confirm that the university reflects the general prevalence of disability in Kenya and globally. The latest national census in Kenya which was conducted in 2019 established that about 1 million people lived with diverse forms of disabilities (Kenya National Bureau of Statistics, 2021). These findings imply that it is a great injustice, and disservice, for a sizable proportion of the population for institutions of higher education do not make adequate provisions to offer services to PWDs. It is, therefore, worrying that only 27.3 percent of the librarians were aware of evaluation of information services to PWDs. Nonetheless, this may be explained by the fact that not all librarians may be involved in this process.

In terms of PWD facilities at the university, 100 percent of librarians stated that there are reserved parking spaces for PWDs, 81.8 percent stated that there are ramps with railing on each side, 63.6 percent identified lifts with buttons that are accessible to wheelchairs, and staff trained to provide services to PWDs. There are toilets that are accessible to people with disabilities, according to 90.9 percent of the librarians polled, and assistive devices are also available. In terms of reading areas, 45.5 percent said they are tailored to the requirements of people with disabilities, 18.2 percent said they have adjustable desks, seats, and tables, while only 9.1 percent said the shelves are approachable from wheelchairs. There are no clearly designated glass doors, according to the respondents. 100% of the PWDs agreed that the library is on its way to being completely prepared to provide adequate services geared for them. Mbua et al. (2021) assert that academic libraries should endeavour to provide equipment, facilities and spaces which are customised to the needs of PWDs. It is evident from the findings of this study that Tangaza University College has made commendable steps towards safeguarding the interests of PWDs in its library user community.

Information services offered to PWDs

Special services offered by the library to PWDs include library computers equipped with assistive technologies, such as JAWS, to assist with online access to information resources. 100% of PWDs respondents agreed that the computers are installed with JAWS software. Additionally, PWDs are involved in the design of their services through meetings with the disability and inclusion officer who has a regular contact with PWDs and is familiar with their special

requirements. Suggestions and input are received from people with disabilities who use the library as well as a participatory evaluation done by librarians. Despite the fact that they are all there, 100% of PWDs report that they were not engaged in the design of the library.

From the findings, it is evident that Tangaza University College Library is conscious of the needs of its PWD users. It has made efforts to anticipate, establish and meet these needs in the best way possible in its circumstances. However, there are gaps which need to be addressed to enhance the information experience of PWDs in its user community. According to Kwanya et al. (2012), most academic libraries find it difficult serving the special interests of unique categories of their user communities, particularly if they are a minority. Referring to the minorities as the long-tail of the library ecosystem, they assert that inadequate resources and diversity of interests make it difficult for the libraries to meet the needs of the long-tail. Musangi et al. (2019) recommend the involvement of all categories of library users, including PWDs, in the design and delivery of library services. This enhances the fit of the services and products of the libraries and enhances user satisfaction.

Information resources for PWDs

The findings from the librarians indicate that the library has neither braille nor talking books. However, multimedia resources such as audio cassettes, videos, web and other media are available. The library also has large print books and JAWS software installed in the computers. It can be concluded from these findings that Tangaza University College Library is only partially meeting the expectations of Ranganathan’s laws on the need to enhance findability, accessibility and usability of information resources by all categories of potential and actual “book users” in libraries. In view of resource constraints, Carr (2015) recommends the use of technology to facilitate the creation, collection, sharing and use of information materials. Kwanya et al. (2011) also propose the involvement of library users in content production in a process they refer as presumption. This involves library users producing some of the content they consume. This enriches content collection available in information ecosystems where the users collectively produce a substantial proportion of the content they consume.

A user satisfaction study for PWD users was conducted, according to 63.6 percent of library respondents. The percentage of PWD clients who are happy with library services is 72.7 percent, 18.2 percent extremely satisfied, and 9.1 percent not satisfied. PWDs are 63.3 percent happy, 9.1 percent extremely satisfied, and 27.3 percent dissatisfied with information resources. These findings imply that 90.9 percent of the PWDs are satisfied with the services and resources. Thus, Tangaza University College Library gets a thumbs-up for their services to PWDs in their community. This is commendable and worthy of emulation by the other academic libraries in Kenya. This excellent service may be partially attributed to the fact the university has a policy on PWDs and a dedicated office looking out for the interests of PWDs. Academic libraries keen on helping all their potential and actual users to realise their information and communication rights can benefit by benchmarking with Tangaza University College Library to learn.



Challenges affecting information service and resource delivery to PWDs

The challenges that Tangaza University librarians face in designing and delivering services to PWDs include insufficient training on how to handle PWDs' information needs; insufficient funds to acquire required assistive technologies such as a braille reader; and in translating available resources to braille for visually impaired patrons. Similarly, there are no spaces to create reading areas tailored to the requirements of people with disabilities leave alone put up adjustable desks, chairs, and tables. There is also a communication barrier between librarians and hearing-impaired clients. These challenges are similar to what other academic libraries in Sub-Sahara have faced (Ayoung et al., (2021); Mayende et al.,(2021); Addai-Wireko et al. (2020); Marwexu, (2018)).

The challenges for PWDs included tiny font size, which limits the visually impaired; a restricted number of computers for their usage; a lack of information about how the assistive technology provided in the library works; and the lack of braille books. These challenges mirror the challenges PWDs face in the general society. Academic libraries as citadels of knowledge cannot perpetuate these inequalities. Therefore, mainstreaming the needs of PWDs should be a critical concern to librarians.

Surmounting the challenges

The following are suggestions made by responders for overcoming these challenges:

1. Adequate training should be provided to librarians, as well as benchmarking with other institutions to acquaint themselves with the information requirements of PWDs, services provided, and assistive technology employed. Indeed, Ayoung et al. (Ayoung et al., 2021) argued that most librarians lack the requisite skills to design and offer services to PWDs.
2. An increase in funding allocation as well as soliciting management help in adopting initiatives and developing library policies for people with disabilities. Librarians should find their space in the decision making entities in the university.
3. Redesign of library rooms and services for people with disabilities on a regular basis. The need to remodel academic library spaces, services and resources is urgent (Ateka, 2018); (Musangi et al., 2019).
4. The PWDs proposed that the library obtain orbit readers, audio and braille books, and reorganise or remodel the shelving to make them more accessible. To ensure their interests in terms of collection are always catered for, academic libraries should espouse structured mechanisms of soliciting and responding to the suggestions of PWDs on information services and resources.
5. The visually-challenged would prefer to have an escort accompany them throughout the library. Academic libraries should think outside the box of conservatism and venture out their walls to offer the most desired services to all their users.

Framework for Enhancing Service Delivery to PWDs in Academic Libraries in Kenya

This paper suggests a two-pronged approach to enhancing the capacity of academic libraries in meeting the information needs of PWDs in their midst. This would involve the contributions of the demand and supply side. The demand side should be led by the PWDs and their advocacy entities such as inclusion officers or PWD liaison units in universities. These units are best-placed in soliciting, interpreting and expressing the information needs of the PWDs alongside other needs. They can also help to lobby university management directly for resources to facilitate appropriate services to PWDs. Preferably, these efforts should not be made at individual university levels. They should be made at the national level so as to attract attention of university executives. Among other things, they can propose structural and infrastructural standards for libraries and other facilities in universities.

The supply side of the mitigation should be led by librarians. Again, this should be done at the national level by the Kenya Library and Information Services Consortium (KLISC), Kenya Library Association (KLA), the Kenyan chapter of the Christian Association of Librarians in Africa (CALA), and Government Librarians Association (GLA), among others. An intra-association committee should be constituted to discuss, explore and recommend the best strategies for ensuring inclusivity of PWDs in the design and delivery of information services in libraries in Kenya. This team can benefit from what international associations such as IFLA have done but will customise these to fit specific needs and context in which libraries in Kenya operate.

The two units should collaborate through the Ministry of Sports, Culture and Heritage for purposes of coordination and unity of purpose. This paper proposes that KLISC, being the custodian of information services and resources, should lead the efforts by reaching out to the Ministry and the parties in the demand side.



References

1. Addai-Wireko, A., Nukpe, P., & Frimpong, A. D. (2020). Adaptive technology for supporting persons with disability in selected public academic libraries in Ghana. *Library Philosophy and Practice*, 1–36.
2. Ateka, A. (2018). Considerations in the design of 'new' academic library spaces in Kenya. *Proceedings of the IATUL Conferences*. <https://docs.lib.purdue.edu/iatul/2018/usercentered/2>
3. Ayoung, D. A., Baada, F. N. A., & Baayel, P. (2021). Access to library services and facilities by persons with disability: Insights from academic libraries in Ghana. In *Journal of Librarianship and Information Science* (Vol. 53, Issue 1, pp. 167–180). SAGE PublicationsSage UK: London, England. <https://doi.org/10.1177/0961000620917723>
4. Bloomfield, J., & Fisher, M. J. (2019). Quantitative research design. *Journal of the Australasian Rehabilitation Nurses Association*, 22(2), 27–30. <https://search.informit.org/doi/abs/10.3316/INFORMIT.738299924514584>
5. Bricout, J. (2021). Exploring the smart future of participation: Community, inclusivity, and people with disabilities. *International Journal of E-Planning Research (IJEPR)*, 10(2), 94–108.
6. Carr, P. L. (2015). Reimagining the library as a technology: An analysis of Ranganathan's Five Laws of Library Science within the social construction of technology framework. <https://doi.org/10.1086/675355>, 84(2), 152–164. <https://doi.org/10.1086/675355>
7. Craft, A. R. (2021). Ethics and Equity Considerations in Electronic Resources Work: An Introduction to Basic Resources and Practices to Support Librarians during the Covid-19 Pandemic and Beyond. *Serials Review*, 47(1), 32–36. <https://doi.org/10.1080/00987913.2021.1879619>
8. Danilyan, O. G., Dzeban, A. P., Kalinovsky, Y. Y., Kalnytskyi, E. A., & Zhdanenko, S. B. (2018). Personal information rights and freedoms within the modern society. *Informatologia*, 51(1–2), 24–33. <https://doi.org/10.32914/I.51.1-2.3>
9. Durney, S. (2021, September 20). The library advocacy gap: increasing librarians' political self-efficacy. *Community Engagement*. <https://www.ideals.illinois.edu/handle/2142/110959>
10. Goertzen, M. J. (2017). Introduction to Quantitative Research and Data. *Library Technology Reports*, 53(4), 12–18. <https://journals.ala.org/index.php/ltr/article/view/6325>
11. Hendricks, A. (2007). UN Convention on the Rights of Persons with Disabilities. *European Journal of Health Law*, 14, 273. <https://heinonline.org/HOL/Page?handle=hein.journals/eurjhlb14&id=283&div=&collection=>
12. Hennink, Monique, Hutter, I., & Bailey, A. (2020). *Qualitative Research Methods*. Sage. [https://books.google.co.ke/books?hl=en&lr=&id=_InCDwAAQBAJ&oi=fnd&pg=PP1&dq=Hennink,+M.,+Hutter,+I.,+%26+Bailey,+A.+\(2020\).+Qualitative+research+methods&ots=3ubOqSu3bB&sig=z71i6UYk6tH9QX3u0IeZoCXkUt w&redir_esc=y#v=onepage&q=Hennink%252C M.%252C Hutter%252C I.%252](https://books.google.co.ke/books?hl=en&lr=&id=_InCDwAAQBAJ&oi=fnd&pg=PP1&dq=Hennink,+M.,+Hutter,+I.,+%26+Bailey,+A.+(2020).+Qualitative+research+methods&ots=3ubOqSu3bB&sig=z71i6UYk6tH9QX3u0IeZoCXkUt w&redir_esc=y#v=onepage&q=Hennink%252C M.%252C Hutter%252C I.%252)
13. Howes, L., Ferrell, L., Pettys, G., & Roloff, A. (2021). Adapting to Remote Library Services during Covid-19. *Medical Reference Services Quarterly*, 40(1), 35–47. <https://doi.org/10.1080/02763869.2021.1873616>
14. Howie, E. (2018). Protecting the human right to freedom of expression in international law. *International Journal of Speech-Language Pathology*, 20(1), 12–15. <https://doi.org/10.1080/17549507.2018.1392612>
15. Irvall, B. (2009). *International Federation of Library Associations and Institutions IFLA Library Services to People with Special Needs Section-Glossary of Terms and Definitions*.
16. Kenya National Bureau of Statistics. (2021). *2019 Kenya Population and Housing Census Reports*. <https://www.knbs.or.ke/2019-kenya-population-and-housing-census-reports/>
17. Kiruki, B W, M. S. M. (2021). Accessibility and usability of library websites to students with visual and physical disabilities in public universities in Kenya. *International Journal of Knowledge Content Development & Technology*, 11(2), 55–75. <https://doi.org/10.5865/IJKT.2021.11.2.055>
18. Kwanya, T. (2022). Mixed Methods and Quality of Postgraduate Research: A Kenyan Perspective. In *Handbook of Research on Mixed Methods Research in Information Science* (pp. 147–172). IGI Global. <https://doi.org/10.4018/978-1-7998-8844-4.CH008>
19. Kwanya, T., Stilwell, C., & Underwood, P. G. (2011). The potential of Library 2.0 in buttressing "prosumption" culture among researchers in Kenya. In *7th European Conference on Management Leadership and Governance, held at the SKEMA Business School, Sophia-Antipolis, Nice, France*.
20. Kwanya, T., Stilwell, C., & Underwood, P. G. (2010). Library 2.0 principles and Ranganathan's fifth law. *Mousaion*, 28(2), 1–16.
21. Kwanya, T., Stilwell, C., & Underwood, P. G. (2012). Library 2.0 versus other library service models: A critical analysis: <http://Dx.Doi.Org/10.1177/0961000611426443>, 44(3), 145–162. <https://doi.org/10.1177/0961000611426443>
22. Leiter, R. A. (2003). Reflections on Ranganathan's Five Laws of Library Science. *Law Library Journal*, 95, 411. <https://heinonline.org/HOL/Page?handle=hein.journals/llj95&id=413&div=&collection=>



23. LexisNexis. (2020). *Trends set to impact libraries in 2021*. <https://lexisnexis.widen.net/s/gmllfnklsh/us-res-2021-library-trend-report>
24. Marwexu, N. (2018). *The provision of library and information services to the visually impaired (VI) users by the Msunduzi Municipal Library (MML)*.
25. Mayende, C., Awuor, F. M., Namande, B., Mayende, C., Awuor, F. M., & Namande, B. (2021). Customer-Centric service provision in academic libraries in universities: Systematic literature review. *Technology and Investment*, 12(4), 217–239. <https://doi.org/10.4236/TI.2021.124013>
26. McLeod, S. (2018). Communication rights: Fundamental human rights for all. *International Journal of Speech-Language Pathology*, 20(1), 3–11.
27. Mitra, S. (2016). The Capability Approach and Disability. *Journal of Disability Policy Studies*, 16(4), 236–247. <https://doi.org/10.1177/10442073060160040501>
28. Musangi, P. S., Odero, D., & Kwanya, T. (2019). Critical success factors in library reengineering: a case of academic libraries in Kenya. *Global Knowledge, Memory and Communication*, 68(6–7), 534–549. <https://doi.org/10.1108/GKMC-12-2018-0099/FULL/PDF>
29. Ocholla, D., Mostert, J., Ocholla, D. N., & Mbua, P. (2021). *Service quality gaps and challenges in the academic libraries in Kenya*. <https://digitalcommons.unl.edu/libphilprac>
30. Omino, M. A. (2020). *Impact of the policy for persons with disability on inclusivity in public service-a comparative study of Service Commissions in Kenya*. University of Nairobi.
31. Palau, R., Fuentes, M., Mogas, J., & Cebrián, G. (2021). Analysis of the implementation of teaching and learning processes at Catalan schools during the Covid-19 lockdown. *Technology, Pedagogy and Education*, 30(1), 183–199. <https://doi.org/10.1080/1475939X.2020.1863855>
32. Park, E. E. (2020). Utilizing Text Messages for Effective Outreach. *The Reference Librarian*, 61(2), 87–96. <https://doi.org/10.1080/02763877.2020.1755766>
33. Peacock, R., & Vecchione, A. (2020). Accessibility best practices, procedures, and policies in Northwest United States academic libraries. *Journal of Academic Librarianship*, 46(1), 102095. <https://doi.org/10.1016/j.acalib.2019.102095>
34. Phukubje, J., & Ngoepe, M. (2016). Convenience and accessibility of library services to students with disabilities at the University of Limpopo in South Africa: *Journal of Librarianship and Information Science*, 49(2), 180–190. <https://doi.org/10.1177/0961000616654959>
35. Pionke, J. J. (2020). Library employee views of disability and accessibility. *Journal of Library Administration*, 60(2), 120–145. <https://doi.org/10.1080/01930826.2019.1704560>
36. Pomputius, A. (2020). Assistive technology and software to support accessibility. *Medical Reference Services Quarterly*, 39(2), 203–210. <https://doi.org/10.1080/02763869.2020.1744380>
37. Pugh, L. (2018). *Change management in information services*. Routledge.
38. Rao, K., Smith, S. J., & Lowrey, K. A. (2017). UDL and Intellectual Disability: What Do We Know and Where Do We Go? *Intellectual and Developmental Disabilities*, 55(1), 37–47. <https://doi.org/10.1352/1934-9556-55.1.37>
39. Rayini, J. (2017). *Library and information services to the visually impaired persons*. 1510. <http://digitalcommons.unl.edu/libphilprachttp://digitalcommons.unl.edu/libphilprac/1510>
40. Rothe, D. M., Brown, D., & Neuschäfer, O. (2018). *Saving lives and leaving no one behind: Gaibandha model for disability-inclusive disaster risk reduction*. CBM. <http://repo.floodalliance.net/jspui/handle/44111/2943>
41. Sanchez-Rodriguez, N. A., & LoGiudice, J. (2019). Building bridges: Fostering dynamic partnerships between the library department and office of student disability services in higher education. *Journal of Access Services*, 15(4), 142–160. <https://doi.org/10.1080/15367967.2018.1520640>
42. Santos, P., & Mare, A. (2021). The Reconfiguration of News Work in Southern Africa during the Covid-19 Pandemic. *Digital Journalism*, 9(9), 1391–1410. <https://doi.org/10.1080/21670811.2021.1974914>
43. Silverman, D. (Ed). (2020). *Qualitative research*. Sage.
44. Singh, J., Steele, K., & Singh, L. (2021). Combining the best of online and face-to-face learning: Hybrid and blended learning approach for Covid-19, post vaccine, & post-pandemic world: *Journal of Educational Technology Systems*, 50(2), 140–171. <https://doi.org/10.1177/00472395211047865>
45. Smith, S. J., & Lowrey, K. A. (2017). Applying the universal design for learning framework for individuals with intellectual disability: The future must be now. *Intellectual and Developmental Disabilities*, 55(1), 48–51. <https://doi.org/10.1352/1934-9556-55.1.48>
46. Stein, M. A. (2007). Disability Human Rights. *California Law Review*, 95, 75. <https://heinonline.org/HOL/Page?handle=hein.journals/calr95&id=77&div=&collection=>
47. Tagaki, M. (2021). Action Research on Meaning-Making at Residents’ Meetings for Local Disability Policy1. *Japanese Psychological Research*, 63(4), 366–379. <https://doi.org/10.1111/jpr.12372>



48. Tanuwidjaja, G., Adiasih, P., Wulandari, D., Kristanto, L., & Fitria, D. (2019). *Empowering Women with Disabilities in the University Library in Developing Countries: Inclusive Design and Social-Economic Empowerment*. Petra Christian University.
49. Thompson, S. (2018). Mobile technology and inclusion of persons with disabilities. *Electronic Journal for Inclusive Education, May*, 1–29. <https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/13834>
50. UNRCPD. (2006). *Convention on the Rights of Persons with Disabilities and Optional Protocol UNITED NATIONS*. <https://www.un.org/disabilities/documents/convention/convoptprot-e.pdf>
51. Veriava, F., & Paterson, K. (2020). The right to education. In *Research Handbook on Economic, Social and Cultural Rights as Human Rights* (pp. 113–136). Edward Elgar Publishing. <https://doi.org/10.4337/9781788974172.00015>
52. World Health Organization. (2011). *World report on disability*. www.who.int/about/licensing/copyright_form/en/index.html

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The Plagiarism Conundrum in Kenyan universities and its Effects on Research Quality

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Abstract. The purpose of this study was to review the status of anti-plagiarism practices in various universities in Kenya. The literature review reveals that plagiarism has been amplified mainly because of the increased access to the Internet and digital sources. To counter the plagiarism menace, universities are putting various countermeasures to reduce the practice. These include capacity building, anti-plagiarism policies, and acquisition of anti-plagiarism software. The study adopted a mixed-method approach to collect quantitative and qualitative data by surveying the librarians and graduate school directors or deans. Further, the existing policies and guidelines were reviewed to establish the strength and challenges in implementing plagiarism measures in universities in Kenya. The study established that all universities in Kenya appreciate that plagiarism is an unethical practice in scholarly communication. However, there was no unified understanding and implementation of the antiplagiarism measures executed by universities in Kenya. The different approaches to dealing with the vice do not only make it difficult for practitioners to share best practices but also affects the quality of research. This research provides an opportunity for universities to make an informed choice on the policies, personnel, and software to use in tackling plagiarism. The findings from the study may be used to improve the quality of academic writing and standardise the policies on plagiarism by proposing policy actions needed to maximise the benefits of the investments in this venture. This paper illustrates the gaps and differences in the universities' approaches to tackling plagiarism among their scholars.

Keywords: Plagiarism; Anti-plagiarism; Academic writing; Copyright; Academic theft

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The Quest for Quality in University Education in the Post Covid-19 Era Do Anti-Plagiarism Tools Still Matter?

