Teaching Information Literacy in University Libraries in Kenya during the COVID-19 Pandemic

[1]Emily Sawe [2]Penninah Musangi

[1] esawe@strathmore.edu
[2] peninah.musangi@gmail.com

[1]https://orcid.org/0000-0001-9002-6906; [2]https://orcid.org/0000-0001-7146-7888

[1] Strathmore University, Nairobi, Kenya [2] Amref International University, Nairobi, Kenya

ABSTRACT

Kenya detected its first COVID-19 case on March 19th, 2020, which led to educational institutions being shut down and learning activities shifting online. This change greatly impacted university operations, including university libraries. Before the pandemic, university libraries were teaching information literacy (IL) through conventional methods, which were mostly physical. Universities transitioning to online education necessitated libraries to rethink IL instruction. The purpose of this study is to assess the suitability of the modes of teaching, librarian skills, and resources required for IL delivery in university libraries in Kenya during the COVID-19 period. The objectives are to establish the modes of teaching IL used by university libraries, the skills, and resources required in the teaching of IL in an online environment, identify the challenges faced to offer IL during the COVID-19 pandemic period and recommend the best practices in IL delivery in an online environment. The study used systematic review of existing literature. Multi-platforms, synchronous and asynchronous, were employed at varied degrees; the success of the online modes of teaching was affected by the inaccessibility of the requisite resources, unpreparedness by the librarians and students as well as the demand for new skills. The study recommends contextualization of teaching initiatives, provision of professional development to librarians, development of contingency plans, and evaluation of the online modes of teaching for continual improvement.

*(**Key words:** COVID-19, information literacy, university libraries)*

I. INTRODUCTION

COVID-19 is a global pandemic disease that was first identified in Wuhan, China. Kenya detected its first COVID-19 case on 19th March 2020. During this time, universities were in session, however following the government's directive to close all learning institutions, universities were shut down. Most universities in Kenya are accredited to offer programmes through face-to-face learning. For continuity purposes, the universities shifted their teaching and learning activities online. The suspension of face-to-face class sessions impacted university education, including university libraries. The closure of libraries caused significant disruption to 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 library resources and services physically and virtually. The disruption of library services due to the pandemic hyped the need for online library services (Chisita, 2020). A study by Breeding (2020) elucidates that libraries have generally been well-positioned to continue to fulfill their core mission even when their physical facilities are closed due to unforeseen incidents. Faced with the interruption of services, university libraries had to rethink the ways of supporting learning and research activities. This situation caused many libraries around the globe to mobilize and provide collections of valuable and reliable information to give people trusted information about Covid-19 for decision-making (Kasa & Yusuf, 2020). Libraries provided diversified resources and services that were important to the needs of users during the pandemic situation (Parvin et al., 2021). For instance, libraries created and maintained active links to provide access to reliable and credible resources in virtual spaces. The librarians were able to transform library resources and services due to the proliferation of digital technologies

that make it possible to organize, retrieve, analyze and share information (Chisita, 2020).

University libraries in Kenya just like other libraries worldwide went through a difficult time due to the COVID-19 pandemic, which forced them to change their way of providing resources and services. They were among the facilities which were shut down. Some of the services were pushed online except for physical and in-person services, which were suspended. Online and distance learning was not a new concept in universities, but libraries were not actively involved, so this shift meant providing essential library services online was challenging. University libraries' participation in online education for information literacy was a new possibility 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 to be adopted by libraries.

University libraries developed programmes in response to the need for information literacy skills, offering information literacy instruction (ILI) and providing support to students and faculty. Universities provided IL programmes as a stand-alone information literacy course and others integrated it into the overall communication skills curriculum (King'ori, 2014). The implementation of a particular approach or programme depends on many institutional and situational factors such as audience, purpose, budget, staffing, facilities, and time (Grassian & Kaplowitz, 2009). Some university libraries offer in-person IL instruction or online sessions via various platforms.