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Abstract. Plagiarism is a major global challenge to quality assurance in higher education. Various efforts have been made to overcome the menace including the use of anti-plagiarism tools. At the same time, many questions have been raised about the efficacy of the current generation of tools in detecting, preventing plagiarism and guaranteeing the quality of education. This paper examines the limitations of plagiarism detection tools in enhancing quality in academic outcomes and proposes measures towards improvement. The paper argues that while anti-plagiarism software contribute towards promoting quality of academic writing and academic integrity, they are not the panacea to the plagiarism pandemic especially in the Covid-19 era. It proposes that there is need to reform methods of assessment and implement forward looking policies to address the underlying causes of plagiarism, provide students with appropriate information literacy skills training, and above all cultivate a culture of academic integrity in Higher Education institutions (HEIs).

Keywords: Antiplagiarism software; Plagiarism; University Education; Quality; Covid-19

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Remodeling Information Literacy in Academic Libraries during the Covid-19 Pandemic

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Abstract. Kenya detected its first Covid-19 case on March 19th, 2020, which led to educational institutions being shut down and their learning activities shifting online. Learning institutions remodeled and transformed their operations. This greatly impacted higher education, including how university libraries operate. Before the pandemic, academic libraries were providing information literacy (IL) to their users through various strategies which were mostly physical in nature. Transitioning to online education necessitated libraries to remodel their information literacy strategies. The abrupt shift to digital information literacy posed serious challenges to academic libraries, which were accustomed to face to face teaching and inadequate digital training. The purpose of this study is to assess the effectiveness of digital information literacy strategies in academic libraries during the Covid-19 period. The objectives are establish the strategies used by academic libraries and the skills and resources required in the provision of digital information literacy and secondly, to identify the challenges academic libraries faced in an effort to offer digital information literacy during Covid-19 pandemic period and recommend the best practices towards an effective and sustainable digital information literacy programs during pandemics. The study used a mixed-method systematic reviews of existing literature to incorporate a range of research and professional commentary on the effectiveness of the digital information literacy strategies during Covid-19. The best practices identified include teaching online sessions of IL synchronously and asynchronously, developing research learning objects, creation and design of Libguides for IL concepts and developing of evaluation plans to assess the effectiveness of the strategies employed for continual improvement.

Keywords: Covid-19, Digital information literacy, Information literacy, Academic libraries, Systematic reviews, Online learning

Introduction

Covid-19 is a global pandemic disease that was first identified in Wuhan, China. Kenya detected its first Covid-19 instance on March 19th, 2020 which led to educational institutions being shut down and their learning activities shifted online. The Covid-19 pandemic has greatly impacted higher education, including university libraries. The closure of libraries caused significant disruption to the library services offered to the respective communities throughout the world (International Federation of Libraries Associations, IFLA, 2020). Traditionally, libraries are known to support the mission and vision of their universities. Long before the emergence of Covid-19 library users could access the library resources and services at their pleasure. The closure of libraries due to the Covid-19 pandemic created a vacuum space that is now being filled by digital libraries (Chisita, 2020). History shows that libraries have generally been well-positioned to continue to fulfil their core mission even when their physical facilities are closed due to unforeseen incidents (Breeding, 2020). University libraries had to rethink the ways of supporting learning and research activities within the university. The situation has caused libraries around the globe, particularly academic libraries to mobilize and provide a collection of valuable and reliable information in order to give people trusted and reliable information for decision making (Kasa & Yusuf, 2020). Libraries provided diversified resources and services that were important to the needs of users during pandemic situations (Shaharima et al., 2021). Libraries created and maintained active links to provide access to reliable and credible resources in virtual spaces. The capabilities of librarians have been enhanced by the proliferation of digital technologies that make it possible to organize, retrieve, analyze and share information unlike in the past, being limited to print-based resources (Chisita, 2020).

University libraries in Kenya went through difficult times due to Covid-19 pandemic which forced them to change their lifestyle of providing resources and services. Most of the universities in Kenya were on with their semesters when Covid-19 hit the country and all educational institutions were forced to close. University libraries were among the facilities which were closed down. Most of their services were pushed to online except for physical and in-person services which were temporarily suspended. Online or distance learning was not a new concept for universities but providing essential library services online was a challenge. University libraries participation in online education for information literacy was a new horizon because very few universities were offering online education before this pandemic and the mode of teaching was face-to-face (Rafiq et al., 2021). The outbreak of Covid-19 called for a proactive approach by libraries.

Academic libraries have developed programs in response to the need for information literacy, offering information literacy instruction (ILI) and providing support for students and faculty. Institutions of higher learning provided IL program as a stand-alone information literacy course and others have integrated IL into the overall communication skills curriculum. Implementation of a particular approach or program depends on many institutional and situational factors such as audience, purpose, budget, staffing, facilities, and time (Grassian & Kaplowitz, 2009). Many

academic libraries offer in-person library instruction sessions or online via zoom. Online ILI tutorials are helpful in many ways to students, faculty and librarians.

Problem Statement

After the onset of the Covid-19 pandemic, universities moved their teaching and learning remotely, this meant that physical access to libraries was not feasible and therefore, libraries had to find ways to reach out to students and faculty and provide them with library services and information resources that they needed to support the core mandate of the institution (Yap & Manbat, 2021). The closure of physical libraries instigated disruption in the order of things and information literacy was not spared either, as it became a critical skill to assist students and lecturers navigate the plethora of resources available online. In addition, the emergence of remote teaching and learning necessitated both students and lecturers to acquire digital skills to be able to manoeuvre the online environment.

Libraries are charged with developing students' information literacy abilities, which involves training them to recognize when information is needed and to locate, evaluate and effectively use that information. Pre-Covid many libraries delivered information literacy through the conventional modes like holding instruction sessions in classrooms. With the shift to virtual learning and the demand for digital skills which are requisites for student's and lecturers' success in virtual education, the value for information literacy skills became enhanced and hence information literacy instruction shifted too. Although information literacy instruction has a long history of being taught by librarians to online learners, the shift during Covid-19 was abrupt and inadvertent. Libraries implemented digital information literacy using various strategies and at varying degrees of success, it also presented unique challenges and opportunities (Pothier, 2020). The ability of librarians to transform conventional IL curriculum to online was required, however their pedagogical competencies to effectively achieve this was wanting. This paper assesses the effectiveness of the strategies employed in academic libraries so as to recommend best practices in context.

Aims & Objectives

The purpose of this study is to assess the effectiveness of digital information literacy strategies in academic libraries.

Objectives

1. Establish the strategies used by academic libraries and the skills and resources required in the provision of digital information literacy
2. Identify the challenges academic libraries faced in an effort of offer digital information literacy during Covid-19 pandemic period and recommend the best practices



Literature Review

Skills and Resources for Digital Information Literacy

According to Khan (2020) digital information literacy (DIL) refers to the skills mandatory for recognizing information sources and resources in a digital environment to facilitate teaching, learning and quality research. The research paper present relevant literature produced from 2014 onward, a discussion on digital information literacy. Digital Information literacy is an important skill required for everyone living in the today's 21st century. Technological transformation and penetration of internet in higher education has influence on the social and economic life of academicians (Sparks et al., 2016). Due to the complexity and volume of information available in digital format, digital information literacy has gained popularity. DIL is a critical skill deemed necessary for success in the core mandate of institutions of higher learning. The study by Baro et al. (2019) found that there is a great need for digital competencies among librarians working in university libraries. The Library professionals should provide the resources and services at the appropriate level to support the intellectual, cultural, and technical development of library users. Users' needs have changed due to technological advancement and to meet these needs academic libraries are now offering online reference services, chat services, individual consultations, email and other social network services (Baro et al., 2014; Campbell, 2006).

Khan (2020) examined the current and needed levels of the digital information literacy (DIL) skills. The study suggested that university authorities should review the strategies and barriers to the attainment of DIL skills. Based on the findings, the author concluded that DIL skills are essential for librarians to provide information and knowledge resources to the stakeholders of university libraries in an effective manner. The study by Baro et al. (2019) revealed that the future of academic libraries depends on the innovative managerial and research-oriented behaviors. A study by Emiri (2017) noted that DIL skills will prepare librarians for resource sharing, social networking, surfing the net, instant messaging and blogging.

Librarians have traditionally served as the champions of information literacy. The Internet and digital technology are constantly influencing the development and provision of DIL in university libraries. To successfully support the digital information literacy, digital resources are required. A study by Mulat and Natarajan (2020) has identified Internet, OPAC, e-books, e-journals and e-databases as some of the digital resources which LIS professionals require in the digital environment.

Strategies in Provision of Digital Information Literacy

Higher education institutions were closed to prevent the spread of Covid-19. Academic programs were moved from face-to-face learning patterns into distance learning models. The Covid-19 pandemic remodelled and transformed the education sector into a digital learning hub. Academic libraries have been at the forefront of supporting the provision of flexible online learning resources, online services and training, positioning librarians to take on a leading role in supporting students and staff to develop information and digital literacy skills via online courses,

tutorials, workshops and e-consultations. Martzoukou (2021) conducted research on academic libraries in Covid-19 and he opines that pandemic brought out more important role of academic librarians in helping students to develop information, digital and media literacy skills. Digital libraries platforms became relevant through offering technology-based information resources and services to enable learners to access relevant knowledge anytime. University libraries continued with the provision of the library's core services during a pandemic period. A number of factors impact on the provision of library resources and services. Ali and Gatiti (2020) study on librarians' roles during the Covid-19 lockdown period revealed virtual support to their users through provision of references, document delivery, literature searches and systematic reviews.

Virtual learning improved access to information regardless of the geographical location. Remote access to resources is becoming one of the strongest pillars for e-learning during the Covid-19 pandemic. To access these resources, information literacy is needed both for the faculty members and students (Begum & Elahi, 2022). Academic libraries in Nigeria used social media platforms such as WhatsApp and Google Classroom to educate their students (Adetayo et al., 2022). Adetayo et al., 2022 in his study discovered that virtual learning aided students in becoming independent learners. Tshuma and Chigada (2018) found that academic libraries in Zimbabwe used information literacy as an accredited course; the integration of information literacy with other courses; information literacy as a stand-alone program; and information literacy as part of orientation. Harrison and Deans (2021) noted other strategies employed in the delivery of IL includes in-class tutorial for students to develop hands-on skills; a hybrid method where students engage in practical development (in class and via online tutorials).

Challenges in Digital Information Literacy during the Covid-19 pandemic

A number of factors impact on the access to digital information by users. Khan (2020) in his study indicated reasons behind low demand in DIL may be due to a lack of social and environmental influences and absence of individual and organizational readiness. According to Khan et al. (2017), lack of training on the use of technology is a barrier to the acquisition of DIL skills and thus DIL is absent in Pakistani libraries. The emergence of the Covid-19 pandemic presented challenges for higher education institutions. For instance, transformation of face-to-face learning model to distance learning model impacted the learning experience of students. Librarians were not spared either as they encountered challenges with the changing online education environment. Such challenges included, working remotely, delivering access to resources electronically and providing IL in an online space. Additional challenges included technical issues such as unreliable technology, lack of infrastructure, in-competencies to work in an online space. Baro et al., (2019) in his study on assessment of digital literacy skills and knowledge-based competencies among librarians working in university libraries in Africa identified lack of funds allocated to support library professionals training; lack of technological facilities; and shortage of skilled ICT educators as some of the challenges encountered in acquiring digital literacy skills.



Research Methodology

The research question on the effectiveness of digital information literacy strategies employed by academic libraries during the Covid-19 was explored. The study used a mixed-method systematic reviews of existing literature to analyse a range of research and professional commentary on the effectiveness of the digital information literacy strategies during Covid-19. The literature on skills and resources required, information literacy strategies or models, challenges experienced as well as the best practices for digital information literacy all address this question. To ensure transparency and avoid what could potentially be considered a subjective survey of literature, the Hemingways and Brereton (2009) literature review methodology using a mixed-method systematic review procedure was adopted.

Systematic literature review is a method for conducting a broad survey of LIS literature on a question as recommended by Phelps and Campbell (2012). The systematic review mixed-method model as described in Hemingway and Brereton (2009) provides the flexibility to incorporate a range of research and professional commentary on the effectiveness or feasibility of an intervention, which in this case is the digital information literacy strategies during Covid-19.

Relevant online databases were identified and the following four databases were used to search for literature: Library, Information Science & Technology Abstracts, Library Literature and Information Science Full-Text, ERIC, and Google Scholar. After identification of the online dtabases, subject headings and keywords for each database were determined. Thorough searches were conducted one each database guided by the identified keywords. A wide variety of search terms in multiple keyword combinations were used to find studies that would be relevant and limited to the inclusion and exclusion criteria as shown in Table 1.

Table 1. Inclusion and exclusion criteria

Criteria	Search Syntax
Searches were limited to articles published in the past three years 2020-2022 (after Covid-19 was declared a pandemic)	“information literacy” OR “digital information literacy” OR “research skills” OR “library instruction” OR “bibliographic instruction”
	“academic libraries” OR “university libraries” OR “college libraries”
	remodeling OR “new models” OR Rethinking OR adapting
	“Covid-19” OR “online teaching” OR e-learning OR “remote teaching” OR “virtual education”

Source: Researcher (2022)

The search was limited to include papers published in the past three years (2020-2022) when Covid-19 was reported and necessitated distance education hence new models of offering information literacy. Because of the novelty in this topic, relevant grey literature emanating from case studies, conferences and professional conversations was also included. There was no specific

geographic limit since Covid-19 was a pandemic, however only English articles were reviewed. Information literacy is a common research interest among the two authors of the paper and therefore they independently assessed and reviewed the articles.

Each article was read and if it focused on either skills and resources for information literacy, strategies or models of IL in an online teaching environment or it presented practices of IL during Covid-19 or pandemic in the education sector it was included, otherwise articles on conventional IL and not focusing on remote education were excluded. The articles included were collectively reviewed to identify the themes emerging from the literature. A total of 18 articles were reviewed and the following themes emerged and are presented as the findings.

Findings

Digital information literacy skills and resources among librarians

“Information literacy is a necessary skill that is useful in every aspect of life, especially in the twenty- first century where we are inundated with vast amounts of information” (Aharony, 2010). Digital information literacy is a critical component and contributor to lifelong learning which extends learning beyond formal classroom setting. DIL for librarians refers to the skills mandatory for recognizing information sources and resources in a digital environment to facilitate teaching, learning and quality research. Digitally literate librarian (the one that self-assuredly uses, manages, generates, estimates and shares digitally encoded information) is important to fulfill users’ information needs in a digital environment (Khan, 2020). The first research question of this paper is to find out the skills and resources necessary of librarians for providing information literacy during the pandemic period.

Mulat and Natarajan (2020) in their study on the digital literacy skills for LIS professionals in Jimma University libraries found out that computers and other wide range of digital gadgets, educational software are among the resources required by librarians for DIL. A study done on digital literacy skills among librarians in Zambia reveal that, proliferation of digital platforms has necessitated librarians to be equipped with new skills like social networking, instant messaging, blogging, surfing the net among other host of digital oriented activities. As learning moved online due to Covid-19, it became critical for librarians to be more empowered digitally to offer information literacy training virtually which was also a key skill for effective navigation in the online environment. Studies show that librarians acquire these digital literacy skills through colleagues' assistance, YouTube channels, or trial and error methods (Chewe et al., 2020; Wegener, 2022; J. M. Yap & Manabat, 2021). This indicates that there is no formal method of acquiring these skills in the professional development continuum for librarians. Chewe and Zulu (2020) opine that librarians need to be agile, adaptable and willing to learn new digital skills as technology proliferates so as to remain relevant in today's work environment.



Information Literacy Initiatives during Covid-19

As Covid-19 swept the world, it interrupted the conventional modalities for delivering information literacy in libraries. Libraries remained true to their goal of empowering users to navigate the information landscape by transforming information literacy techniques. When learning activities switched from physical to online, likewise libraries moved information literacy to a cybernetic format to address access to library services and resources remotely due to physical shutdown. One of the main strategies used by Fiji National University library was offering database and bibliographic training sessions and workshops online via zoom or other video conferencing tools and social media (Shukla & Deo, 2021). Virtual appointments for training sessions were done through events calendar allowing users to choose their convenient time to participate. Promotion of the training sessions was done through email notifications as well as social networking sites. Recording of the training sessions and sharing them with the library users gave them an opportunity to refer in case one encountered a challenge.

IL programs have always been part of library reference services. Other information literacy practices gained significance during the pandemic, such as virtual reference services through chat, email, phone, text and video (Vogus, 2020; Yap & Manabat, 2020). Use of subject guides and online IL sessions including self-paced sessions were other models employed. Yap and Manabat (2021) identified use of video conferencing platforms such as Zoom and Google Meet to provide virtual reference services like research consultations, library orientations and IL sessions as some of the innovative ways employed to assist students in their research. They add that, to gauge the effectiveness of the IL sessions, post-session evaluation methods would be used and documenting the experiences would help to address areas that need improvement. Highlighting the Nazarbayev University's IL strategy, which involved online workshops held either as synchronous or asynchronous mixing orientation, instruction or one-shot sessions and IL. The workshops were available to the students after the sessions as recorded video files.

Challenges in provision of information literacy programs during the Covid-19 pandemic

The shift to online teaching could be termed as "forced migration" (Martzokou, 2021). This is because on-campus training on IL was the main experience, however with Covid-19 a complete and involuntary shift to online teaching was inevitable. One of the major challenges faced in the new normal of teaching IL was on implementation of remote tools and practices while ensuring accessibility and equity for all.

Yap and manabat (2021) reported that one of the major challenges experienced in transitioning IL programs during the pandemic was the short-time frame to launch the virtual platforms, which coupled with low budgets made the remodeling of IL a challenging experience. Network connectivity issues emanating from slow internet speeds and low bandwidth was a hurdle to librarians and library users living in remote areas hence affecting the effectiveness of the IL programs. Inaccessibility to laptops and other necessary technological tools was another challenge. Most libraries provided their staff with desktop PCs which became inaccessible following the shutdown, while they are expected to deliver online IL sessions through mobile

digital devices which were unavailable. Another challenge faced by librarians in their efforts to remodel IL programs was low levels of technological competencies (Chewe & Zulu, 2020). Several studies have reported the digital literacy skills of librarians to be low to moderate (Okeji et al, 2019; Emiri, 2017; Martzoukou & Elliott, 2016). Khan (2020) noted skills-mismatch as another challenge where the level of digital skills librarians possesses (supply) does not match the required level of digital skills (demand) and thus ineffective IL programs. Martizoukou (2021) identified the following to be the challenges faced by academic libraries in their renewed effort to offer digital literacy during Covid-19. Key among them was “How to upskill both staff and students in the use of ICT tools for teaching, learning and communication? and how to train staff on online pedagogical approaches and prepare students to embrace the principles of distance education?” To optimally deliver online IL sessions which would encompass several modules calls for pedagogical skills. Khan (2020) adds that librarians lack knowledge of pedagogical skills and academic activities which was an impediment to the online IL modular programs.

Recommendations

The pandemic predisposed higher education to immense challenges. To address them, most institutions shifted to a virtual learning approach. Digital information literacy skills acquired a new level of significance in the online environment and libraries transformed into the new norm of teaching and learning. Some of the recommended innovative ways employed to offer DIL training amidst Covid-19 were considered and contextualized in this paper. This study recommends that:

1. University libraries to offer IL virtually through online platforms such as Google Meet, Microsoft Teams, WebEx, Skype and Zoom which are similarly used to deliver online classes. Librarians should conduct live classes using any platform they are familiar with and to help with communication, WhatsApp and Telegram groups can be created and used.
2. University libraries should develop reusable learning objects (RLO). RLO is a practical and interactive open access online resource whereby students will be presented with case scenarios to activate their learning; then guided with images, demonstration videos, quizzes and interactive activities to facilitate learning on certain concepts and skills, and then apply the knowledge gained to answer to another scenario. These RLOs are to be developed by librarians in collaboration with teaching faculty so as to make the case scenarios as practical and relevant as possible.
3. University libraries should create Libguide pages to assist users find resources. The Libguides contain a list of information sources to help answer questions on a specific area on interest. These Libguides can be used in teaching by lecturers as an example of resources and platforms on how they can apply the resources in their studies and research. In addition, pages to support remote teaching and learning should be provided as well as open access resources and other online resources available from the library collection.
4. University libraries should evaluate the outcomes and measure the effectiveness of the information literacy initiatives employed for continual improvement and to inform future interventions. To achieve this, online pre and post-test questions to test users' knowledge



and page view statistics to assess usage are some of the approaches that can be used. Other strategies that can be used for evaluation are feedback surveys and usage analytics using Google Analytics to measure user profiles and numbers.

Conclusion

The Covid-19 pandemic stressed even more the important role of librarians in helping students to develop information, digital and media literacy skills so that they can be in a position to independently select, access and use accurate, reliable, trustworthy and credible sources of information. This called for libraries to reinvent themselves and digitally transform the information literacy training in light of the restrictions to face-to-face interaction. With remote learning being the new norm, libraries need to invest not only on the infrastructure and digital tools but also devise approaches for supporting both staff and students develop digital competencies in relation to attitudes and behavior while in the online environment. In addition, beyond the challenges presented in delivery of DIL training in libraries during Covid-19 pandemic, opportunities have been created. Opportunity to roll out a sustainable online training of information skills and digital literacy; the evolving role of the librarian in terms of the need for training in pedagogic theory and practice, online curriculum design, and mechanisms that will ensure their ongoing personal and professional development.

References

1. Aharony, N. (2009). An exploratory analysis of librarians' blogs: Their development, nature and changes. *Aslib Journal of Information Management*, 61(6), 587–604. <https://doi.org/10.1108/00012530911005535>
2. Ali, M. Y., & Gatiti, P. (2020). The Covid-19 (Coronavirus) pandemic: Reflections on the roles of librarians and information professionals. *Health Information & Libraries Journal*, 37(2), 158–162. <https://doi.org/10.1111/hir.12307>
3. Baro, E. E., Efe, B. U., & Oyeniran, G. K. (2014). Reference inquiries received through different channels: The challenges reference librarians face in university libraries in Nigeria. *Reference Services Review*, 42(3), 514–529. <https://doi.org/10.1108/RSR-09-2013-0049>
4. Breeding, M. (2020). A global crisis may reshape library services. *Computers in Libraries*. <https://www.infotoday.com/cilmag/may20/Breeding--A-Global-Crisis-May-Reshape-Library-Services.shtml>
5. Campbell, J. D. (2006). Changing a cultural icon: The academic library as a virtual destination. *EDUCAUSE review*, 41(1), 16–18. Cln, R. E., & Cln, E. O. (2021). *Digital Literacy Skills as Correlate of Electronic Information Resources' (EIRs) Use By University Undergraduates In South-south, Nigeria*. 17.
6. Chew, P., Zm, P., & Zulu, Z. (2020). A survey of digital literacy skills among library professionals in Zambia. *Zambia Journal of Library & Information Science*, 4(1), 1–18.
7. Chisita, C. T. (2020). Libraries in the midst of the Coronavirus (Covid-19): Researchers experiences in dealing with the vexatious infodemic. *Library Hi Tech News*. 37(6), 11–14. <https://doi.org/10.1108/LHTN-03-2020-0022>
8. Cln, R. E., & Cln, E. O. (2021). *Digital literacy skills as correlate of electronic information resources' (EIRs) use by university undergraduates in South-south, Nigeria*. 17.
9. Emiri, O. T. (2015). Digital literacy skills among librarians in university libraries in the 21st Century in Edo and Delta States, Nigeria. *International Journal of Scientific and Technology Research*, 4(8), 37–52. <https://doi.org/10.4018/IJLIS.2017010103>
10. Hemmingway, P., & Brereton, N. (2009). *What is a systematic review?* <http://www.bandolier.org.uk/painres/download/whatis/Syst-review.pdf>



11. Adetayo, A. J., Komolafe, R. S., & Olalere, J. O. (2022). Virtual Learning and Library Usage during Covid-19 Pandemic: The Adeleke University Experience. *Journal of Library & Information Services in Distance Learning*, 1–21. <https://doi.org/10.1080/1533290X.2022.2066744>
12. Begum, D., & Elahi, Md. H. (2022). Digital library services to support online learning amid Covid-19: A study of a private university library in Bangladesh. *Digital Library Perspectives, ahead-of-print*(ahead-of-print). <https://doi.org/10.1108/DLP-03-2021-0025>
13. Grassian, E. S., & Kaplowitz, J. R. (2009). *Information literacy instruction: Theory and practice* (2nd ed). Neal-Schuman Publishers.
14. Harrison, S. J.-A., & Deans, M.-J. O. (2021). The methodology used to deliver information literacy instruction by a select group of academic librarians: A case study. *Asian Association of Open Universities Journal*, 16(2), 177–192. <https://doi.org/10.1108/AAOUJ-01-2021-0006>
15. Kasa, M. G., & Yusuf, A. (2020). Experience of an academic library during the Covid-19 pandemic. *Library Philosophy and Practice (e-Journal)*, 4456.
16. Tshuma, T., & Chigada, J. (2018). Analysing information literacy practices at selected academic libraries in Zimbabwe. *SA Journal of Information Management*, 20. <https://doi.org/10.4102/sajim.v20i1.976>
17. Adetayo, A. J., Komolafe, R. S., & Olalere, J. O. (2022). Virtual Learning and Library Usage during Covid-19 Pandemic: The Adeleke University Experience. *Journal of Library & Information Services in Distance Learning*, 1–21. <https://doi.org/10.1080/1533290X.2022.2066744>
18. Begum, D., & Elahi, Md. H. (2022). Digital library services to support online learning amid Covid-19: A study of a private university library in Bangladesh. *Digital Library Perspectives, ahead-of-print*(ahead-of-print). <https://doi.org/10.1108/DLP-03-2021-0025>
19. Grassian, E. S., & Kaplowitz, J. R. (2009). *Information literacy instruction: Theory and practice* (2nd ed). Neal-Schuman Publishers.
20. Harrison, S. J.-A., & Deans, M.-J. O. (2021). The methodology used to deliver information literacy instruction by a select group of academic librarians: A case study. *Asian Association of Open Universities Journal*, 16(2), 177–192. <https://doi.org/10.1108/AAOUJ-01-2021-0006>
21. Kasa, M. G., & Yusuf, A. (2020). Experience of an academic library during the Covid-19 pandemic. *Library Philosophy and Practice (e-Journal)*, 4456.
22. Tshuma, T., & Chigada, J. (2018). Analysing information literacy practices at selected academic libraries in Zimbabwe. *SA Journal of Information Management*, 20. <https://doi.org/10.4102/sajim.v20i1.976>
23. Khan, A. (2020b). Digital information literacy skills of Pakistani librarians: Exploring supply-demand mismatches, adoption strategies and acquisition barriers. *Digital Library Perspectives*, 36(2), 167–189. <https://doi.org/10.1108/DLP-01-2020-0003>
24. Lohia, P., & Madhusudhan, M. (2021). *Use of smartphones for enhancing digital Information literacy skills: A study of library and information science students, University of Delhi*. 12.
25. Martzoukou, K. (2021). Academic libraries in Covid-19: A renewed mission for digital literacy. *Library Management*, 42(4/5), 266–276. <https://doi.org/10.1108/LM-09-2020-0131>
26. Martzoukou, K., & Elliott, J. (2016). The development of digital literacy and inclusion skills of public librarians. *Communications in Information Literacy*, 10(1), 99–115.
27. Melcher, A., & Lowe, K. (2014). Digital cameras and information literacy: Innovations from the field. *Journal of Library Innovation*. <http://www.libraryinnovation.org/article/view/306/550>
28. Mulat, T., & Natarajan, M. (2020). Digital literacy skills among library professionals in Jumma University libraries. *Library Philosophy and Practice (e-Journal)*, 4629.
29. Okeji, C. C., Tralagba, E. C., & Obi, I. C. (2020). An investigation of the digital literacy skills and knowledge-based competencies among librarians working in university libraries in Nigeria. *Global Knowledge, Memory and Communication*, 69(4–5), 311–330. <https://doi.org/10.1108/GKMC-05-2019-0054/FULL/XML>
30. Phelps, S. F., & Campbell, N. (2012). Systematic reviews in theory and practice for library and information studies. *Library and Information Research*, 36(112), 6–15. <https://doi.org/10.29173/LIRG498>
31. Pothier, W. (2021). Information literacy instruction and online learning: Making the case for incorporating digital badges. *Journal of Library & Information Services in Distance Learning*, 14(3–4), 266–277. <https://doi.org/10.1080/1533290X.2021.1873893>



32. Parvin, S., Begum, D., Shobhane, M. E., & Hasan, M. N. (2021). Evolving roles of East West university library during the Covid-19 pandemic. In *Handbook of Research on Knowledge and Organization Systems in Library and Information Science* (pp. 213-230). IGI Global.
33. Rafiq, M., Batool, S. H., Ali, A. F., & Ullah, M. (2021). University libraries response to Covid-19 pandemic: A developing country perspective. *The Journal of Academic Librarianship*, 47(1), 102280.
34. Shukla, U. C., & Deo, S. (2021). Strategies used by academic libraries to manage information crisis in the pandemic: The study of the Fiji National University Library. *Library Philosophy and Practice*, 6712. <https://digitalcommons.unl.edu/libphilprac>
35. Sparks, J. R., Katz, I. R., & Beile, P. M. (2016). Assessing digital information literacy in higher education: A review of existing frameworks and assessments with recommendations for next-generation assessment: Assessing digital information literacy in higher education. *ETS Research Report Series*, 2016(2), 1–33. <https://doi.org/10.1002/ets2.12118>
36. Vogus, B. (2020). Examining virtual reference services in academic libraries. *Public Services Quarterly*, 16(4), 249–253. <https://doi.org/10.1080/15228959.2020.1818664>
37. Wegener, D. R. (2022). Information literacy: Making asynchronous learning more effective with best practices that include humor. *Journal of Academic Librarianship*, 48(1), 102482. <https://doi.org/10.1016/J.ACALIB.2021.102482>
38. Yap, J. M., & Manabat, A. R. (2021). Are we in-sync? Students' virtual instructional experience and perceived information literacy skills in time of pandemic. *Internet Reference Services Quarterly*, 25(4), 169–184. <https://doi.org/10.1080/10875301.2021.1988796/FORMAT/EPUB>
39. Yap, J., & Manabat, A. (2020). Managing a sustainable work-from-home scheme. *International Journal of Librarianship*, 5(2), 61–77. <https://doi.org/10.23974/IJOL.2020.VOL5.2.168>

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Effects of Digital Information Literacy during the Covid-19 Pandemic in Academic Libraries in Kenya

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Abstract. The current Corona virus (Covid-19) pandemic is having profound impact not only on people's health but also on how to learn, work and live. Among the most significant effect was depriving user's the chance to access the physical Library and information resources in print format. It put brakes to academic activities and caused disruption in learning institutions in Kenya. With the need to provide teaching and learning resources, University libraries took up the task of fulfilling the need. However, possessing digital information literacy skills is key in fulfilling the needs. This study therefore was carried out to analyze the effects of digital information Literacy on library usage during the Covid -19 pandemic, 2020-2021. The specific objectives of the research were; to establish the effect of library staff's skills and competencies on ICT, ICT infrastructure, and Web 2.0 platforms applied in Academic libraries in Kenya during Covid – 19 period. The study sampled 6 University libraries in Kenya and data was analyzed using qualitative approach basing on the research questions. The study concluded that ICT skills and competencies are core to any librarian as well as putting in place the right infrastructure. The study recommended that universities should enact policies for effective ICT training, form a Memorandum of Understanding with mobile service providers for subsidized internet bundles, adopt Web 2.0 platforms for improved virtual learning and put in place relevant policies and framework for effective response to disaster and pandemics.

Keywords: Information Literacy, Covid -19, Digital Information literacy, Library, E-learning, Kenyan Universities, Web 2.0. Digital knowledge, IT skills

Introduction

Covid-19 has transformed the way things are done. In Kenya, the education sector took a paradigm shift in ensuring continuity in teaching, learning and research. Similarly, academic libraries have to adopt digital services in order to satisfy the remote community of library users. Effective provision of digital services calls for ability to operate digital devices and general digital literacy skills. Digital literacy emanated from information literacy. According to Bawden, 2008 information literacy is the ability to identify, process, evaluate and use information in a meaningful way while digital literacy is having the skills, competence and technology needed to search and use information in various digital platforms (Ahmed et al., 2021). Such platforms include; internet, social media and mobile devices. Further, Reedy & Goodfellow, (2012) denote that “digital information literacy implies the ability to find and use information but incorporates communication, practical skills, social awareness in the digital environment, understanding of e-safety and networking”. Libraries are knowledge hubs while librarians are the providers of information which is transformed into knowledge. Amidst the digital environment, digital information literacy skills have become a requirement in library service provision. In this digital era, information is abundant and proper selection and evaluation of these information is key. Such skills will enable librarians to filter the required information from the pool of unfiltered information and provide relevant, authentic and upto date information to users (Verma, 2018).

With major shifts in library service provision from physical to online, digital skills come in handy. The emergence of Covid-19 pandemic has made online services mandatory in nearly all learning institutions in Kenya. However, it has brought many challenges and opportunities to academic librarians. Among the challenges are related to remote teaching of literacy skills and competencies and delivery of information materials electronically. With the roles of librarians being teaching and information service provision oriented, librarians are forced to embrace and learn the technical skills of the teaching platforms and the Infrastructural connectivity for them to remain relevant. Before emergence of these pandemic, there was no immense drive to have very strong internet connectivity and remote access softwares since nearly all users would access the library services physically. The technological competences were not a critical requirement because of the manner in which library services were provided (Martzoukou, 2020). As a result of Covid-19, librarians have been forced to upgrade their digital literacy skills in order to meet the services of library users away from the University (Buba et al., 2021). Having the necessary ICT skills and competences is important during this pandemic era, since librarians will be in a position to share information, surf the internet to get relevant and current information, know how to use search engines so as to provide appropriate guidance to students and ability to use various social media sites to enhance remote communication. It is vital for librarians to have digital literacy skills as this will go along way in fulfilling the needs of users (Lobo & Dhuri, 2021). To develop an information literate society, librarians must have digital literacy skills and competencies which include ICT skills, critical thinking skills, information seeking, media literacy and communication skills (Shastri & Chudasma, 2021). In addition, librarians need to have knowledge on Web 2.0 and library 2.0, use of podcasts, virtual librarianship and general library automation concepts (Baro et al., 2019). The positive impact of Covid-19 is the fact that it led to the massive adoption of online services even

among academic libraries that had not embraced technology. This calls for all librarians to device ways of learning how to use various systems and softwares for the purpose of continuity in library services, including having in-place functional institutional repositories and ensured remote access to their resources.

Research Objectives

1. To find out the level of ICT skills and competencies of library staff
2. To establish the level of ICT infrastructure among the university Libraries
3. To find out the various web 2.0 tools used in library service provision during Covid-19 pandemic

Statement of the problem.

The emergence of Covid-19 has brought more harm than good among Institutions of higher learning. When the Government of Kenya issued directive for all institutions to close, many of them were not ready to offer services online. Teaching and learning came to a halt and academic libraries were more affected by this sudden closure. Most academic libraries had not planned for online services and to a greater extent, library services were affected. In pursuit of continuity with teaching and learning, Universities shifted to online learning and even libraries had to shift to meet the information needs of their users. The success of online services depends on digital information literacy, both library staff and users need to have such skills in order to provide guidance to the users on access to electronic resources and for library staff to effectively impart skills and knowledge on the access. Digital information literacy acts as a catalyst between the intellectual capacity of the society and the user to create a sustainable information world hence the questions; do our librarians know how to upload content to online learning platforms? Are they able to use various social media tools to carry out information literacy sessions? Are they able to create files in different formats?. Absence of such skills may lead to digital divide and missed links in information access. It is because of the importance that digital information literacy holds that this paper seeks to identify its impact on library use during & after Covid-19 Pandemic and recommend the best practices to be adopted by Kenya University Libraries in case of any pandemic.

Review of Related Literature

Digital Information Literacy skills and competencies among librarians

In the past, the roles of librarians were believed to be issuing and receiving back borrowed books. Academic libraries are knowledge hubs and play key roles in meeting the teaching, learning and research needs to the academic community. Librarians are depended on to provide reliable and authentic information to satisfy the needs of users. With technological changes globally, librarians are required to adopt different ways of meeting the needs to users and especially adopt the digital technology in service provision (Pereira, 2022).



Indeed, information technology, has brought many changes in the way of communication in the corporate world and human interaction. Technology has forced people to adopt new dynamics of service delivery, libraries included. It is because of change dynamics that the concept of digital information literacy emerged. Digital information literacy has gone through many stages as ICT literacy, technology literacy, online information literacy, new media and at last digital information literacy (Rafi et al., 2019). Literacy is the ability to read, write, listen, speak and think while information literacy is the use of information at hand to solve a given problem. Digital information literacy came as a result of using computers and other electronic devices to provide services. Institutions of higher learning are required to put emphasis on digital information literacy because through such skills, students are able to analyze and evaluate the myriad of information. According to Tuamsuk & Subramaniam, (2017) digital information literacy comprises technical, cognitive and emotional-social skills. For example the use of digital platforms such as Moodle to teach requires technical skills including ability to interact with devices and the application; cognitive skills which is the ability to perceive and evaluate data and social and emotional skills which is the ability to understand the impact of data on individual's privacy and intellectual property.

A study done by Adomi & Anie, (2006) on computer skills among librarians in Nigeria found out that majority of library staff rated their digital skills as low or none. Metadata creation and preservation, management of digital content and imaging skills are some of the competencies that were rated very low. On the contrary, these skills are what makes a digital librarian. It was also found out that the little knowledge on digital literacy was utilized in library service provision but their own personal work. During this Covid-19 pandemic period, all librarians need to have digital information literacy skills because the digital librarian will facilitate remote access to academic information faster and in turn impart the same skills to library users who will then be independent in accessing and using information and moreover overcome the challenges of the 21st century librarian (Khan & Bhatti, 2020). Librarians must develop core competencies to manage dynamics of information and address the challenges faced by library users. A study by Baro, E. et al (2013) on measuring the ICT skills of librarians in Africa showed that librarians had knowledge on the current technology and would use image scanners, multimedia projectors, webcams and Ebook readers. However, their skills on web designing, assigning meta data, information retrieval and digital library were not satisfactory.

Studies have shown that librarians' digital skills and competencies are very key in times of crisis when information is inhibited yet critical for teaching and learning. According to a survey by Walsh & Rana (2020) librarians in the Toronto Universities took the critical role of teaching students how to use digital technologies to access learning materials. Some of the librarians mobilized to better understand the learning platform for the purpose of providing online literacy sessions and enhance engagement. In addition to meeting the information needs of the University community during Covid-19 pandemic, librarians are tasked with the responsibility of creating awareness regarding the disease, ways of controlling spread of misinformation and support faculty and researchers by providing current information relating to the disease (Ali & Gatiti, 2020). Such responsibilities require librarians to have the necessary digital information literacy skills for them

to meet the needs of users. Many librarians are using social media tools to reach library users and create awareness of the existence of various events. Library users get notification immediately the information is sent. Librarians use such tools to provide guidance on information searching and retrieval, plagiarism, information ethics and any relevant information through the library portal (Pereira, 2022).

Web 2.0 in library service provision

New technologies are impacting libraries on daily basis, web 2.0 being on the forefront. Libraries in the United States of America are utilizing the power of these tools on remote library services provision. According to Sodt & Summey (2009), Web 2.0 is the second generation of World Wide Web that is more user-driven, collaborative, participatory and personalized as opposed to Web 1.0 which was constant. One of the key features of Web 2.0 is collaboration which permits sharing of information thus creating and consuming content. Development of user-friendly technologies such as Web 2.0 have heightened their popularity making them heavily used by the younger generation. Dye 2007 as cited by (Sodt & Summey, 2009) point out that library staff need to be conversant with these technologies since students who are the main users of the library are heavy users. Web 2.0 provides an opportunity for both librarians and users to create and consume content because of their collaborative and participatory feature. (Collins, 2013) denotes features that promote the use of Web 2.0 in libraries as; conversations (enhance user participation), community (allows open conversations), participation (enable creation of new information), experience (permits engagement among users) and sharing. All these features in Web 2.0 make them the right platforms for use in information creation and sharing. These new innovations have made librarians to utilize them and create a read/write environment. However, librarians may find themselves overwhelmed by the constant changes and revolution with these technologies but the most important aspect is for them to understand the basics of Web 2.0.

The advancement of Web 2.0 has created enthusiasm among librarians as many of them have integrated them in their service provision modules and websites. While Web 2.0 is able to boost library service provision, several libraries are still reluctant to use them even though they may not be too costly. Such librarians cite cases of poor infrastructure, uncertainty about Web 2.0 outcomes, limited time to create content and insufficient know-how on the usage of such technologies (Boateng et al., 2014). Major Web 2.0 technologies applied in libraries include social networking, video and photo sharing, blogging, social bookmarking, wikis and resource organization tools (Anunobi & Uchenna, 2012). The driving force behind use of Web 2.0 in libraries is the ability to generate, package and disseminate information through the web in a manner acceptable by users. Having realized the opportunities provided by Web 2.0, librarians strived to integrate them into their service provision and as a result the concept of Library 2.0 came into being. Wallis, (2007) denotes that Library 2.0 is the conjunction between libraries and their service provision through the use of Web 2.0. He further indicated that libraries have integrated blogs, wikis, Rich Site Summary (RSS) feeds among other technologies to reach out and interact with their users. The core value of Library 2.0 is geared towards the user. These tools aim at minimizing



barriers of time, place and service while taking into account user satisfaction. Librarians will therefore be in a position to offer services when and where the user is (Collins, 2013).

Covid-19 saw all libraries closed and with the need to continue with library services, librarians opted to using blogs to create awareness. Librarians were able to post new and existing electronic resources that would benefit users, guidelines on the use of these resources, awareness of new free resources offered to the library by publishers and communication of any changes that took place within the library. Through library blogs, librarians and library users were able to communicate and share information on how library services would be improved. However, many questions linker on peoples's mind on wether Library 2.0 is real trend. This is because of debates on Library 2.0 being the application of Web 2.0 and the fact that both concepts are generic in the sense that each library will apply them differently. The major question is on how much of the application of Web 2.0 constitutes a change in library service provision and its just an extension of what has been in existence (Needleman, 2007)

Effective ICT infrastructure to promote digital information Literacy

There are different types of ICT technologies commonly employed by University Libraries in Kenya, they include; computer system, computer accessories, cellphone or smartphone and other communication device (Azolo, 2021). Social media tools also constitute the various ICT tools applied in library service provision. Some of these tools are; Facebook, Twitter, Google, WhatsApp, E-mail, YouTube, and others. Such social media channels are used to disseminate knowledge to the library users and have been adopted by different libraries for different functions. With the shift towards a digital environment, libraries have to shift too and adopt new ways of service provison taking in to consideration fleaxibility, collaboration, interaction and participation. Covid-19 opened doors to full adoption of new technologies including social media and new media that facilitate digital literacy programs. By extension, libraries have been compilled to aquire ICT skills in order to fit in the technologically changing environment. Some of the effective ICT infrastructure that will promote digital information literacy are;

Smart Library

. Smart library is a term that has been used to label future libraries. Smartness imply attractiveness of an object. The concept of smart libraries involves the integration of digital process and function in the provision of services. According to Zimmerman & Chang, (2018) smart library is the integration of library books and digital spaces to ensure provision of electronic services and realization of transfer of big data. It further incorporates the use of large data analysis systems and library management system to ensure full scale data sharing. The objective of smart libraries is to enhance personalization and provison of better services to the user. Smart library technology is a move in which academic libraries should be focusing on. Amidst the pandemics and the need to have libraries online, smart library technology will be the solution. Smart libraries present three dimensions as pointed out by (Cao et al., 2018). They indicated that smart libraries have technological, service and user-oriented dimension. In terms of technology, libraries are flexible adaptative, self-renewing and interactive. In terms of service dimension, libraries provide

seamless services to users in an interactive manner. This is the ability of library users to use the library on their laptops, phones or any internet enabled devices anywhere anytime. Finally, user-oriented dimension ensures efficiency, effectiveness and quality of service. Presence of smart library technology during this Covid-19 pandemic opens up greater opportunities to library users to have their libraries at their finger tips. This concept will ensure greater consumption of library resources anywhere at any given time. Digital information resources will be the new normal for all library users and provision of digital information literacy programs will be an easy day to day operations of the virtual reference librarian.