Statement of the Problem

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. Therefore, libraries had to find ways to reach students and faculty and provide them with library services and information resources that they needed to support the core mandate of their institutions (Yap & Manbat, 2021). The closure of physical libraries instigated disruption in the way of offering library services, and information literacy was not spared either. On the other hand, information literacy was a critical skill to assist students and lecturers in navigating the plethora of resources available online. In addition, with the shift to remote teaching and learning, students and lecturers had to acquire digital skills to be able to manoeuvre the online environment, hence the need for information literacy.

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 conventional modes like holding instruction sessions in classrooms. With the shift to virtual learning and the demand for digital skills, which became fundamental for students' and lecturers' success in virtual education, the value of information literacy skills became enhanced, and hence information literacy delivery changed 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 information literacy using various strategies, and at varying degrees of success, which also presented unique challenges and opportunities (Pothier, 2020). The ability of librarians to transform conventional IL curriculum delivery to online was required, however, their competencies to effectively achieve this was wanting. This paper assesses the suitability of the modes of delivery of IL, the librarian's skills, and the resources required for IL delivery in an online environment. The following objectives guided this study; first was to establish the modes of online IL delivery used by university libraries, the skills, and resources required in the provision of information literacy in an online environment, and second, was to identify the challenges faced in offering information literacy during COVID-19 pandemic period and recommend the best practices in IL delivery in an online environment.

II INFORMATION LITERACY DURING COVID-19 PANDEMIC

According to Khan (2020), information literacy refers to the skills mandatory for recognizing information sources and resources in a digital environment to facilitate teaching, learning, and quality research. Information literacy is an important skill required for everyone living in the 21st century. Technological transformation and penetration of the Internet in higher education have influenced the social and economic life of academicians (Sparks et al., 2016). Due to the complexity and volume of information available in digital format, information literacy has gained popularity. IL is a critical skill deemed necessary for success in the core mandate of institutions of higher learning.

Higher education institutions were closed to reduce the spread of COVID-19. Academic programmes were moved from face-to-face learning patterns to distance learning models. University 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 (2020) conducted research on online learning and delivery of information literacy training by academic libraries during COVID-19, and she opines that the pandemic brought out a more important role of academic librarians in helping students to develop information, digital, and media literacies. Digital libraries platforms became relevant by offering technology-based information resources and services to enable learners to access relevant knowledge virtually.

University libraries offer IL programmes to students and faculty members, and their success depends on the delivery method by the librarians. Harrison and Deans (2021) conducted a study on methodologies used to deliver IL instructions in an online and distance environment. They identified some of the modes, such as use of social media tools and telecommunication applications such as Skype and Zoom. Another study by Budhai and Williams (2021) on the integration of teaching presence to humanize virtual library instruction disclosed using the learning management system Blackboard and tutorial videos before the pandemic. The study by Delaney et al. (2020) gave a snapshot of Irish academic libraries' experience in responding to crises during a pandemic. The libraries offered IL instructions through webpages, online guides, via phone service, and in some instances, they used Artificial Intelligence (AI) chatbots. Although various studies have been done on how IL instruction was offered during the pandemic, the effectiveness of the modes has not been analyzed and reported. This study will analyze the various modes of online IL delivery and report on their suitability.

Teaching information literacy is one of the most important duties of a librarian in a university that has implemented IL skills in its curriculum. Soleymani et al. (2016) conducted a study on the librarians' skills required to support online and distance learning programs in Iran, and among the essential skills they reported is the ability to teach information literacy and familiarity with a virtual learning environment. Another study by Oyovwe-Tinuoye, et al. (2021) on skills for librarians in South-

South Nigeria pointed out that, knowledge of the use of videoconferencing tools, digital communications, web and web 2.0 applications which are essential skills for delivery of IL in an online environment was inadequate among a majority of librarians surveyed. This is contrary to another study on "use of webinar tools for teaching and learning by LIS professionals in Nigeria," which reported that librarians' skills are relatively high in the use of smartphones and laptops, and use of common platforms such as Zoom and YouTube (Idhalama, et al., 2021). Findings from both studies underscore the importance of librarians' digital skills as mandatory in a time when the use of online teaching and learning tools is the norm rather than an option. There are a few studies done to investigate the skills levels of librarians in support of IL training in a virtual learning environment and none from a Kenyan perspective.