The Internet

The internet has become part of our daily requirement which support communication, sharing of data and remote processing of activities. Libraries being knowledge hubs rely on the internet for nearly all operations. With the emergence of Covid-19, libraries relied heavily on the internet for teaching and learning. It enabled connection between persons in different locations, making it easy for librarians to offer virtual library orientation, online renewal of library resources and other essential library services. The internet comprises interacting technologies that are compatible to form Internet of Things (IoT). According to Gul (2019), IoT is a group of technological devices that are interconnected through the internet in order to make these devices share data. Libraries during Covid-19 or any pandemic would apply IoT through the use of phones as a facilitator between the library user and staff. One of the concepts of IoT is cloud computing. In academic libraries, cloud computing is applied in repositories, online searching and retrieval, website hosting and library automation (Subramanian & Jeyaraj, 2018). Currently academic libraries are in the process of digitizing nearly all its operations for the purpose of remote provision of services. The common practice in nearly all academic libraries are putting in place digital resources for online user access. With cloud computing, these resources are saved in cloud and users can access them without the need of physical servers. In times of pandemic, continuity of library services will be based on conditions that librarians have the required digital competencies and skills and that library users have been taken through digital literacy programs.

Research Design & Methodology

The aim of the study was to find out the impact of Digital Information Literacy among library staff. It employed a case study research method using the qualitative research design. Purposive sampling technique was used to collect data from 6 selected University libraries in Kenya. Data was then collected through telephone interviews and analyzed through content analysis and presented using text and phrases.



Results and Findings

The study investigated the impact of digital information Literacy in academic libraries in Kenya and the findings were as follows;

Table 1. ICT competency Skills among Library staff

ICT Skill	Frequency	Percentage
E-learning platform	3	50%
Online content creation	3	50%
Library Management software	6	100%
Online information searching and retrieval	5	83.8%
Scanning and uploading	3	50%
Electronic Presentation	4	66.6%

The study was investigating the level of ICT competency among library staff of the selected six universities in Kenya and found out that majority of them 100% have very high skills in the operation of their varied library management system. The rest had moderate or low skills in e-learning platforms, content creation, scanning and uploading content to online platforms. However, online searching and retrieval was rated second at 83%. This was an indication that most university libraries in Kenya had some digital literacy skills required in helping users access and use of digital information resources and could to a greater extent aid users during the Covid-19 Pandemic. Some of the skills reported to have been less explored by librarians were; use of E-learning platform (50%), Online content creation (50%) and scanning and uploading (50%)

The lack of the three mentioned skills were attributed to limited on-job training in ICT literacy, inadequate time to attend the training, insufficient training facilities and lack of ICT infrastructure & skills. Most staff were said to be conversant to physical lecture training as opposed to on-line training. Similar findings were reported by Shastri & Chudasma, (2021) on a study of “ICT perceptions among library professionals” and cautioned that having majority of the library staff with limited ICT skills affect the use of e-resources by students. Thus recommended effective training on ICT to be done to ensure full utilization of library digital resources

Level of ICT infrastructure in University Libraries

Academic libraries in Kenya to some extent use ICT for nearly all their housekeeping activities, operations and services. The study found out that the level of implementation is varied according to the state of ICT infrastructural development for each university. That the major ICT infrastructure available in all the sampled libraries were; hardware encompassing computers, printers and scanners; software such as operating systems; Library management system. In

addition; communication facilities such as library email address and networking infrastructure such as LAN, intranet and internet. Presence of these facilities enabled information sharing and access to subscribed electronic resources within the University.

Further, the research interview with the Librarians reported that their libraries are automated and they subscribe to e-Journals and e-books and access to them is through the various network platforms. The automation has promoted the integration of activities with the library such as technical services, acquisition, OPAC and library holding management. Besides having these facilities, the challenge of interacting with them remains a drain among some staff. The interview further revealed that presence of these infrastructure have impact on digital information sharing when physical teaching and learning is taking place. It was reported that, with the abrupt closure of learning institutions, all these facilities were locked up in the University and could not help in information access.

In addition, the high cost of internet bundles limited most of the users and staff from accessing online information resources. Even with subsidized bundles from KENET for teaching and learning, many users would not go through the session because of lack of essential devices like smart phones, tablets or laptops at home. Some of the library staff you depended on University devices to facilitate digital literacy programs were equally affected.

From the findings, strategies between the University and students and between the university and staff should be laid down to see to it that each person is provided with a digital device. that can be connected to internet in order to ensure continuity of remote services even during pandemics.

Implementation of web 2.0 application in university Libraries

Table 2. Number of institutions using web 2.0

Platform	frequency	Percentage
Moodle, Zoom, Video conference	4	66.6%
WhatsApp	3	50%
You Tube	2	33.3%
Facebook	1	16.6%

The study wanted to establish the type of Web 2.0 technologies mostly adopted in Universities for teaching and learning and by extension used by librarians to train users on digital literacy programs. The study found out that 66% of the six sampled universities were using Moodle, 50% had implemented both Moodle and YouTube, and 33.3% were using WhatsApp and Moodle while 16.6% were using Facebook. This indication implies that the use of Moodle gained popularity as a teaching and learning platform; Zoom and video conferencing for online meetings; YouTube for sharing videos and WhatsApp and Facebook for communication. It was reported that Moodle



gained acceptance because it allows one to populate content, organize it per activities for example quizzes; communication- that is show when the class was held and the number of participants and facilitate assessment- enabling students to undertake exams through the platform. The interviewed librarians reported that they used Moodle to carry out their digital literacy sessions especially those libraries that did online library orientation. Further, the study revealed that WhatsApp was majorly used to communicate and create awareness about library matters. It was reported that use of Facebook and WhatsApp for teaching was not effective because of the huge number of notifications received hence causing disturbance hence maintained for general communication of library functions, services and announcements.

Challenges to effective virtual access to Information Literacy

The study wanted to establish how the librarians managed to work from home during the pandemic period. The interview process revealed that internet access was a major challenge for both staff and students. This problem affected the students from accessing training and information resources online. The study found out that the greatest challenge to adoption of e-learning was inadequate technological skills, ICT communication infrastructure and mind-set challenges as its alluded in (Mutisya & Makokha, 2016)

Other imminent challenge was the lack of ICT technologies such as computers, laptops and smart phones for students as the right tools required to provide virtual information resources. Failure to have these technologies meant that users were not able to attend to any digital literacy sessions organized by the library.

The spatial geographic location of librarians at home during the pandemic period was also an issue that prevented librarians from collaborating and assigning each other responsibilities. This caused delayed response to student's inquiries

Generally, Covid-19 Pandemic has been a disaster but the mitigation strategies brought opportunities such as; improved ICT skills among library staff, development of adequate network infrastructure and unreserved adoption of web 2.0 platforms whose use had been only been limited to social chatting.

Conclusion and Recommendation

Conclusion

Covid-19 Pandemic arrived at our doors unannounced and brought nearly every activity in the country to almost a stand still. This forced the Government of Kenya in conjunction with the Ministry of Health to order full lock-down across the country. All academic institutions were closed from 12Th March 2020 and students went home to curtail the spread of the virus. The effect of the virus was very devastating, although it fostered positive change in most University Libraries. The opportunities did come in as a struggle for normalcy since teaching and learning in most Universities was almost at a limbo. The physical access to the Library and information materials was no longer possible and institutions had no option but to proceed to e- Learning for it to remain

relevant. Although some Universities in Kenya had subscribed to e-learning platforms like Moodle, Blackboard and Google suites, the adoption of e-learning remained slow. The opportunity, which provided remedy during the pandemic, was for institutions to consider digital library, remote access to resources and e-learning. Academic Librarians with limited ICT skills had to improve their skills and transform from physical information service providers to virtual service providers. The major hiccup to Librarians was the virtual information literacy sessions aimed at equipping users with the relevant skills to confidently navigate the plethora of information resources available in the public space. Librarians had to re-think and put emphasis on e-books rather than printed books and expansion of network coverage. Although, the challenge of online bundles among staff and students delayed the effectiveness of virtual information service provision and online learning in Kenya, KENET saved the day through the subsidized internet bundles for students. Generally, the Pandemic contributed to the improvement of the already incapacitated virtual learning, information literacy service provision and thoughts on disaster preparedness among Universities in Kenya.

Recommendation

The study has shown that digital literacy implementation has been realized within universities in Kenya but at varying levels and recommends the following:

1. Policy makers of university education should strive to improve the level of ICT infrastructure and allocate resources to ensure effective implementation of digital literacy both in urban and rural universities setups.
2. Develop effective framework for disaster response to help in minimizing the effect of disaster such as that inflicted by Covid-19 Pandemic.
3. University management should invest on staff skills and competencies, by providing capacity building through on-job training, seminars or workshops for various digital technologies relevant to digital learning and information literacy.
4. University libraries need to invest in cloud computing for save and effective data storage and for improved virtual learning using web 2.0.
5. In recruitment of new members of staff, the university management should emphasis on the necessary ICT skills that support digital learning programs.

References

1. Adomi, E. E., & Anie, S. O. (2006). An assessment of computer literacy skills of professionals in Nigerian university libraries. *Library Hi Tech News*, 23(2), 10–14. <https://doi.org/10.1108/07419050610660735>
2. Ahmed, B. A., Muhammed, S. U., & Mohammed, A. Z. (2021). Information Literacy Skills and Use of E-resources by Undergraduate Students in Nigeria in Relation to Kuhlthau's Model of Information Search Process (ISP). *Library Philosophy and Practice*, 2021(February), 1–21.
3. Ali, M. Y., & Gatiti, P. (2020). *International Perspectives and Initiatives. Figure 1*, 158–162. <https://doi.org/10.1111/hir.12307>
4. Anunobi, C., & Uchenna, O. A. (2012). *Web 2.0 Use by Librarians in a State in Nigeria Web 2.0 Use by Librarians in a State in Nigeria. July 2015*.
5. Azolo, E. M. (2021). Use of Smart Technology in University Libraries in Covid-19 Era. *Library Research Journal*, 119–125.



6. Baro, E.E., Idiodi, E.O. and Godfrey, V.Z. (2013b), "Awareness and use of web 2.0 tools by librarians in university libraries in Nigeria", *OCLC Systems and Services: International Digital Library Perspectives*, Vol. 29 No. 3, pp. 170-188.
7. Baro, E. E., Obaro, O. G., & Aduba, E. D. (2019). An assessment of digital literacy skills and knowledge-based competencies among librarians working in university libraries in Africa. *Digital Library Perspectives*, 35(3-4), 172-192. <https://doi.org/10.1108/DLP-04-2019-0013>
8. Boateng, F., Quan, Y., & Boateng, F. (2014). *Web 2.0 applications' usage and trends in top US academic libraries*. <https://doi.org/10.1108/LHT-07-2013-0093>
9. Buba, A. A., Kamba, M. A., & Abdulla, A. (2021). *IMPACT OF Covid-19 PANDEMIC ON ENHANCING DIGITAL INFORMATION LITERACY SKILLS OF PROFESSIONAL LIBRARIANS IN NIGERIA*. December.
10. Bawden, D. (2008) Origins and Concepts of Digital Literacy. In: Lankshear, C. and Knobel, M. (eds). *Digital Literacies: Concepts, Policies and Practices*, Peter Lang, New York
11. Cao, G., Liang, M., & Li, X. (2018). *How to make the library smart ? The conceptualization of the smart library*. 36(5), 811-825. <https://doi.org/10.1108/EL-11-2017-0248>
12. Collins, M. S. & M. (2013). *Web 2.0, Library 2.0, and the Hyperlinked Library*. 7913(2007). <https://doi.org/10.1080/00987913.2007.10765134>
13. Gul, S. (2019). *Smart libraries : an emerging and innovative technological habitat of 21st century*. 1931. <https://doi.org/10.1108/EL-02-2019-0052>
14. Khan, S. A., & Bhatti, R. (2020). Factors Affecting Digital Skills of University Librarians for Developing & Managing Digital Libraries: An Assessment in Pakistan. *Library Philosophy and Practice*, 2020.
15. Lobo, J., & Dhuri, K. R. (2021). Positive Impact of Covid-19 Pandemic in Enhancing Digital Literacy Skills Among Library Professionals: A Study. *Library Philosophy and Practice*, 2021(April), 1-18.
16. Martzoukou, K. (2020). Academic libraries in Covid-19: a renewed mission for digital literacy. *Library Management*, 42(4-5), 266-276. <https://doi.org/10.1108/LM-09-2020-0131>
17. Mutisya, D. N., & Makokha, G. L. (2016). Challenges affecting adoption of e-learning in public universities in Kenya. *E-Learning and Digital Media*, 13(3-4), 140-157. <https://doi.org/10.1177/2042753016672902>
18. Needleman, M. (2007). Web 2.0/Lib 2.0—What Is It? (If It's Anything at All). *Serials Review*, 33(3), 202-203. <https://doi.org/10.1080/00987913.2007.10765123>
19. Pereira, S. (2022). *Skill Sets Essential For Librarians In The Post-Pandemic Scenario : A Study On Librarians In The Higher Education Institutes In The State Of Goa , India*. January.
20. Rafi, M., JianMing, Z., & Ahmad, K. (2019). Technology integration for students' information and digital literacy education in academic libraries. *Information Discovery and Delivery*, 47(4), 203-217. <https://doi.org/10.1108/IDD-07-2019-0049>
21. Reedy, K., & Goodfellow, R. (2012). Digital and Information Literacy Framework. *Curr Microbiol, Online Fir*(November), 6. http://www.open.ac.uk/libraryservices/subsites/dilframework/dilframework_view_all.pdf
22. Shankar, S., Laxman, K., Natarajan, U., & G. Hedberg, J. (2005). A Profile of Digital Information Literacy Competencies of High School Students. *Issues in Informing Science and Information Technology*, 2(July 2014), 355-368. <https://doi.org/10.28945/834>
23. Shastri, D. K., & Chudasma, P. (2021). The perception of ICT skills and challenges of usage of technologies among the library professionals of the Gujarat State during the Covid-19: a comprehensive study. *Quality and Quantity*, 0123456789. <https://doi.org/10.1007/s11135-021-01167-x>
24. Sodt, J. M., & Summey, T. P. (2009). *Beyond the Library's Walls : Using Library 2.0 Tools to Reach Out to All Users*. 0826. <https://doi.org/10.1080/01930820802312854>
25. Subramanian, N., & Jeyaraj, A. (2018). Recent security challenges in cloud computing ☆. *Computers and Electrical Engineering*, 71(July 2017), 28-42. <https://doi.org/10.1016/j.compeleceng.2018.06.006>
26. Tuamsuk, K., & Subramaniam, M. (2017). The current state and influential factors in the development of digital literacy in Thailand's higher education. *Information and Learning Science*, 118(5-6), 235-251. <https://doi.org/10.1108/ILS-11-2016-0076>
27. Verma, M. K. (2018). SIGNIFICANCE OF INFORMATION LITERACY IN DIGITAL ENVIRONMENT AMONG ACADEMIC COMMUNITY AND Role of Library Professionals. *International Conference on Contemporary Innovations in Library Information Science, Social Science & Technology for Virtual World [ICCLIST'2017]*, August.
28. Wallis, R. (2007). Web 2.0 to library 2.0 - From debate to reality. *New Review of Information Networking*, 13(1), 53-64. <https://doi.org/10.1080/13614570701571484>
29. Walsh, B., & Rana, H. (2020). Continuity of academic library services during the pandemic: The university of toronto libraries' response. *Journal of Scholarly Publishing*, 51(4), 237-245. <https://doi.org/10.3138/jsp.51.4.04>



30. Zimmerman, T., & Chang, H. C. (2018). Getting Smarter: Definition, Scope, and Implications of Smart Libraries. *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries*, 403–404. <https://doi.org/10.1145/3197026.3203906>

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Presentation #10

Strategies for Sustainable Access to Electronic Resources by the Consortium of Uganda University Libraries during the Covid-19 pandemic

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Abstract. The paper shares the strategies the Consortium of Uganda University Libraries (CUUL) adopted to provide access to electronic resources to its member libraries in Corona Virus Disease nineteen (Covid-19) pandemic era . It examined the challenges, opportunities Covid-19 brought and how CUUL managed to offer its mandate. The study used a mixed methods approach. Majority of the study questions were qualitative in nature with only one quantitative question that was used to explain the qualitative findings. It employed the questionnaire method to collect required information among the CUUL Executive Committee Members, Electronic Resources Functional Committee. Content analysis method with coding and categorisation was used for data analysis and presentation of findings. This paper creates awareness of the challenges, opportunities Covid-19 brought and strategies the Consortium of Uganda University Libraries used to sustain e-resources subscription since the outbreak of Covid-19. Funding and licensing costs are among the challenges mentioned while the opportunities were that the funders' awareness of the need for e-resources and the online learning needs justifies the need for e-resources sustainability by the consortiums. Embracing open access initiatives, remote access and longer licensing period were among the strategies for e-resources sustainability. This paper is important to provide ideas and strategies for responding to global hazards that have the potential to affect consortium income for sustainable subscription to e-resources. It also adds literature on the impact of Covid-19 on university libraries in developing countries which is minimal.

Keywords: CUUL, Electronic Resources, Electronic Library Services, Covid-19, Academic Libraries, Uganda, Developing countries

Introduction

Coronavirus (Covid-19) is a viral disease, which was first reported in Wuhan, China in December 2019. The virus persistence against vaccination has raised global concern (Andrews et al., 2022). The pandemic effects have changed the way people socialize, interact and access services in almost all sectors of human life (Machovec, 2020; Zereef & Ahmed 2021). Since the introduction of lock-down measures during the Covid-19 pandemic, work-from-home and e-learning have remained the 'new normal', which have introduced certain implications for using Information, Communication Technologies (ICTS) (Hara & Kawaguchi, 2022).

In Uganda, the pandemic hampered the sustainability of electronic library services for effective and efficient information to support teaching, learning and research. The impact of COVID will live on for many years to come especially on the education system and library services in Africa South of Sahara where ICT infrastructure to support online learning is insufficient and unevenly distributed (Arapasopo & Adekoya, 2021). Furthermore the ICTs facilities and licenses to support provision and access to electronic resources for academic and research institutions in Uganda has proved expensive and impossible which necessitated the collaboration among libraries in form of a consortium. The consortiums should plan more effectively to be able to sustain improved library services among member institutions.

The Consortium of Uganda University Libraries (CUUL) is a body established in 2001 to network, mobilize universities and other research libraries to put together resources for sustainable access to wider collection of electronic resources (Mayende, 2017). The consortium shares library expertise and negotiates for favorable licenses to e-content such as e-journals and e-books. With its values of professionalism, collaboration and integrity, CUUL advocates for improved academic and research libraries in Uganda (Kuteesa, 2016). CUUL is governed by an Executive Committee, General Assembly and Functional Committees, it is sustained financially by membership and e-resources annual subscriptions from its 58 members. Out of 58 members, 50 members are privately funded basically from students fees while eight (8) are public member libraries government funded. This means much of CUUL income is from the private institutions, which rely on students' fees. Covid-19 brought about lockdowns and closure of member institutions and fees collection was almost impossible especially for private institutions whereas government funded members were fair. As a result the CUUL income for sustainable access to the e-resources was hampered. If that was not enough, physical studies were replaced by e-learning which necessitates electronic resources the most.

Consequently the demand for electronic resources in Covid-19 era in Uganda is growing and the awareness levels among students, researchers and lecturers is also increasing (Zareef & Ahmad, 2021). This serves as an opportunity for CUUL to advocate for more members to come on board to support the provision of e-resources in member institutions. Therefore, this study documents findings that are able to help consortiums to plan more effectively for sustainable electronic resources in times of pandemics or unforeseen disasters.



Review of related Literature

The related studies have been reviewed through a general observation that these studies especially for developing countries are few as noted Zareef & Ahmad, (2021).

Consortium of Uganda University Libraries (CUUL) and the Covid-19 era

University libraries all over the world registered immediate and ongoing impact of Covid-19 (Cox, 2022). In Uganda all universities were closed for over a year and directed by the Ugandan government to go fully online or in a blended mode as a way to survive in Covid-19 era (Nalumaga & Byamugisha, 2021). Technology enabled library resources and services were expected to be at play in the quickest time possible, the librarians to adjust from physical space mindset service to ICTs enabled support the users (Shastri & Chudasma, 2020). Though before Covid-19 there has been a transition from physical library spaces to virtual due to the growth of science and technology, the demand for e-resources and ICT skills increased in the pandemic (Cox, 2022). Electronic resources or e-resources are library services such as databases, e-books and journals that are accessed and utilized through the use of an electronic device like a computer, smartphone and the like. Importantly, the electronic resources have improved university library services significantly over the years (Ojukwu, 2017) because of the ICTs capabilities. Electronic resources are easily accessible to users from anywhere through the Internet and updated therefore users can use newly researched information. Therefore, ensuring sustainability of the online resources for universities and other research bodies to spur e-learning cannot be overemphasized (Ngozi, Onoimiuko & Ebere, 2020). Universities and research libraries adopted a consortium mode of operation to ensure sustainability of these services in Uganda and most of the African South of Saharan (Kuteesa, 2016).

Sustainability of consortium e-resources provision during Covid-19 and beyond

Kamińska, Opaliński, & Wyciślik, (2022) explain that a sustainable service or resource is consistently available and accessible today and in the future no matter the changing circumstances. The university libraries in Africa over the years have worked together to ensure the information users access the e-resources in a consistent manner, however it has not been a smooth task because of high licensing costs, inadequate ICTs infrastructure, small library budgets and unreliable source of funding (Ojukwu, 2017). Consequently, the difficulties escalated further with the arrival of Covid-19 (Nalumaga & Byamugisha, 2021).

The Covid-19 era and e-resources provision difficulties

Despite the efforts so far done to combat Covid-19, the effects in the world are still recorded (Laborde, Martin, & Vos, 2021). Unforeseen Covid-19 has resulted in an abrupt shift from mode of education delivery from conventional education to electronic (virtual) learning and in some cases blended learning because of lockdowns. The shift impacted on the sustainability of e-resources in universities and other research bodies not only in Uganda but the entire world. The

pandemic has created uncertainty in almost all sectors including libraries in developing countries where poverty levels are increasing (Laborde, Martin, & Vos, 2021).

For the safety of library employees from the Covid-19, the libraries in the world shifted to ICTs enabled services such as zoom meetings and social media discussions. The need for e-resources and other virtual library services increased (Holland, 2021; Nalumaga & Byamugisha, 2021). Therefore the consortiums are more pressured to ensure the sustainability of these services. Only to ensure the resources are available but provide remote access tools which have increased the funds required as reported in a study by (Shastri & Chudasma, 2020). Information communication enabled library services offer a flexible environment for librarians and help them to cut off transport costs and other physical office environment requirements. However, it required a resilient ICTs infrastructure and knowledge which is scarce in developing countries like Uganda where Internet costs are still high. The quick adjustments and plans were required for sustainability of the provision of electronic resources on the part of the librarians.

Covid-19 opportunities for e-resources provision.

In this era, consortia have the opportunity to clearly explain and advocate for the need of e-resources funding and support. It is clear that those who did not value these services before Covid-19 have now appreciated them. It is now clear that the decision makers in African educational institutions have to invest in ICTs and e-resources to be able to cope with the demand for e-learning. On the other hand the consortiums have the opportunity to train their members on various online capabilities so that they position themselves right in the provision of reliable electronic information resources (Asif & Singh, 2020).

Strategies for e-resources provision in Covid-19 era and beyond

. Researchers like Owusu-Ansah & van der Wal (2021); Nalumaga & Byamugisha (2021) and Cox (2022) advice university and other research libraries to cope in COVID era and beyond to strategize by investing in virtual services, collaboration, innovation and advocacy at national and international levels. They should adjust, innovate and work quickly to ensure sustainability of the e-resources provision to support online and blended learning universities in Covid-19 era and beyond. Collectively, librarians share common difficulties and should forge solutions together. Consortiums should keep on gathering resources, share expertise and seek funding from government and other funders to support the e-resources provision. Consortiums should explore open access and open science capabilities which have the ability to provide sustainable availability and access to e-resources (Grahe, Cuccolo, Leighton, & Cramblet Alvarez, 2020; UNESCO, 2021). Furthermore Consortiums should lobby governments in Africa to provide suitable ICT policies and prioritize digitization. The e-resources should be synchronized with the e-learning platforms to improve on accessibility and usability (Ngozi, Onoimiuko & Ebere, 2020). However, consortiums in their bid to provide the resources are cautioned to be concerned with copyright and fair use of the e-resources in cases of downloads and digitization in case of print collections. This caution can be observed through training e-resources users both students and lecturers (Hackett, 2020).



Research Objectives

The study aimed to evaluate the provision of access to e-resources by CUUL in Covid-19 era from 2020- 2022.

Specific research objectives

1. To find out whether CUUL subscribed to e-resources for members from 2020 to 2022
2. To study the challenges CUUL faced in Covid-19 era when providing sustainable e-resources to member institutions.
3. Examine the opportunities that CUUL exploited during COVI 19 era
4. Assess the strategies CUUL employed to ensure members accessed effective and efficient e-resources during Covid-19 lockdowns.

Research questions

The following research questions guided the study:

- **RQ1.** Did CUUL subscribe to e-resources for the members from 2020 to 2022?
- **RQ2.** What are the Challenges CUUL is facing in Covid-19 era to provide sustainable e-resource to member institutions?
- **RQ3.** Are there opportunities that CUUL observed and exploited in a bid to provide sustainable e-resources to member institutions Covid-19?
- **RQ4.** What strategies did CUUL employ to ensure members accessed effective and efficient e-resources during Covid-19 lockdowns?
- **RQ5.** What strategies helped CUUL to sustain annual subscriptions for the same databases in 2020, 2021 and 2022?

Methods

The study was qualitative in nature. It employed document analysis, observations and the interviews to collect required information among the CUUL Executive Committee Members, Electronic Resources Functional Committee and documents available online. The findings are presented according to the questions asked, coded and categorised according to themes for easy understanding. Using open coding method, segments from responses of key informants were selected and codes of relevant text were formed from the segments. The resulting patterns of similar codes were categorised.

Composition of Key Informants

Key informants were purposely selected from the Executive Committee of CUUL (Excom) and CUUL's E-resources functional committee (FC) due to their critical and complementary but unique

responsibilities with the promotion of awareness, usage, financial resource mobilisation, management and accountability of and for the e-resources. They included:-

- Chairperson
- Vice chairperson
- Publicity Secretary
- Treasurer
- Representative Eastern Region
- Representative Western Region
- Administrator
- Representative Northern Region
- Chairperson of E-resources Functional Committee
- Member of E-resources Functional Committee

Presentation and Discussion of Findings

The study findings are presented in prose as well as tabulated indicating the research question, the selected segments from responses from key-informants, the codes that accrued from the responses and the theme categories.

Table 1 shows that coordination and meetings concerning e-resources subscription processing shifted from physical meetings to virtual online meeting settings among CUUL institutions because of the lockdown measures that resulted from the Covid-19 pandemic.

The decision-making process in CUUL did not change due to the Covid-19 pandemic. As was the case prior to the Covid-19 pandemic, the process remained consultative in nature among all stakeholders and was guided by user needs as indicated and assessed with the help of usage statistics. However, the only thing that fundamentally changed was the mode of communication among stakeholder, which then became virtual as physical movement was not possible due to the lockdown measures.

Table 2 documents the challenges faced with the coordination of e-resources decision-making process and subscription. The sudden change of communication channels that became virtual rather than physical interactions complicated CUUL-stakeholder communication because it was hard to move away from a majorly oral tradition. This impeded timely user needs assessment. As a result, there were delays in arriving at e-resources subscription decisions.

Furthermore, the lockdown measures against Covid-19 spread resulted in a steep learning curve for information and digital literacy among users whereby any support given to users had to be done via online webinars for remote access to e-resources. Prior to this library patrons could simply walk to the libraries of their respective CUUL member institutions for physical support and training.

However, the rest of the challenges were related to dwindling funding for e-resource subscriptions among CUUL member institutions, which was a manifestation of the worsening of an already existing, known and long-standing challenge prior to Covid-19 pandemic.



The Covid-19 pandemic brought about some opportunities for CUUL as indicated in table 3. It positioned CUUL and academic libraries as an indispensable partner in e-learning that became the “new normal” as users became more aware and appreciative of the place of online education and therefore the usage of e-resources platforms. It also resulted in new memberships, which highlighted an opportunity for consolidation of the CUUL partnership.

In table 4, recommendations for improvement of e-resources provision among CUUL member institutions were highlighted. These included strategies to better manage publisher agreements by having longer agreements that could possibly outlast emergency periods such as the nearly two-year lockdown. Further, it was recommended that there is need to maintain the e-resources remote access platforms, which proved indispensable and the need to strengthen the financial base in order to ascertain alternative and sustainable funding for e-resources subscriptions fees.

Table 1. Virtual environment means of communication for e-resources subscription in 2020-2022

How was e-resources subscription decisions made before Covid-19?	How did the e-resources subscription decisions change during Covid-19?	Code	Category
E-resources Committee held meetings to assess the resources and bargain with the publishers		meetings	Virtual communications
That invoices still be sent to member institutions to effect subscription payments	there was no impactful change to say	Invoicing members	Virtual communications
The decision was based on the member institution needs and the available financial resources/budget	As per now, the major determinant is available funds, but not compromising on the needs of the members	Needs Funds	Funding
The e-resources committee agreed upon which subscriptions to pay in consultation with stakeholders	It didn't change much	Agreed upon	User participation
By E-resources FC convening physical meetings and their decisions approved by the Excom.	By E-resources FC calling for online meetings from time to time to discuss the trends, relevant databases to be subscribed to , how to forge government support, extra during the trying times of the pandemic. These decisions could still await approval by the Executive committee.	Meetings	Virtual communications
Through institution consultation by e-resource committee and basing on national user statistics	The committee only consider user statistics and cost fairness	Consultation User statistics	User participation
e-resources subscription decisions were made in Physical meetings by executive committee and implemented by e-resources technical team	Online	Meetings	Virtual communications



Table 2. Challenges of coordinating and managing e-resources decision-making processes in the Covid-19 pandemic

What challenges did you encounter during annual e-resources subscription decision making? AND How did Covid-19 affect the provision of e-resources to CUUL members? AND Which challenges did you face in Covid-19 era in the process of following up and receiving member subscription payments as well as acquisition of annual renewal of licenses for e-resources?	Code	Category	Follow-up question for interview	How did you address the challenges that resulted from the Covid-19 pandemic?	Code	Category
Some databases are too expensive, most member institutions have not paid their annual e-resources subscription	Expensive databases Decrease in subscriptions	Prices Funding	How have the prices of e-resources changed after the onset of the Covid-19 pandemic?	held a bargaining meeting with the publishers, dropped some databases and have sent reminders to members	Dropped databases Payment reminders	Funding
Educational institutions budgets were cut since there was no studying for some time so realizing payments was a challenge to CUUL	Budgets were cut Realizing payments	Funding	Were the payments slower than they were prior to Covid-19?	we still sent out invoices and encouraged member institutions to pay, we held discussions with the e-resources vendors to cut subscriptions fee but still there was no convincing effect	Encouraged members to pay Discussions with vendors to cut fees	Funding

What challenges did you encounter during annual e-resources subscription decision making? AND How did Covid-19 affect the provision of e-resources to CUUL members? AND Which challenges did you face in Covid-19 era in the process of following up and receiving member subscription payments as well as acquisition of annual renewal of licenses for e-resources?	Code	Category	Follow-up question for interview	How did you address the challenges that resulted from the Covid-19 pandemic?	Code	Category
<p>The major challenge is subscription to resources that meets the needs of all member institutions. So, most times we end up subscribing to multidisciplinary collections like ProQuest E-book Central and EBSCO Host.</p> <p>Secondly, the dwindling finances due to few member institutions fully paying for the subscriptions. This causes delay in renewing the subscriptions with the publishers</p>	<p>Meeting all user needs</p> <p>Fewer members fully paid Delay</p>	<p>User needs</p> <p>Funding Licensing</p>	<p>How the user did needs change due to Covid-19?</p>	<p>Currently as CUUL, we subscribe to resources that are critical to the needs of the members. We've had to cut down on the budget and renegotiate with the publishers for discounts</p>	<p>Critical needs Renegotiate discounts</p>	<p>User needs Funding</p>
<p>Funds were limited due to the lockdown</p>	<p>Limited funding</p>	<p>Funding</p>		<p>1. The e-resources committee negotiated with some publishers</p> <p>2. Some journals were dropped as a result</p>	<p>Dropped journals Prioritization Negotiations</p>	<p>Funding</p>



What challenges did you encounter during annual e-resources subscription decision making? AND How did Covid-19 affect the provision of e-resources to CUUL members? AND Which challenges did you face in Covid-19 era in the process of following up and receiving member subscription payments as well as acquisition of annual renewal of licenses for e-resources?	Code	Category	Follow-up question for interview	How did you address the challenges that resulted from the Covid-19 pandemic?	Code	Category
Shortage of monies to pay for the databases being decided from the online meetings.	Shortage of funding	Funding		By requesting the publishers to extend the period from which we have been paying (December) to next year (between January and March 2022).	Extension of payment deadlines Negotiation with publishers	Funding
Failure of face to face interaction with member institutions and submission of their views about e-resource decisions in case asked for.	Failed member participation in decision-making	User participation		The decision was taken on national statistical use.	Usage statistics	User needs
Network problems that affect effective attendance of meetings.	Network problems	Virtual meetings		Moving from place to place searching for internet network	Searching for network	Virtual communications

<p>What challenges did you encounter during annual e-resources subscription decision making?</p> <p>AND</p> <p>How did Covid-19 affect the provision of e-resources to CUUL members?</p> <p>AND</p> <p>Which challenges did you face in Covid-19 era in the process of following up and receiving member subscription payments as well as acquisition of annual renewal of licenses for e-resources?</p>	Code	Category	Follow-up question for interview	How did you address the challenges that resulted from the Covid-19 pandemic?	Code	Category
<p>Many who had not embraced remote access faced serious challenges, they had to quickly learn new trends and get trained to fit in this constantly evolving situation.</p>	<p>Had not embraced remote access</p>	<p>E-library services</p>		<p>With the help of a zoom account procured by CUUL, I was able to hold online trainings for all institutions that expressed interest and the overall outcome was that they quickly grasped and ably used the Remote access service available through CUUL e-resources</p>		



What challenges did you encounter during annual e-resources subscription decision making? AND How did Covid-19 affect the provision of e-resources to CUUL members? AND Which challenges did you face in Covid-19 era in the process of following up and receiving member subscription payments as well as acquisition of annual renewal of licenses for e-resources?	Code	Category	Follow-up question for interview	How did you address the challenges that resulted from the Covid-19 pandemic?	Code	Category
It has reduced the budget for e-resources; this made it hard to pay for most of the core data bases	Hard to pay for databases	Funding		Still trying to advocate for more funding	More funding	Funding
<p>There were so many excuses because of the situation. Invoices would expire and you would have to keep on redrafting new ones. Some members did not make any single payment</p> <p>Member subscriptions would come in slowly due to the situation which was not normal</p> <p>We had running Agreement and Licenses which were seriously affected due to pandemic</p>	<p>Excuses Invoices would expire</p> <p>Did not make any payment Subscriptions would come in slowly Licenses were affected</p>	<p>Funding</p> <p>Licensing</p>		<p>I would always send emails and WhatsApp messages to remind them on the payment</p> <p>We had to have negotiation meetings with publishers so as to keep the ball rolling. And with this we requested for discounts with reference to what is in the licenses.</p>	Funding	

What challenges did you encounter during annual e-resources subscription decision making? AND How did Covid-19 affect the provision of e-resources to CUUL members? AND Which challenges did you face in Covid-19 era in the process of following up and receiving member subscription payments as well as acquisition of annual renewal of licenses for e-resources?	Code	Category	Follow-up question for interview	How did you address the challenges that resulted from the Covid-19 pandemic?	Code	Category
Many who had not embraced remote access faced serious challenges, they had to quickly learn new trends and get trained to fit in this constantly evolving situation.	Had to quickly learn	Organisational change				Remote access
The institution has reduced the budget for e-resources; this made it hard to pay for most of the core data bases	Hard to pay	Funding				



Table 3. E-resources opportunities resulting from the Covid-19 pandemic

Which opportunities did Covid-19 bring to CUUL in as far as e-resources is concerned?	Code	Category
It promoted the use of e-resources since the only available mode of learning was electronic trainings through webinars in a bid to promote e-resources access remotely.	Promoted use	Usage
The Covid19 pandemic positioned CUUL as a strategic partner in promotion of e-learning through provision of vital information resources. As we all know, physical libraries were closed, but thankfully for our member institutions, the online library was never "closed". The Covid19 pandemic really justified why institutions should continue to subscribe for e-resources.	Promotion of e-learning Justified e-resources	E-library services
The Association saved money, for example there were no physical meetings and transport refunds	No physical meetings	Organizational change
New institutions have joined CUUL as the only avenue upon which online studies could be effected.	New institutions	Expansion
CUUL E-resources became vital as most institutions could not provide physical library services to support teaching and learning processes.	E-resources became vital	E-library services
communicated the value of e-resources to stakeholders	Value of e-resources	E-library services
It provided the opportunity for CUUL members to appreciate the use of remote platforms because it was the way to go. Platforms like RemoteXs, MyLOFT and others have been utilised	Appreciate use of remote systems	E-library services
It drastically changed the overall rules of play, everyone had to adapt to an online way of doing things and it was a plus since we reached more members as opposed to when physical meetings and trainings were the normal.	Adapt to an online way	E-library services
Users are now appreciating e-resources more than before	Appreciating e-resources	E-library services

Table 4. Table 4 Recommendations for e-resources provision

What recommendations can you give to the Consortium for e-resources sustainability during a pandemic?	Code	Category
<ul style="list-style-type: none"> It should sign 3 to 5 years' service contracts with the publishers in order to avoid yearly increase and should also make member institutions sign MOUs. A binding document will stop institutions from defaulting 	Avoid yearly increase Institutions defaulting	Funding
<ul style="list-style-type: none"> Seek funding from government 	Seek funding	Funding
<ul style="list-style-type: none"> As the effect of Covid19 continues to bite in the economy, there's need to seek funding support from willing partners like the Government of Uganda and other development agencies. 	Seek funding support partners	Funding
<ul style="list-style-type: none"> Use more open access journals than subscribe to highly priced journals and databases 	Open access	Access
<ul style="list-style-type: none"> Need to have the government to settle the E-resources bill and more marketing to have more members on board. 	E-resources bill More members	Funding
<ul style="list-style-type: none"> More marketing of e-resources to new member institutions, inclusion of packages for lower levels like secondary schools which were offering online teaching 	Marketing to new member institutions	Funding
<ul style="list-style-type: none"> Strengthen the financial base and increase the number of relevant databases subscribed for. 	Financial base	Funding
<ul style="list-style-type: none"> Remote Access service through CUUL needs to be maintained as part of the overall e-resource service by CUUL. Do more virtual training to reach out to those yet onboard. Create a MOOC platform and conduct training via a Moodle like platform regularly. 	Remote access	Access
<ul style="list-style-type: none"> To lobby from the government to support the consortium as far as provision of electronic resources are concerned 	Lobby support	Funding
<ul style="list-style-type: none"> I would suggest CUUL to use the method of Public universities to pay the 80% and then the 20% per publisher is paid by private and affiliates. Because from my experience government institutions have been able to make their payment which is a different case for private and affiliate who are still struggling. 	Able to make payment	Funding



6.6. How many members paid fully or partly for e-resources? Fill the table below:-

Table 5: Member Payment Statistics

	2019		2020		2021		2022	
Members	Fully	Partly	Fully	Partly	Fully	Partly	Fully	Partly
Public Institutions	5	2	7	0	8	0	4	1
Private Institutions	12	2	9	1	10	2	2	
Affiliates	9	1	12	1	7	2	5	1
Total	26	5	28	2	25	4	11	1

The table above shows that by March 2022, fewer than usual member institutions had paid subscription fees for 2022 that should have been paid to publishers by the end of 2021.

Interpretation and discussion of findings

The principles which guided e-resources' subscription decisions of CUUL, before and after the onset of the Covid-19 pandemic, remained as needs-based, user informed and affordability. The E-resources FC has remained in charge of gathering user input. However, the Covid-19 pandemic was the catalyst for the noticeable change from physical to virtual mode of meetings and deliberations by members of the e-resources FC, CUUL executive and member institutions.

Access to e-resources

The findings showed that given the lockdowns, physical access to libraries in CUUL member institutions users had to be served remotely. Therefore, remote access to subscription-based e-resources was highlighted. It also highlighted the value of open access e-resources, which were relatively easier to access by researchers at CUUL institutions.

Funding and licensing of e-resources databases

Publishers increased license fees for e-resource databases in Covid-19 era. This tremendously added pressure on an already affected precarious situation at CUUL institutions. Given that there were national and institutional budget cuts in order to stem the effects of Covid-19, it was difficult for institutions to honour their commitments of contributions in the form of their membership subscriptions. Despite continuous reminders, institutional payments were delayed. Therefore, CUUL delayed making payments for e-resources databases. Whereas, CUUL's e-resources

marketing resulted in new institutional membership registrations due to the fresh appreciation for e-resources, the e-resources bill grew even higher than previously. The funding for e-resources was worsened by the Covid-19 pandemic. Although by the end of the 2021, CUUL should have paid license fees for e-resources access for 2022. However, the member payment statistics table showed that by March 2022 very few CUUL members had honoured their commitments to payment. This delay could further explain the effect of the Covid-19 pandemic on e-resources budgets of CUUL institutions. One respondent said “government institutions have been able to make their payment which is a different case for private and affiliate who are still struggling.” This further highlighted the fact that different CUUL institutions were affected financially by the Covid-19 pandemic in different ways. According to the findings, it is clear that embracing open access resources, negotiation for longer licensing period and lobbying for funding from well-wishers and government were recommended as strategies to sustain e-resources. These findings are not far from suggestions given by Grahe, Cuccolo, Leighton, & Cramblet Alvarez, (2020) and UNESCO (2021).

Catalyst for E-Library Services

Usage of e-resources notably increased due to the renewed appreciation for e-resources. As a result of the realization that physical access to libraries was uncertain during the different lockdown phases, there was proactivity for institutions to improve their Information and Communication Technology (ICT) capabilities in order to address access issues, despite the challenges that came with this process. The effect of this was subsequently noticeable by the usage of e-resources. Provision of e-resources increasingly showed the value and contribution of e-library services to alleviate the effects of Covid-19 pandemic on teaching and learning. The library service, which was once seen as optional by some in society, was now more visible than before as most users. Therefore, there was a paradigm shift to e-resources as users appreciated them more than ever before. This necessitated expansion, change and growth in keeping with the fifth law of library science (Majumdar, 2018). Furthermore, due to the central role of e-resources, library services were highlighted as key indispensable in the teaching, learning and research processes.

Users and User Participation

Users remained at the center of CUUL’s focus in the provision of e-resources during the uncertain times of the Covid-19 pandemic. Amidst ICT challenges, arrangements were made to virtually maintain the collaboration and communications with member institutions with the aim of assessing user needs and feedback in the selection and subscription processes.



Conclusion

After the emergence of the Covid-19 pandemic, two aspects clearly happened with CUUL: namely, organisational change and the steadfastness with focus on funding. Online meetings, sending electronic invoices for subscriptions among members. This demonstrated the necessary organisational change that had to take place in order for CUUL to survive. However, CUUL remained with a focus on mobilisation for funding for e-resources in the challenging financial times that it faced. Responses from the questionnaire revealed that there were three layers within the e-resources subscription decision-making process in the Consortium of Uganda University Libraries (CUUL). These were user (member institutions), e-resources' Functional Committee (FC) and the CUUL executive layers. In the pre-Covid-19 pandemic era, the e-resources decision process was characterized by physical interactions between librarians and users of e-resources at member institutions. Physical brainstorming sessions by the e-resources FC, which were informed by identified user needs, usage statistics, funding availability and bargained price offers with publishers resulted in recommendations that required the approval of the CUUL executive committee for implementation of the subscription decisions. The implementation was initiated by invoicing CUUL member institutions.

However, due to institutional lockdown that was necessary to curb the spread of Covid-19, the physical meetings of the e-resources' FC were not possible, hence the introduction of virtual meetings. In keeping with the rest of the guiding principles of the e-resources subscription process, all the steps of the decision-making process were undertaken, however, with the change from physical to virtual communications.

Members of the CUUL executive and the E-resources FC embraced communications in the virtual environment in order to sustain the central role of coordination and management of e-resources access among member institutions.

The role of e-resources in Covid-19 pandemic and beyond cannot be overstated. It is obvious that the pandemic simply highlighted what institutions already knew was important. The increasing prices by publishers of e-resources and ICT challenges are rather an expression of the challenges of the times that CUUL and similar institutions should not shy away from addressing because they expose the underlying inhibitors of access and usage of information.

References

1. Andrews, N., Stowe, J., Kirsebom, F., Toffa, S., Rickeard, T., Gallagher, E., ... & Lopez Bernal, J. (2022). Covid-19 vaccine effectiveness against the Omicron (B. 1.1. 529) variant. *New England Journal of Medicine*, 386(16), 1532-1546.
2. Arapasopo, E. A., & Adekoya, C. O. (n.d.). *Library leadership in Nigeria and Covid-19 pandemic*. <https://doi.org/10.1108/IDD-03-2021-0027>
3. Asif M, Singh K. K., Trends, opportunities and scope of libraries during Covid-19 pandemic. *IP Indian J Libr Sci Inf Technol* 2020;5 (1):24-27
4. Cox, A. (2022). Factors shaping future use and design of academic library space Factors shaping future use and design of academic library space. *Academic Librarianship*, 20. <https://doi.org/10.1080/13614533.2022.2039244>



5. Grahe, J. E., Cuccolo, K., Leighton, D. C., & Cramblet Alvarez, L. D. (2020). Open Science Promotes Diverse, Just, and Sustainable Research and Educational Outcomes. *Psychology Learning & Teaching*, 2020(1), 5–20. <https://doi.org/10.1177/1475725719869164>
6. Hackett T. (2020). E-Resources during Covid-19: copyright and licensing issues, <https://web.aflia.net/e-resources-during-Covid-19-copyright-and-licensing-issues/>
7. Hara, H., & Kawaguchi, D. (2022). *A Positive Outcome of Covid-19? The Effects of Work from Home on Gender Attitudes and Household Production* (No. 22-E-2). Bank of Japan.
8. Holland, B. J. (2021). *Libraries in the Midst of the Covid-19 Pandemic*. 2019, 115–151. <https://doi.org/10.4018/978-1-7998-6449-3.ch007>
9. Kamińska, A. M., Opaliński, Ł., & Wycislik, Ł. (2022). The Landscapes of Sustainability in the Library and Information Science: Systematic Literature Review. *Sustainability (Switzerland)*, 14(1). <https://doi.org/10.3390/su14010441>
10. Kuteesa, H. N. (2016). *The Role the Consortium of Uganda University Libraries (CUUL) can play in the Implementation of Successful Institutional Repositories in its Member Institutions in the Central Region of Uganda*. Retrieved from <https://repository.up.ac.za/handle/2263/62106>
11. Laborde, D., Martin, W., & Vos, R. (2021). *Impacts of Covid-19 on global poverty, food security, and diets: Insights from global model scenario analysis*. <https://doi.org/10.1111/agec.12624>
12. Machovec, G. (2020). Pandemic Impacts on Library Consortia and Their Sustainability. *Journal of Library Administration*, 60(5), 543–549. <https://doi.org/10.1080/01930826.2020.1760558>
13. Majumdar, S. (2018). Deep collaboration in libraries and the fifth law of library science. *Library Herald*, 56(3), 302–317.
14. Mayende Kiwelu, J. E. (2017). Access to quality researched information for development through academic libraries. *The Uganda Information Bulletin*, 1(2), 7–8.
15. Nalumaga, R. E., & Byamugisha, H. M. (2021). *Covid-19 Pandemic and Virtual Information Services*. 94–114. <https://doi.org/10.4018/978-1-7998-6449-3.ch006>
16. Ngozi, O., Onoimiuko, C. & Ebere, A. E. (2020). Online Resources for E-Learning in Educational Institutions: A Case of Covid-19 Era. *International Journal of Research and Review (Ijrrjournal.Com)*, 7(10), 10.
17. Ojukwu Njideka, & Charlotte, N. (2017). Sustainability Strategies for Electronic Information Resource (EIR) Services in University Libraries (UL) of North Central Nigeria. In *Proceedings of ACM Conference, Toronto University, Canada*, 1–9 pages.
18. Owusu-Ansah, S., & van der Walt, T. (2021). *Responding to Covid-19 Pandemic: Applying the Dynamic Capability Framework in University Libraries*. (2020), 56–74. <https://doi.org/10.4018/978-1-7998-6449-3.ch004>
19. UNESCO. (2021). *SCIENCE UNESCO Recommendation on Open Science*.
20. Zareef, M., & Ahmad, P. (2021). The Impact of Covid-19 on University Library Services: A Systematic Literature Review. *Library Philosophy and Practice*, 2021, 1–13.

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Digital preservation Strategies in the Federal University Libraries in the North West Nigeria

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Abstract. Digital preservation involves those activities that are carried out in libraries to protect their information resources that are born digital or those converted from analogue to digital form from loss and deterioration and to ensure long-term access to it despite the current changes in technology. This paper investigates the types of information resources digitized, the strategies used by the federal university libraries in North West Nigeria to preserve them so that they will remain accessible for use and reuse and the challenges facing it. Continuous access to digital information remain difficult even after they are preserved. A qualitative research method was adopted for the study; a purposive sampling technique was adopted and a structured interview was the instrument used to collect data for the study. The responses from the respondents were analyzed descriptively using tables. The result of the findings showed that theses, dissertations, preprint and post print journals are the common information resources digitized and preserved while refreshing and technology preservation are some of the strategies used, external hard drive is the storage media used. Erratic power is one of the challenges facing digital preservation. Based on the findings, the study concluded that digital preservation of information resources is carried out in the digitization unit of the libraries studied. Digitized resources are preserved in external hard discs, servers and most importantly in Institutional repositories. The paper recommended among others sensitization of Academic staff on the importance of uploading; normalization strategy should be adopted, proper maintenance of storage media should be adopted, use of cloud storage and adequate fund should be provided and policy should be developed

Keywords: Digital, Digitization, Information, Preservation, Resources and Strategies

Introduction

The emergence of Information and Communication Technology (ICT) has given birth to records that exist in digital forms and it has also changed the way information resources are preserved, accessed and used in the university libraries. Information is not only stored in large amount but also for quick access, use and retrieval for the present, future and long term reuse. The rate at which digital information resources is generated and created keeps increasing daily in archives, organizations, libraries, institutions and government agencies and due to the increase their management becomes a problem in the area of access, storage preservation and retrieval for use.

Digital preservation is a set of processes and activities that are carried out to ensure that information in the library stored in digital formats remain accessible for as long as possible. These can only be achieved through strategies such as digital reformatting, data migration, refreshing, emulation, replication, normalization, technology preservation and metadata attachment. These strategies of preservation are taken due to the rapid and constant changes in software, hardware and media deterioration such as DVDs and CDs, preservation of digital information need constant intervention and attention due to the rapid changes in technology which is a stumbling block for preserving digital information. Digital preservation involves activities that stabilize and protect digital resources in forms which are retrievable, readable and useable over time, it could be seen as the conservation of all born digital materials such as email, theses, projects, dissertations, websites and electronic files or those converted from analogue to digital. Digital preservation refers to all the actions needed to maintain access to digital materials beyond the limits of media failure or technological change. The reason for digital preservation in the library is to ensure that information resources are preserved for future generation access, use and re-use, it therefore becomes necessary to find a way of preserving them so that their originality is not lost.

Digital preservation consists of the strategies aimed at ensuring the continued accessibility of digital materials; it involves finding ways to re-present what was originally presented to users by a combination of software and hardware tools acting on data. To achieve this requires digital objects to be understood and managed at four levels: as physical phenomena; as logical encodings; as conceptual objects that have meaning to humans; and as assets of essential elements that must be preserved in order to offer future users the essence of the object. Digital preservation strategies are methods used to preserve the integrity of digital objects so that they can easily be retrieved and used continuously even with the changing technology (Mathew & Sambo, 2014). Digital preservation is a strategic and continuous process of keeping and maintaining the accessibility, authenticity and longevity of digital records. It involves the identification of resources to be preserved, long-term storage and protection of records against myriad threats (Anyak & Echedom, 2018). According to UNESCO (2011), the most significant threats to digital continuity concern loss of the means of access.

Digital preservation is important because it protects information resources against deterioration, prolong its usability, it makes information resources survive life time, allows worldwide accessibility of information and it serves as a backup.



Information resources in the libraries includes online data base, encyclopedia, textbooks, e-text books, journals, theses, dissertations, maps, reports, documents and conference proceedings that are used to promote teaching learning and research . Digital information resources are information in form of text, images, graphics, videos and audio which can be accessed through the use of computer. Nwabueze and Oghentega (2015) stated that digital information resources are information in softcopy that can be accessible through the use of computer and corresponding ICT tools.

Digitization in the library regardless the type of library is the process of converting information resources (local contents) includes theses, conference proceedings, inaugural lecture recordings and pictures from analogue to digital form. Digitisation is the conversion of printed materials into electronic format, protect them and enable access to many users at the same time. Parviainen et al, (2017) affirm that digitisation is the conversion of analogue information resources such as text, images, and video into a digital form. Digitization offers imperative benefits for institutions, it contributes to the conservation and preservation of heritage and scientific resources, it creates new educational opportunities; inspire tourism; and provides ways of refining access by the citizen to their patrimony. Nur et al (2018), affirm that the likely benefit of digitisation to organisations is that informational materials can be accessed from any location, capacity to transfer images within structured workflow, assisting processing, better integration, save space and increase productivity”.

Digitization regardless of the type of library is the process of converting information resources (local contents) includes theses, conference proceedings, inaugural lecture recordings and pictures from analogue to digital form. Parviainen et al, (2017) affirm that digitisation is the conversion of analogue information resources such as text, images, and video into a digital form. Digitisation offers imperative benefits for institutions, it contributes to the conservation and preservation of scientific resources, and it creates new educational opportunities; inspire tourism; and provides ways of refining access. The process of digitization involve te submission of materials in to the library from various departments withinthe institution, these include theses, dissertation, projects, inaugural lectures and conference proceedings.

Conversion: conversion takes place after the collected information materials are checked and certified ready for conversion. Library staff proceeds to convert the print resources through scanning.

Editing: Editing entails image enhancement processes such as cropping, resizing, rotating, etc. Scanned documents are saved in flash drives and further transferred to other computer systems where they are subjected to editing. The library staff uses the GIMP software to edit scanned documents.

Metadata: digitized materials are assigned metadata to facilitate quick access and retrieval, metadata describes other data in that it makes finding necessary information easier.

.Storage: When documents have been certified web ready, they are saved in folders with appropriate file naming conventions and stored in the computer hard drive or external storage(such as external hard disk and flash drives) for upload to the institutional repository

Statement of the Problem

The role of the university library is to acquire process, store, preserve and disseminate information resources in print and non-print format to support teaching, learning and research for present and future use. The advent of ICT has changed the way information resources are preserved, accessed and retrieved in the world. Digitisation was introduced into the libraries to preserve, allow continuous access, use, re-use, ease retrieval and to protect records from deterioration. However, it has been difficult to enable continuous access to digital resources in many Nigerian university libraries which may be due to certain management and infrastructural challenges. A study by Atanda (2017) discovered that libraries in Nigeria are faced with the challenge of lack of stable strategies in the preservation of their digital materials Gbaje (2011) stated that digital information will cease to be available without proper management and intervention. This situation presents an ineffective and inefficient digital preservation system leading to limited access, loss of information and delay in accessing information, and it is against this backdrop that this study will be carried out to find out why it so in federal university libraries in northwest Nigeria.

The Objectives of the Study

- To identify the types of information resources digitized and preserved in the Federal University
- Libraries in North West Nigeria
- To establish the strategies use to ensure continuous access to the digitized resources in the Federal University Libraries in North West Nigeria
- To find out the types of storage media used to preserve digital information resources in the Federal University Libraries in North West Nigeria.
- To find out the challenges facing digital preservation in the Federal University Libraries in North West Nigeria.
- To propose recommendation to guide digital preservation strategy in the Federal University Libraries in North West Nigeria.

Literature Review

Okeke et al (2015) affirmed that Academic libraries are digitizing their materials because they know the importance and continuing value of library resources for learning, teaching, research, scholarship, documentation, and public accountability. Senturk (2014) in a paper titled “effective digitisation in archives in Turkey” submitted that one of the methods used by archivists to protect and ensure the usage of their records is through digitisation because it provides maximum usage and protection of the records. The paper stated that digitisation should be carried out by experts and also should be preplanned to ensure successful implementation.



Omer (2017) stated that electronic theses, dissertation and books are some of the most frequently preserved and used items in the institutional repository in the university of Khartoum library.

Nneji (2018) stated that the reasons for digitisation in the library is for preserving endangered collections and allow wider access to the research output of the university community, provide timely information and promote interlibrary cooperation. Council of Canadian Academics (2015) stated that some factors that contribute to the success of memory institutions in the present digital age were the enactment of digital policies, effective leadership, human resources capabilities, collaborative culture, management support, technical standards and copyright intellectual property.

Seifi et al (2015) stated that refreshment is a strategy where information is copied from deteriorating, or outdated storage media such as CD ROM or DVD to a newer one, it is carried out to avoid loss of information. Bhatt (2018) suggested that continuous innovation and research efforts in current storage technologies are required to lessen the impact of storage shortage in digital libraries and to allow emerging storage technologies to advance further.

Data is stored in the cloud in known locations with a specific community of consumers who share the same concerns. According to Adu (2015), this may be operated by one or more of the organisations in the community, a third party or some combination of them. For many organisations the cloud represents an attractive mode of preserving their digital records. According to Thibodaux (2014) opportunities for using the cloud are as follows:

- Cost savings.
- Reduced pressure on ICT departments to provide the ever increasing storage capacity.
- Access to services outside the normal office environments.
- Better collaboration with geographically dispersed users.
- Potential opportunities for greater automation of record keeping as part of business.
- More time for ICT personnel to devote to other issues where server maintenance and related tasks are lessened.

Emulation is the process of replicating the functionality of an obsolete system; it is an approach that uses one computer device or software programme to imitate the behaviour of another device to obtain the same results. Emulation is considered a better technique for preserving digital objects that are complex, since some of their information maybe lost during migration to new formats. Adu (2015) also argues that, “emulation operates on the environment of an object, trying to simulate the original environment that the object needs”. Though emulation delivers the most authentic possible rendition of a digital object, critics argue that it can be a very complex strategy to implement since it requires not only the preservation of the original objects but also detailed knowledge of the original systems. According to Jimada (2013) replication involves creating duplicate copies of data on one or more system, data that exist as a single copy in one location is vulnerable to technology failure, alteration and environmental disaster. Digital data is more likely to survive if it is replicated in several locations.

The preservation strategies stated by UNESCO in their charter (2003), for preservation of digital materials in data carriers/ storage media are:

- Let the institution, government, organization, individual etc. decide on the format that will be accepted for preservation. If possibly, negotiate with producers to use widely accepted standards and to provide adequate documentation
- . Store media / data carriers in appropriate conditions
- Copy data to more stable media and make backup copies, using good quality media
- Store data securely, including offsite storage for backup if possible
- Check data for errors regularly
- . Establish a data refresh regime suited to the life of the media
- Record information that will be needed to provide short term access – the identity of the material, access requirements, passwords
- Retain necessary access equipment and software, maintaining hardware and protecting software within license arrangements
- Plan to pass the digital materials to another suitable care taker, that is, liaising with other institutions who have similar interest or responsibilities or experience in preserving or managing the kind of materials that you are interested in and seek guidance and mentoring
- Alternatively, find ways to adequately reflect the material in a stable non digital form (such as printing out).

Migration is the transferring of data to newer system environments and may include conversion of resources from one file format to another or from one old operating system to another so that the resources remains fully accessible and functional. It is one of the mostly used approaches as it focuses on files and seeks to keep digital objects on current and new media formats. And it is useful whenever an operating environment, hardware and software change (Gbaje 2013, Lowry and Nduna 2015).

Metadata is information that characterizes another information resource by listing its attributes especially for purposes of identifying, retrieving, managing and preserving that resource. Accessibility and usability of content in the digital preservation environment are enhanced through the creation and management of preservation metadata (Corrado and Moulaison 2014). According to Adu (2015) Preservation metadata is categories as follows:

- Technical metadata- which gives a description of the physical attributes of digital objects particularly for preservation and rendering.
- Management or administrative metadata- which establishes the authenticity, rights, ownership and provenance of the digital object.
- Discovery metadata- which helps to locate, access and use digital content in the long term.

Technological obsolescence is caused by continuous upgrade in operating system, programming language application and storage media due to commercial interest. The devices, software and formats used to store information are often designed for obsolescence; corporations that design these hardware and software design them with a shelf life in order to ensure the sales of latest upgrades and model (Reyes, 2013)



Onyinye (2013) stated that absence of legislation ,policy, standards and strategy is a preservation challenge in Africa because legislators and policies makers are not aware or conversant with requirements for digital preservation , they make laws that inadequately cover or completely ignore digital preservation issues,

Mesanye & Ngulube (2019) stated that Academic libraries in South Africa are affected by changes in the digital environment, lack of institutional commitment and participation, lack of established digital preservation standards, policies and processes, inadequate resources, lack of skills and training, inadequate collaboration efforts and partnership, lack of funding and technological obsolescence are some of challenges faced in an effort to preserve their digital content. The study proposed a conceptual model for preservation of digital resources in the academic libraries studied mapped with the open archival information system reference model. Pandey & Kumar (2020) revealed that most digitisation projects face obstacles such as inadequate funding, lack of national digital preservation policy, absence of technical infrastructures for digitisation project, lack of a national standard for digital preservation and absence of technical infrastructure.

The devices, software and formats used to store information are often designed for obsolescence; corporations that design these hardware and software design them with a shelf life in order to ensure the sales of latest upgrades and models (Reyes 2013). Technological obsolescence poses the greatest risk to digital records as the rapid pace of technology (Baker, 2014).This could be as a result of constant changes in hardware and software.

Anyagugu (2014) stated that inadequate funding remains a crippling problem because the cost of making new purchases of digital technology and its maintenance is a drawback for those struggling to stay with budget allocations. Joseph, Wang & Ondukariuki (2018) confirmed that the obstacles facing digitisation are; inadequate budget allocation needed to purchase ICT equipment's and training of personnel involved in the digitisation project, most of the projects run behind schedule, outdated ICT equipment (hardware and the software which could lead to poor image capture), lack of technical expertise and bureaucracy.

UNESCO (2003) stated the following measures to be used for preserving digital collection which is supported by Nworie (2019) include:

- Placing the digital materials in a safe place like in racks, vaults, shelves etc.
- Using structured metadata and other documentation to facilitate access
- Protecting the integrity and identity of data
- Choosing appropriate means of providing access in the face of technological change by refreshing the documents in the hardware, migration, replication, emulation, transparency, diversity which includes sharing of resources and forming of consortium with other academic institutions, audit, sloth etc.

Management preservation programmes should be put in place to achieve their goals in cost effective, timely, holistic, proactive and accountable ways.

These strategies as strongly believed if they are properly put in place will enable digital materials in the library to survive threats and changes in technological hardware and software.

Furthermore, Gbaje (2011) carried out a study titled, “Digital preservation strategies: a case study of Nigerian national information centre”, and the aim was to find out the digital preservation strategies and structures put in place for the implementation of the strategies adopted. A case study and qualitative methodology was adopted. Data were obtained through semi-structured questionnaire from fifteen (15) staff that were in charge of digitization and digital preservation units of three centres studied. From the findings of the study, migration among others was the most popular digital preservation strategy adopted and no structure was put in place to assess digital objects for preservation action.

Methodology

The qualitative method was adopted for the purpose of this study; the population of the study covered all the seven (7) federal university libraries in North West Nigeria these university only university libraries with digitization units were selected and their total population of was selected and their total population was (768) staff. The subjects of the study were the staff of the digitization unit who were (26) in number and were therefore purposively selected to form the sample for the study. The study is limited to only federal universities in North West and the reason for this is because most of the state universities are located in the rural area. The structured interview was the instruments used to collect data for the study; the data collected was organized, tabulated and discussed thematically.

Results and Discussions

Table 15. Information Resources Digitized and Preserved

Types of Information Resources	Kashim Ibrahim Library Ahmadu Bello University Zaria	Bayero University Library Kano	Abdullahi Fodio Library Usman Dan Fodio University Sokoto	Federal University Library Dutsinma University Library Dutsinma
Thesis	✓	✓	✓	✓
Dissertation	✓	✓	✓	✓
Seminar Papers	✓	X	X	X
Inaugural Lecture	✓	X	X	X
Reports	X	X	X	X
Past Question Papers	X	X	X	✓



Types of Information Resources	Kashim Ibrahim Library Ahmadu Bello University Zaria	Bayero University Library Kano	Abdullahi Fodio Library Usman Dan Fodio University Sokoto	Federal University Library Dutsinma University Library Dutsinma
Preprint and post print Journal	✓	X	✓	X
Undergraduate Project	X	X	X	✓
Conference Proceedings	✓	X	X	X
Arabic and Islamic manuscripts	X	✓	X	X
Key: X = Not Available ✓ = Available				

The findings from table 1 indicated that theses, dissertations are the most popular information resources digitized and preserved in all the university libraries studied. This is because they are the scientific output of research published by the academic community and allowed to be digitized and preserved in line with the policies. In addition to theses and dissertation, Kashim Ibrahim Library incorporate both conference papers seminar papers, preprint and post print journals. It was discovered that Kashim Ibrahim Library in addition to the other resources mentioned preserve central bank annual reports books, agricultural research collection and compendiums. The university library Kano in addition to the theses and dissertation digitize and preserve Arabic manuscripts, while Abdullahi Fodio library incorporate preprint and post print journal as part of their information resources and finally University library Dutsinma incorporate digitized undergraduate project. It was discovered during the interview that none of the university library studied digitize and preserve inaugural lectures. This implies that all the libraries studied that do not digitize and preserve all the different categories of digital information resources will not be able to meet the needs of users in the academic environment. The finding is in agreement with Omer (2017) who stated that electronic theses, dissertations and books are some of the most frequently preserved and used items of repository collections in the university of Khartoum library.

Table 26. Strategies for Preservation

Strategies	Kashim Ibrahim Library Ahmadu Bello University Zaria	Bayero University Library Kano	Abdullahi Fodio Library Usman Dan Fodio University Sokoto	Federal University Library Dutsinma
Refreshing	✓	X	✓	X
Normalization	X	X	X	X
Migration	X	X	✓	X
Emulation	X	X	✓	X
Technology Preservation	✓	✓	X	X
Restoration	✓	X	X	X
Backup System	X	X	X	✓
Encapsulation	✓	X	X	X
Replication	X	X	X	X
Reliance on Standard	X	X	X	X
Key: X = Not Available ✓ = Available				

The findings in table 2 revealed that the most popular preservation strategy adopted for digitization is refreshing and technology preservation. Kashim Ibrahim library and Abdullahi Fodio library adopt refreshing as a strategy for preserving digital information resources, Abdullahi Fodio library in addition to refreshing include emulation and migration as part of their preservation strategies. In addition to refreshing Kashim Ibrahim Library incorporate strategies like restoration and encapsulation while the University Library Dutsinma adopt back up as a strategy for preserving their digital information resources. It was noted that none of the university libraries studied adopted normalization, replication and reliance on standard as a preservation strategy. It was discovered that University library Kano and University library Dutsinma adopted only one preservation strategy and this implies that continuous access to information resources for teaching and research in these libraries will become difficult due to inadequate strategies for preservation.

Table3. Storage Media for preserving Digital Information Resources

Storage Media	Kashim Ibrahim Library Ahmadu Bello University Zaria	Bayero University Library Kano	Abdullahi Fodio Library Usman Dan Fodio University Sokoto	Federal University Library Dutsinma
CDROM	X	✓	X	X
External Hard Drive	X	✓	✓	✓
Computer Hard Disk	X	✓	X	X
DVD	X	X	X	X
Server	X	X	✓	X
network drive of two terabyte	✓	X	X	X
Key: X = Not Available ✓ = Available				

The findings from table 3 revealed that is the common storage used to preserve digital information resources by all the libraries studied is the external hard drive.. Bayero University Library Kano, Abdullahi Fodio Library UDUS and federal University Library Dutsinma incorporate the use of external hard drive while the Bayero University Library Kano include the CD-ROM as part of their storage device and finally Abdullahi Fodio Library incorporate the use of server. It was discovered during the interview that all the university libraries studied have established an institutional repository. This implies that that the university libraries studied are meeting expectations.

Table 47. Challenges Facing Digital Preservation of Information

Challenges	Kashim Ibrahim Library Ahmadu Bello University	Bayero University Library Kano	Abdullahi Fodio Library Usman Dan Fodio University Sokoto	Federal University Library Dutsinma
Lack of support from various departments	X	X	X	✓
Lack of dedicated personnel	✓	X	X	X
Inadequate Skilled personnel	✓	X	✓	X

Challenges	Kashim Ibrahim Library Ahmadu Bello University	Bayero University Library Kano	Abdullahi Fodio Library Usman Dan Fodio University Sokoto	Federal University Library Dutsinma
Poor internet connectivity	✓	X	X	X
Copyright issues	✓	X	X	X
Lack of support from the top management level	X	✓	✓	X
Technological Obsolescence	X	X	X	X
Inadequate Funding	✓	X	X	X
Erratic Power Supply	✓	X	X	✓
Poor maintenance culture	X	X	✓	X
Technophobia	X	X	X	X
Absence Digitization of Policy	X	X	X	X
High Cost of Purchasing Equipment	✓	X	X	X
Bureaucracy	X	X	X	✓
Lack of In-house Training	X	✓	X	X
Poor funding	X	X	✓	X
Poor Digitization policy	X	X	✓	X
Inadequate Technological Equipment	X	✓	X	X
Key: X = Not Available ✓ = Available				

The findings from the study reveal that erratic power supply; inadequate skills by personnel and lack of support for digital preservation from the top management level are the most common challenges facing digital preservation in the libraries studied. University library Dutsinma is faced with the issue of lack of support from various departments in the university in submitting their information resources for preservation in the library, while Kashim Ibrahim Library is faced with the challenge of lack of dedicated personnel to their work and also inadequate skilled personnel. Kashim Ibrahim Library and University Library Dutsinma are faced with inadequate skills on digital preservation by the personnel; in addition Kashim Ibrahim Library is face with poor internet



connectivity, copy right issues, inadequate funding and high cost of purchasing equipment. Abdullahi Fodio library is faced with poor maintenance culture and poor funding and poor digitization policy while University library Dutsinma is faced with the issue of bureaucracy and finally university library Kano is faced with the issue of inadequate technological equipment for digital preservation. The findings are in line with Mesanye & Ngulube (2019) who stated that academic libraries in South Africa are affected by changes in the digital environment, lack of institutional commitment and participation, lack of established digital preservation standards, policies and processes, inadequate resources, lack of skills and training, inadequate collaboration efforts and partnership, lack of funding and technological obsolescence are some of challenges faced in an effort to preserve their digital content.

Conclusion

Based on the findings, the study concluded that digital preservation of information resources is carried out in the digitization unit of the libraries studied but it is not effective and efficient despite the high benefits it has. There is need for varieties of resources to be preserve, more preservation strategies like normalization, adherence to preservation standards should be used, competent staff with skills on digital preservation should be employed, funds should be made available in order to train staff, acquire necessary facilities, provide alternative power supply such as the generation and solar systems . There is need for further studies that will cover more university libraries and other education institutions such as colleges of education and polytechnics in other regions of the country

Recommendations

1. The university libraries should embark on sensitization of academic staff in their various universities on the importance of uploading their publications to the Institutional Repositories.
2. University libraries should adopt normalization as a strategy for preservation and also adhere to the standard for digital preservation strategy.
3. University libraries should adopt refreshing and more preservation strategies for their digital information resources.
4. Regular backup of information resources should be carried out and cloud storage should be adopted in libraries.
5. The top management should support digital preservation activities and also collaborate with the university librarians.
6. Early and proper planning should be done, a strategic plan should be developed, and policy on digitization should be developed and updated regularly.
7. In-house training such as workshops ,and seminars, conferences on digital preservation should be organised by the library; the staff involved in digital preservation should attend conferences , workshops , webinars, and trainings outside the university community to

- acquire more knowledge and digital skills on uploading ,browsing, Metadata ,scanning and to retrain others on their return.
8. Adequate and high capacity scanners, computers and digital camera should be provided.
 9. Adequate, dedicated and competent professionals that are ICT literate should be employed, motivated and trained on digital preservation.
 10. Generators, inverters and solar system should be provided and used in case of power failure.
 11. Adequate funding should be provided for the purchase of technological equipment and infrastructure , management of the preservation activities, maintenance of the infrastructural facilities, training and for staff welfare.
 12. Constant upgrade in technology
 13. University libraries should form consortium with other university libraries to preserve digital information resources.

References

1. Adu, KK. 2015. Framework for digital preservation of electronic government in Ghana. PhD thesis University of South Africa Pretoria
2. Anyaogu, U (2014). Imperative for Storage and preservation of legal information resources in a digital era. *Information and knowledge management*. 4-5 retrieved July 25 2018, from <http://unilib.edu/lpp>
3. Atanda, S.S. (2017). Digital preservation challenges in Nigeria libraries: awareness of challenges of digital preservation in Nigeria libraries – librarians perspective. *Interdisciplinary digital preservation tools and technologies*. 13. doi: 10.4018/979-1-5225-1653-8.ch003
4. Baker, S. C. (2014). Library as a verb: Technological change and the obsolescence of place in Emerging Trans discipline, 17, 25–31. Retrieved September 9, 2014, from <http://www.inform.nu/>
5. Bhat, W. (2018). Long term preservation: digital prospects of current storage technologies in Digital libraries, *Library Hi Tech*
6. Corrado, EM & Moulaison, HL. 2014. *Digital preservation for libraries, archives and museums*. Lanham: Rowman & Littlefield
7. Council of Canadian Academics.(2018).Living in the Digital World : Opportunities for Canada’s Memory Institutions. The Expert Panel on Memory Institutions and the Digital Evolution. Ottawa: Council of Academics.
8. Gbaje, E.S (2011). Digital preservation policy and implementation strategies for National Information Centers in Nigeria a PhD thesis submitted to the faculty of Education Ahmadu Bello University, Zaria
9. Lowry, J & Nduna, V. 2015. Digital records management and preservation. Paper presented at the XXIII ESARICA General Conference, Victoria Falls, 8-12 June.
10. Masenya, M.T., & Ngulube, P.(2019).Factors That Influence Digital Preservation Sustainability in Academic Libraries in South Africa. Retrieved in May 2021 from <http://sajlis.journals.ac.za>
11. Nneji, O.K.(2018). Digitisation of Academic Library Resources: A Case of Study of Donal E.U.Ekong Library Library Philosophy and Practice (e-journal).Retrieved in April 2021 From <http://digitalcommons.unl.edu/libphilprac>
12. Nwabueze, L. & Oghentega, U. (2015). Resources unused by undergraduates of Universities in Delta and Edo States Nigeria. *International Journal of Digital Library and Services*.
13. Nworie, J.C (2019) Assessments of Current Preservation Strategies of Digital Materials in University Libraries in South East Nigeria Library Philosophy and Practice (e-journal) Retrieved in April 23 from <https://digitalcommons.unl.edu/libphilprac/2272>
14. Omer, H.A (2017) Use of the University of Khartoum Institutional Repository by Graduate Students. *DESIDOC Journal of Library and Information Technology* 37(2) 104-108
15. Okeke E. Udem, K.O & Onwuka, B (2015). Digitization of Library Resources in University Libraries: A Practical Approach, Challenges and Prospects. *Madonna University Journal of Research in Library and Information Science*, Vol. 3 No. 2, 2015
16. Pandey, R., & Kumar, V.(2020). Exploring the Impediments to Digitisation and Digital Preservation of Cultural Heritage Resources: A Selective Review
17. Rahman, M. and Muhammed, M (2012). Issues and challenges for sustainable digital libraries for digital Nations. Organized by Library Association of Bangladesh 17 – 18 October, 2012 held at Dhaka, Bangladesh. pp 79-93



18. Reyes, V. (2013). we created it now, how do we save it? Issues in preserving personal Information a review. *Digital Technology and Culture*. 42.3: 150 – 154.
19. Seifi, N Nahmil,A and Pordel, F (2015)Digital Preservation of Old Persian Periodicals in Iran with Special Trends Reference to Iranian Newspapers Strategies and Challenges at the4th International Symposium on Emerging and Tecchnologies in Libraries and Information Services
20. Senturk, B.(2014). Effective Digitisation in Archives. *Journal of Balkan Libraries Union*. Retrieved in February. 2021: from <http://www.balkanlibraries.org/journal>
21. Thibodeau, K. 2014. Missing links: What happens to the chains of custody and preservation in the cloud? Available at: <https://interparestrust.org/assets/public/dissemination/ThibodeauSAA20140814.pdf>
22. UNESCO. (2003). Guidelines for the preservation of digital heritage. UNESCO: Information society division. Retrieved on April 13, 2013 from www.unesco.org/webworld/mdm

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The Role of Nigerian Library Association in Continuous Development of Librarians in Nigeria

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Abstract. This paper reviews The Role of NLA in the Continuous Development of Librarians in Nigeria with specific focus on librarian and information profession. NLA has been in the forefront of the development of library profession in Nigeria. The objectives of NLA Includes; To unite persons interested in Libraries, Librarianship and Information services; To safeguard and promote the professional interests of librarians; To promote the establishment and development of libraries and information centre; The paper highlighted the factors that have promoted discussions of continuous professional development for librarianship which includes; the vast growth of new knowledge; introduction of new technology in libraries and an increasing highly educated populace. The paper also explained the thirteen special interest groups of the NLA currently in existence such as; Academics and Research Libraries (ARL) Association of Government Libraries (AGOL); Association of News Media Librarians of Nigeria (ANLON) to mention but a few. The paper explains the professional development as a lifelong learning and is indispensable for professional growth and instrumental for sustaining one's competence. The library can also become more productive with new skills and knowledge acquired through professional development programmes. The paper further highlighted the various professional development programs put in place by librarians such as seminars, workshops, conferences, mentorship, courses, and distance learning programs with interactive capabilities. The paper discusses the importance of continuous development programs which includes to update knowledge and skills in existing and new areas of practice, keep professional qualifications up-to-date, raise one's profile through certifications and networking, making oneself more marketable to future employers and obtain new improved skills-making challenging tasks easier. The paper highlighted the problems associated with attending professional development program which includes; lack of interest, unacceptance of submitted papers and lack of awareness.

Keywords: Professional association, continuous development, NLA, librarian, information professionals and professional development

Introduction

The field of librarianship is ever expanding and changing, from exploding Internet and media technologies, to ever diverse patron groups with increasingly complex information needs keeping up with the today's constant change and innovation is a challenging task, but one must undertake it to remain relevant in the emerging new work environment. Library professionals need to be as savvy as the clients they serve, and the most productive and effective way for librarians to keep up with these changes is to seek out professional development opportunities.

Due to the huge increase of knowledge, the emergence of modern technology and the changes in trends in libraries services, libraries are needed to accomplish more, and the skills library professionals require continue to change. This challenge has been exacerbated by the closing of several library schools in South Africa in recent years, putting further strain on continuous development of librarians in libraries which will assist libraries in overcoming the gaps in information skills in an online environment. (Victoria & Ugwunna, 2014)

Continuous development of librarians

Continuous development programs are one component of every organization's human resource management procedures. Continuous development for the professionals is unending procedure whereby people refresh their information, skills, and attitudes gained during their schooling. Continuous development programs of librarians aim to improve employees' knowledge, qualifications, and efficiency in order to make them more proficient in their work performance. It is also a lifetime learning process that allows one to broaden one's profession and competency helps to satisfy the current and future of patrons needs which offers better service outcomes and priorities. It ensures that a person has necessary levels of knowledge and competencies that helps in increasing professional area of practice. (Holley, 2013)

Ohnstone (2019) defines Continuous Professional Development for librarians in America is provided through the American Library Association (www.ala.org). Continuous Professional Development (CPD) is concerned by making sure that each person should have a chance to be able to stay current with emerging developments and to continually acquire and upgrade his or her competencies in their professional experience (Horvat, 2014)

Continuous professional development are in form of programs such as orientation programs, on-the-job training, the possibility to take part in conferences/ seminars /workshops/ to organize for advancement exercises, research and publications, networks and membership in library associations, study leaves, job rotation assignments, , and so on have all been implemented in Ghanaian university libraries. Examples of activities include training courses, professional reading, work exchanges and mentoring.

Professional development

Professional development is no longer an option, it is a requirement of professional competency and practice, and hence it must be the top of every professional to do list. It is evident

therefore that professional development encompasses all types of facilitated learning opportunities, ranging from college degrees to formal coursework, conferences and informal learning opportunities situated in practice. It has been described as intensive and collaborative, ideally incorporating an evaluative stage. There are a variety of approaches to professional development, such as consultation, coaching, communities of practice, lesson study, mentoring, reflective supervision and technical assistance. Professional development opportunities can range from a single workshop to a semester -long academic course, to services offered by a medley of different professional development providers.

They vary widely with respect to the philosophy, content, and format of the learning experiences. Professional development is a broad term, encompasses a range of people, interests and approaches. Those who engage in professional development share a common purpose of enhancing their ability to do their work. At the heart of professional development is the individual's interest in lifelong learning and increasing their own skills and knowledge. (NPDC, 2008)

Continuing education is also referred to as professional development and, more recently, as updating or retooling, all of which encompasses the approaches and content tailored for information workers to advance their learning and education once they are in the workforce. Professional development can be had through both formal and informal means and it enables a professional to perform his or her role effectively and efficiently. This study intends to find out the various professional development programs organized by NLA and how it has impacted on the continuous professional development needs of the librarianship in the changing trends in library services. (Roy, 2012)

Related research on library associations

In Ghana, the university libraries for instance, have come up with numerous continuous development programs which aim at upgrading the skills of librarians in order to help them in carrying out their duties effectively and efficiently for greater output. The attainment of library jobs is heavily reliant on librarians. Whatever the library's aims and objectives are, they cannot be met without the help of librarians. Librarians can execute their different duties and responsibilities more efficiently and at a more advanced level with the appropriate skills and knowledge gained via the continuous development programs. (Lampey & Agyen-Gyasi, 2010)

In Japan Library Association's role in continuous development programmes of librarians stated that since library services are changing to meet up with current trends, there is every need for a rise in training needs of librarians of the library. This in other words will ensure that librarians are kept abreast with current innovation in information retrieval, storage and dissemination. Also, in an organization, staff continuous development is disquieted about the attainment and development of information, techniques, abilities, together with the experience that enables a staff member to make the most effective contribution to the combined efforts of the team of which he is a member. (Al-Suqri, 2010)



Studies have shown that continuous training is the key to enhancing the public library services being provided by the workers. Training is an integral part of vocational or career development and it is fast becoming a global and pervasive phenomenon in any establishment, the absence of which spells doom for such an institution and the presence of which determines the success of any enterprise. The library no doubt cannot do without adequate continuous development training of their workers to be dynamic enough to cope with the changing needs of the public who make up their user population. It has been argued that continuous professional development strengthens not only knowledge and skills necessary for competent performance but also values and attitudes necessary for the service orientation of a profession. Librarians owe it to their clients and to themselves as competent professionals, to remain abreast of trends and developments in the field.(Ajidahun , 2007)

Nigeria Library Association and the Professional Development of Librarians

In Nigeria, the Nigeria Library Association (NLA) is the professional body for all librarians in Nigeria. It started as a division of the West African Library Association (WALA). The WALA was established in 1954 as an offshoot of the UNESCO seminar on the development of public libraries in Africa held at Ibadan in 1953. The seminar resulted in the establishment of the West Africa Library Association (WALA) in 1954. Individual members of the Association, now numbering about 5000, are drawn from various types of libraries throughout the country. Every librarian would normally, belong in the first instance to one of the 37 States, Federal Capital, Territory Chapters and one or more of the eleven interest groups. One of the interest groups is the Information Technology Section. (Gbaje, 2013)

The NLA holds an annual conference and general meetings. The conference provides a platform for its members to present papers on current trends in library and information services within a selected theme and sub-themes. Even though not clearly stated as one of its objectives, the Nigerian Library Association, like all other professional associations, plays a vital role in the professional development of its members. Most of the interest groups hold annual workshops at the national level for professional development of its members. The Information Technology Section of the association has, over the past 5 years, organized Library and Information Technology Today (LITT) training workshops to re-train its members with information technology skills for the digital work environment Gbaje (2013).

The thirteen special interest groups of the NLA currently in existence are:

- Academics and Research Libraries (ARL)
- Association of Government Libraries (AGOL)
- Association of News Media Librarians of Nigeria (ANLON)
- Association of Women Librarians of Nigeria (AWLIN)
- Cataloguing, Classification and Indexing (CAT & CLASS)
- Nigerian Association of Law Libraries (NALL)
- National Association of Library & Information Science Educators (NALISE)

- Public Libraries Sections (PLS)
- Information Technology Section (ITS)
- Nigerian School Library Association (NSLA)
- Association of Libraries for Visually Handicapped (ALVH)
- Preservation and Conservation Section (PCS)
- Medical Libraries Section (MLS)

In the last fifty years, The NLA has been in the forefront of the development of the library profession in Nigeria. The Association was responsible for the establishment of the National Library of Nigeria in 1964 and the Librarian Registration Council of Nigeria in 1995. The Association also played a prominent role in the enactment of the Freedom of Information Act 2011. The Association has been constantly involved in capacity building, workshops, seminars and conferences for Librarians and Information Professionals. The Association was instrumental in securing government support for the professional development and training of Library personnel. Today, the NLA has successfully mobilized its members to be aware of the global changes in the library and information sector by encouraging training and retraining in information and Communication Technology.

The association website (<http://www.nla-ng.org/aboutus.html>) stated that the objectives of NLA are:

- To unite persons interested in Libraries, Librarianship and Information services;
- To safeguard and promote the professional interests of librarians;
- To promote the establishment and development of libraries and information centre;
- To watch legislation affecting libraries and assist in the promotion of such legislation as may be considered necessary for the establishment, regulation and management of libraries within Nigeria;
- To promote and encourage bibliographical study, research and library cooperation and;
- To do all lawful things as are incidental and conducive to the attainment of the above objectives and the second out of the six objectives of NLA is to safeguard and promote the professional interests of librarians.

One fundamental interest of the NLA is continuous professional development of the information professionals. The NLA organizes an annual conference intended to allow for the convergence of all Information professionals. Vega and Connel (2009) noted that "conference attendance is a requirement for career advancement of many librarians, particularly those who work in colleges or universities.

The role of library associations in continuous development of librarians

The professional development of librarians is a vital issue throughout the library world because immense technological developments are causing rapid shifts and changes in the library profession. As well as traditional ways of acquiring, processing, storing and retrieving information have been changed by computers and telecommunication systems. Supporting this assertion



Chaudhary (2001) noted that the factors that have promoted discussions of continuing education professional development for librarianship have been:

- the vast growth of new knowledge;
- introduction of new technology in libraries;
- social needs of an increasing highly educated populace;
- outreach programs to attract new groups of patrons; and
- Changing trends in library services.

The ability of Librarians to provide creative and innovative services in this electronic era could depend on the extent to which they expose themselves to continuing professional development programmes. Evidence abounds to show that library professional association play a vital role in ensuring that its members keep in tune with changes and trends in the field through training and retraining of its members.

Continuing professional development programme which simply means the additional training that professionals go through in order to improve upon skills, understand new techniques, and maintain previously learned knowledge could also be seen as an enabler to creativity and innovativeness. Similarly Bury (2010), defined continuous professional development as learning activities designed to facilitate professionals' acquiring new competencies. Continuing Professional development programme is usually driven by several factors which include an appreciation of the information challenges encountered by users in the electronic information environment and the desire to acquire relevant skills necessary for responding effectively to the information needs of users.

The role of NLA in Continuous development of Librarians

Continuing training and professional development is of perennial concern in every profession and is a common theme in speeches and exhortations of library association officials and luminaries since time immemorial. Indeed, providing continuing training and professional development activities is one of the key purposes for the existence of many library associations worldwide. The approaches taken by professional bodies in supporting continuing training and professional development varies in intensity of involvement and engagement. These include policy formulation, advocacy efforts, coordination of training activities, organization of conferences, prescription of competencies and training requirements, assessment and even certification. The library association of the country has an important role and responsibility to ensure that its members are continuously trained and professionally updated to help users, the public, organizations and society to benefit from the information and knowledge economy. Even though Individuals assume primary responsibility for their own professional growth, continuing education is the result of shared responsibility as well as cooperation and interaction among library education institutions, employers and library professional associations.

Like other professional associations, library professional association have been formed with purposes such as education, human resources training, publication, and research. These activities can help members know more about their profession and work more efficiently. As a non-profit

organization professional association seeks to support and promote the course of a profession, its members and affiliates. Harvey (2004) stated that there are many professional associations in Nigeria that regulate different professions. Some of the associations administer certificate examinations that qualify membership to it, while others do not. While other Professional associations set ethical standards and standard of professional conducts for members, which include benchmarks and best practices, some organize workshops, seminars and conferences.

Types of Continuous development programmes for the development of librarians

Everybody needs self-development professionally. By attending seminars and conferences, the managerial staff can improve professionally. The various professional development programmes include; seminars, peer coaching, workshops, conferences, mentorship, courses, symposia real-time webcasts, and distance learning programs with interactive capabilities. Supporting this assertion, Koontz (2010), also listed the following as approaches that can be utilized for continuous development (i) in-house training conducted by in-house staff; (ii) regionally provided training; (iii) training offered by professional organization; (iv) university-based courses and (v) web-based distance learning courses.

There are two types of continuous development programs for librarians: external and in-house. One of the most solid and dependable CPD platforms is Conference. There are several professional conferences with various unique learning opportunities in the scholarly publishing industries and academic library. Conferences are beneficial on several levels. They enable you to identify upcoming trends in your field or industry; exchange the appropriate practices or seek to ensure how one will deal with current trends and discover new goods and solutions, helps in the contribution to the field through presentations; meet vendors and suppliers, communicate with practitioners that are aspiring; and networking with the workers of library and information from different organizations and sectors. Job shadowing, coaching, mentorship, reading groups, and scholarship are some kinds of internal training initiatives. (Appleton, 2017)

Regional branches to local consortia of one's professional organizations, such as the Chartered Institute of Library and Information Professionals (CILIP) or American Library Association (ALA) are example about external library groups. While many organizations host events through the year (conferences not included), they offer good opportunities to attend specialty library and information-related activities. External training programs, such as workshops, seminars, webinars, and online training, are included in the professional development of librarians. (Morris, 2017)

Webinars are online meetings that take place in actual time over the Internet. A webinar typically includes a presentation as well as interactive discussion and question-and-answer sections. Participants can typically view the presenter and presentation slides on their computers while also listening to the audio stream. Webinars are a low-cost way to reach a huge viewers because participants do not need to travel to attend the session. Webinars can be recorded for later use, depending on the software used. Environmental Trends and Impact, Professionalism, Content Development, Product Development, Platform Mechanics, Performance Mastery,



Business Development, and Strategic and Operational Business Management are the National Speakers Association's eight core competencies for webinars.

Workshop: Workshop is generally organized by an institution or association in order to develop certain instructional materials, book, resources material, supportive material, work book etc. Workshops can be organized to develop certain skills of librarians. Librarians could be trained in certain new information technology skills. A workshop comprises a small selected group of teachers or experts drawn from actual working situations or related experts with theories on the activities. Librarians as well as other professionals do acquire Professional growth through conferences, seminars and workshops. Gutek (2007) defined Conferences, seminars and workshops as a meeting on specialized subject area and often held in a day or more to discuss a topic of interest relevant to the organization

Seminar: Seminars are basically arranged to discuss current issues and problems or to share ideas. A seminar is a small group discussion in a formal setting with clear agenda. In a seminar a speaker presents a theme or a set of papers and it is discussed by all those who participate. The chairperson of the seminar guides, directs, coordinates and organizes the discussion in a systematic manner in order to optimize time, resources and get more benefits.

Mentorship: Is pairing more knowledgeable and more experienced person with less knowledgeable and less experienced librarians. A more diffuse form of mentorship may be affected through in-house presentations by established faculty on topics of benefit to younger librarians as they work to establish their publication and service records. A mentorship arrangement, either formal or informal, can pair an experience librarian with a new hire or someone with less experience with virtual library technologies in an arrangement that can be productive for all involved.

Formal mentorship arrangements can be brokered with local professional organizations or library administration, while informal arrangements can be made by any two or more interested library staff.

Mentoring is a process for the informal transmission of knowledge, social capital, and the psychosocial support perceived by the recipient as relevant to work, career, or professional development; mentoring entails informal communication, usually face-to-face and during a sustained period of time, between a person who is perceived to have greater relevant knowledge, wisdom, or experience (the mentor) and a person who is perceived to have less (the protégé)"(Lake & Macquarie, 2012).

Peer coaching: Is a confidential process through which two or more professional colleagues work together to reflect on current practices; expand, refine, and build new skills; share ideas; teach one another; conduct classroom research; or solve problems in the workplace. Peer coaching is another means to provide opportunities for staff to learn from each other. Peer coaching focuses on the collaborative development, refinement and sharing of professional knowledge and skills.(Harris & Seegar, 2012)

Online training: They are programs that is an increasingly popular type of professional development for educators. These programs can be completed at the convenience of the educator

from the comfort of home using the computer and the internet, he or she can access course materials listen to recorded lectures, and post assignments. A significant amount of professional development involves sharing of ideas, old and new and discussing the way to implement these ideas to benefit modern students. Online education can offer a wealth of opportunity, both personally and professionally. Personally, students who pursue an online education at an accredited university will learn more about themselves, their talents, their skills and their own personal determination to succeed.

Conference is a formal meeting or gathering where different people or like minds converge to share ideas and make policies that will be beneficial to their field of study. A conference can also be a gathering where a group number of people from different walks of life having the same common interest converge to share ideas; present problems in their common field and proffer solutions to same. Conference is a participatory meeting designed for discussion, fact finding, problem solving and consultation. Conference is normally smaller in scale and more select character- features which tend to facilitate the exchange of information. Eke, (2013) opines that conferences are filled with presentations which are followed by discussions. She added that the difference between a conference and a workshop is the number of attendees involved. A large meeting is usually called a conference while a smaller one is termed a workshop.

They enable you to identify upcoming trends in your field or industry; exchange the appropriate practices or seek to ensure how one will deal with current trends and discover new goods and solutions, helps in the contribution to the field through presentations; meet vendors and suppliers, communicate with practitioners that are aspiring; and networking with the workers of library and information from different organizations and sectors. Job shadowing, coaching, mentorship, reading groups, and scholarship are some kinds of internal training initiatives. (Appleton, 2017)

Courses : In higher education in Canada and the United States, a "course" is a unit of teaching that typically lasts one academic term, is led by one or more instructors (teachers or professors), and has a fixed roster of students. It usually describes an individual subject taken. Students may receive a grade and academic credit after completion of the course. In the United Kingdom, Australia and Singapore, "course" refers to the entire programme of studies required to complete a university degree, and the word "unit" or "module" would be used to refer to an academic course in the North American sense. A course is usually specific to the students' major and is instructed by a professor. For example, if a person is taking a library course, then the professor would teach the students librarianship and how it applies to their life and or major. Courses can also be referred to as "electives". An elective is usually not a required course, but there are a certain number of non-specific electives that are required for certain majors.

Symposia: This symposium brings together researchers from complementary fields to enhance our understanding of the communication between the librarians and their environment. Symposium will cover a broad range of topic.

In-house training: In In-service training Staff can be introduced to an automated library system and to the varieties of software that can be used for the development and management of an automated library. The training will help staff to update their knowledge for professional



competence. An in-house training as an in-house programme for staff in many government and business enterprises. It is widely used for continuing education for teachers as well as librarians, bankers and industrial workers. (Akinpelu, 2002)

Importance of Continuing Development Program to Librarians

Almost all experts now believe that continuous development is necessary for librarians/information personnel to provide effective service. It is also essential since it will allow librarians to reap the full advantages of these programs and apply their newly gained skills on the job. (Rooney, 2010) Library practitioners could be insusceptible to development also as well as being hesitant to seek continuous development of professional. While library/information organizations around sixty nations has a code of ethics which encourages it memberships to take on accountability of their continuous learning. (Tan, Gorman, and Singh, 2012; IFLA and FAIFE, 2012).

Conferences (both national and international), seminars and workshops have bemoaned and catalogued the multifaceted consequences of refusing to acquire the relevant skills necessary for innovativeness and creativity in Library and information services delivery. In Nigeria specifically, the NLA, has emulated the IFLA in creating specialized subject-oriented sections such as cataloguing and classification section, information technology sections, medical libraries section. Workshops and training are intermittently organized for the sections with the theme and subthemes covering new trends in the specific area of concerned sections. Continuous professional development programme is important because it is generally seen as the process by which professionals improve and broaden their knowledge and skills and also develop the personal qualities required in their professional practice

The 21st century information professional must possess skills in selection, content management, knowledge management, organization of information on intranets and the Internet, research services, developing and maintaining digital libraries, and bringing information resources to the desktop which requires educators to assess the skills needed so as to prepare the students for employment challenges which makes them important and relevant in their fields. The Other important of professional development programs is that its helps in human resources reserve, faster decision, improvement in employee morale, availability for future personnel needs of the organization, improvement in health and safety, reduced supervision, personal growth and organizational stability (Varalakshmi, 2006)

Problems associated with attending professional Development programmes

Cost of participation: Cost is important to the convention attendance decision Cost of participation in a conference includes cost of registration, transportation, accommodation, and food. (Yoo & Wang, 2015)

Lack of sponsorship: If a librarian is not sponsored to the national conference, which might be expensive, it discourages the person from attending. Sponsorship could come from the institution where the librarian serves or from NLA as a means of encouraging people to be active members of the association. say that, "in some cases, a company offers a limited number of places for their employees to attend a convention and many may apply for this support which can often become competitive between colleagues." (Ramirez& Selin, 2014).

Lack of interest: Lack of interest in a conference might be due to stale programme, poor quality, unattractive conference venue, poor quality of invited keynote speakers, lack of rapport among association members, poor quality of food and accommodation provided, lack of social activities, unavailability of conference resources for purchase.

Unacceptance of submitted papers: Papers are accepted primarily because of quality. When some papers are rejected and others are accepted, those whose papers were rejected may not wish to attend the conference.

Lack of awareness: Some librarians say that they do not hear about the NLA annual conference/AGM and the call for papers. They do not have an opportunity to submit a paper and this may negatively affect their decision to attend the conference.

Recommendations

1. Conference fees should be provided to the librarians to help them attend the continuous development programmes
2. Librarians should have opportunities for sponsorship from the library or university management
3. The continuous development programmes should be packed full by providing relevant information on current trend in modern librarianship.
4. The Nigerian Library Association should encourage librarians to publish in the association's programmes
5. There should be adequate awareness of the various sections in the NLA continuous development programmes.

Conclusions

Continuous Professional development is very essential for any information professional who wants to remain relevant in this fast-changing economy. Various continuous professional development programmes for information professionals are organized quarterly, annually and biannually through conferences and workshops, training and meeting. It also discusses that the continuous professional development programmes organized for librarians will be of importance to the information professionals because the skills they will acquire in these programmes will help them to work in both the traditional and electronic environment. However, the paper pointed out challenges faced in attending this professional developments programmes which includes; lack of sponsorship, lack of awareness and cost of participation.



The library association of any country has an important role and responsibility to ensure that its members are continuously trained and professionally updated to help users, the public, organizations and society to benefit from the information and knowledge economy. The PDS is an important response to one of the major consequences of rapid change in the information and technological environment (i.e., knowledge obsolescence) that affects every profession. It seeks to extend the education and learning effort of a professional throughout the lifespan of his/her professional life by establishing a framework which encourages and demand continuing professional development.

References

1. Atulomoh, B. C. and Onuoha, U. D. (2011). "Harnessing Collective Intelligence Through Online Social Networks: The Training, Development and Education of Library Manpower in Information Technology in University Libraries in Nigeria." *World Libraries* 17 (1). Available: www.worlib.org/vol17no1/ajidahunprint-v17n1shtml.
2. Ajidahun, C.O. (2007). The training, development and education of library manpower in information technology in university libraries in Nigeria. *World Libraries* 17 (1). Available: www.worlib.org/vol17no1/ajidahunprint-v17n1shtml.
3. Akinpelu, J.A. (2002). *Philosophy and adult education*. Ibadan: Stirling-Horden: 106.
4. Appleton, L. (2017) "Library Conferences: Why Bother?" *UKSG e News*, issue 408, <https://www.uksg.org/sites/uksg.org/files/Editorial408.pdf>
5. Al-Suqri, M. N., Saleem, N. E. A., & Gharieb, M. E. (2012). Understanding the prospects and for improved regional LIS collaboration in the developing world: An empirical study of LIS departments in the GCC states. *Samaru Journal of Information Studies*, 12(1&2), 37- 47. www.ajol.info/index.php/sjis/article/view/90708
6. Bury S. (2010). Continuing Professional Development and Irish Libraries: Report of Key Survey Findings. <http://www.ucd.ie/t4cms/sils-cpd-exec-summary.pdf>
7. Chaudhary Y.M. (2001). Continuing Professional Education of Librarians working in the university libraries of Pakistan and Azad Jammu and Kashmir
8. Eke, H.N. (2013). An empirical study on the impact of NLA Conference Attendance on Librarians Professional development. *PNLA quarterly* Vol. 75 (4) available at www.pnla.org. Accessed on September 11, 2012.
9. Gbaje, E.S. & Ukachi, N.B. (2011) An Assessment of Technological Competencies of the Academic Librarians in Nigeria: A paper presented at the 49th NLA National Conference and Annual General Meeting held in Awka. Aina I.O. (EDD) Information for all: Strategies for National Development. Ibadan University Press Plc, Pp.65-69
10. Gutek, G. (2007). College and universities. *Microsoft® Encarta® Online Encyclopedia*. Redmond WA: Microsoft Corporation.
11. Horvat, A. (2014) Continuing education of librarians in Croatia: problems and prospects. *New Library World*, Vol.105, no 1204/1205:370-375
12. Harvey, R. (2004). Changes in the librarianship curriculum: Where are we heading? *Australian Law Librarian* 12(2), 33-36
13. Horvat, A. (2014). Continuing education of librarians in Croatia: problems and prospects. *New Library World*, Vol. 105, no. 1204/1205: 370-375
14. Holley, O (2013). Academic libraries in developing countries. Retrieved October 19, 2015 from <http://www.epdes.ac.uk/report.pdf>
15. Harris, R. Melgoza, P. Seeger, C & Wan, G. G. (2012). Meeting our users where they conference: A Texas A&M Model to support
16. Saphon- White, R., King, v., & Christie, A. (2004). Supporting a culture of Scholarship for academic Librarians. *Portal: Libraries and the Academy*; 4(3), 407-42
17. Koonz, C & Gubbin, B. (Eds). (2010) IFLA public library service guidelines (2nd.ed.) Berlin: De Gruyter/Saur
18. Lake Macquarie City Council (2012). "Types of Development" www.lakemac.com.au/development/process/types. Site visited August 28, 2012.
19. Lampey, R. & Agyen-Gyasi, K. (2010) Academic Library role in maximizing library use in Ghana. Proceedings of the seminar for academic librarians organized by the committee of university librarians and their deputies. (CULD) held at university library Kwame Nkrumah University of Science and Technology Ghana. 2010
20. Morris, W. (2017) "Superhero Librarians are Coming: Get Your Capes On!" *SCONUL Focus*, issue 70, <https://www.sconul.ac.uk/sites/default/files/documents/77.Superhero%20librarians%20ar>



22. Horvat, A 2004. Continuing education of librarians in Croatia: problems and prospects. *New Library World*, Vol. 105, no. 1204/1205: 370-375
23. National Petroleum Development Cooperation (2008)
24. Ohnstone, L. (2019) What is Continuing Professional Development (CPD)? At <https://career-advice.jobs.ac.uk/career-development/what-is-continuing-professional-development-cpd/> [accessed 23rd February 2021]
25. Roy, L., Bonnie, B. & Nick Homenda (2012) "The Value of Service-Learning Projects in Preparing LIS Students for Public Services Careers in Public Libraries," *The Reference Librarian* 53 (1). Pp. 24-40.
26. Ramirez, R. & Selin, S. (2014) Plausibility and probability in scenario planning. *Foresight* 16 (1): 54-74
27. Rooney, M.P. (2010). The current state of middle management preparation, training, and development in academic libraries. *Journal of Academic Librarianship*, 36(5), 383-393.
28. Tan, S., Gorman, G., & Singh, D. (2012). Information literacy competencies among school librarians in Malaysia. *Libri*, 62(1), 98-107.
29. Varalakshmi, R.S.R. (2006). Educating 21st Century LIS Professionals-Needs and Expectations:
30. A Survey of Indian LIS Professionals and Alumni. *Journal of Education for Library and Information Science*, 47(3), 181-199
31. Victoria, O., Itsekora, A. & Ugwunna, I. S. (2014). ICT competencies in the 21st century library profession; a departure from the past. *International Journal of academic library and information science*. 2(5), 51-55.
32. Yao, Y., Liao, Y., & Wang, H. (2015). Current situation of freshmen column in "985 Project" academic libraries. *Chinese Journal of Medical Library Information Science*, 24(3), 71-74&79

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Publishing, copyright and ethical practices as influencing factors on the research productivity of academic librarians in a changing society

A case study of two universities in Niger State, Nigeria

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Abstract. This study investigated publishing, copyright and ethical practices as influencing factors on the research productivity of academic librarians in a changing society. A changing society can aptly be described as the pandemic ravaged epoch; the information revolution age; the age of digital revolution and age that unveils new things in succession. The connecting nexus among publishing, copyright, ethical practices and research productivity of academic librarians was identified. It was premised on the assumption that academic librarians would be delighted to publish more if there is an assurance that what they have published would not be abused by copyright violators. The two universities in Niger State, Nigeria, namely, Federal University of Technology, Minna and Ibrahim Badamasi Babangida University, Lapai were selected for the study. Total enumeration (census) was used to capture all the academic librarians (who have at least first degree in librarianship) in the two universities. Twenty-seven (27) academic librarians from Federal University of Technology, Minna and sixteen (16) academic librarians from Ibrahim Badamasi Babangida University, Lapai participated in the study. Two (2) research questions were asked and answered. The questions were: 1) To what extent does copyright influence the research productivity of academic librarians in the selected universities? 2) To what level do ethical practices influence the research productivity of academic librarians in the selected universities? One (1) null hypothesis was tested at 0.05 level of significance. The hypothesis was stated as: there is no significant composite influence of publishing, copyright and ethical practices on research productivity of academic librarians in the selected universities in Nigeria. Literature germane to the study were reviewed. Descriptive survey of correlational nature was used for the study. Data was analysed and presented using simple statistical tools of Statistical Package for Social Science (SPSS). Pearson Product Moment Correlation (PPMC) formula was used to analyse the only hypothesis in the study. Findings from the study showed that copyright coupled with ethical use of copyrighted works influenced the research productivity of academic librarians. Moreover, there was a significant composite influence of publishing, copyright and ethical practices on the research productivity of academic librarians in the two universities selected for the study. It was concluded that adequate enforcement and practice of copyright vis-à-vis ethical use of published work influenced the research productivity of academic librarians to a very high degree. Based on the findings from the study, it was recommended that: copyrighted works should be fully protected; ethical practices must be imbibed while using copyrighted published work so as to boost the morale of academic librarians with hope of willing to publish more in the future since they would be assured that the economic and moral rights on their works are protected.

Keywords: Research productivity; Publishing; Ethical practices; Changing society; Niger State, Nigeria

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