Successful implementation of an IL programme requires the necessary resources. Kanyengo and Kamau (2020) identified ICT infrastructure as a critical resource in IL training. ICT infrastructure includes digital devices like laptops or smartphones, internet connectivity, assistive technologies to aid library users with special needs, as well as telecommunication and videoconferencing tools such as Google Classroom, Google Meet, Microsoft Teams, BigBlue Button, and Zoom. Similar results are reported by Mashiyane et al., (2020), who add that multimedia tools are applied in IL instructional practices. For the online delivery of IL programmes, there are systems that are required including a learning management system (LMS) for online teaching and learning, and Libguides for the development of subject guides and tutorials among others. Studies done focused more on the resources required but did not emphasize the availability and accessibility status of these resources.

The significance of IL in higher education cannot be overlooked. Librarians have continued to develop IL skills; whose importance became increasingly evident during the COVID-19 pandemic period when virtual learning was the only option. Shifting to an online mode of delivery for IL training posed certain challenges to librarians. Online teaching is quite different from conventional face-to-face and therefore requires new pedagogies of teaching to optimize its full potential. The need for librarians to adopt new pedagogical methods to align with the online mode of delivery for IL was reported as a challenge (Martzoukou 2020). He noted that librarians had to adapt their instruction strategies to fit with the renewed mission.

Another challenge, as reported by Manecke (2020), was unforeseen technological issues, which included slow internet connection speeds, unfamiliar features, and layout of the online platforms, and inaccessibility to laptops with the requisite specifications. Similar findings are reported by Shin et al. (2022), who add that "librarians faced a challenge with familiarity with technology and the use of technology while teaching" (P.56).

Students' hesitant reaction to online learning due to unplanned transition was also a challenge posed to the librarians (Shin et al., 2022). This unexpected response resulted in some students not participating in IL sessions due to uneven availability of digital infrastructure across the country; and unequal access to digital technologies among students. Other challenges reported include lack of appropriate technologies, cost of network services, and normal resistance to change from face-to-face instruction to online. These challenge meant that the librarians were not able to achieve the intended outcomes for the IL training. Studies reviewed provided the challenges experienced by librarians in the online teaching of IL programmes, however, they did not suggest solutions to the identified challenges.

III. RESEARCH METHODOLOGY

This study aimed to assess the suitability of the modes of delivery of IL, the librarian's skills, and the resources required for IL delivery in an online environment. The study used systematic review of existing literature to analyze a range of research and professional commentaries relevant to the topic. Literature on IL modes of delivery, skills, resources required, and challenges experienced by librarians in teaching IL in an online environment was explored.

A systematic literature review is a method for conducting a broad survey of the literature on a question (Phelps & Campbell, 2012). The systematic literature review model, as described by Hemingways and Brereton (2009), provides the flexibility to incorporate a range of research and professional commentaries on the effectiveness or feasibility of an intervention, which in this case is online modes of IL delivery during COVID-19. To ensure transparency and avoid what could potentially be considered a subjective survey of the literature, the Hemingways and Brereton 2009 model of the systematic literature review was adopted.

Relevant online databases whose subject strength is library and information studies (LIS) were purposively sampled. The following four databases were selected to search for literature: Library, Information Science & Technology Abstracts, Library Literature and Information Science Full-Text, Education Resources Information Center (ERIC), and Google Scholar. After the identification of the online databases, subject headings and keywords for each database were determined. Thorough searches were conducted on 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)

Table 2: Number of articles retrieved and excluded

Database	Total Number of Articles Retrieved	Total Number of Articles Excluded

Library, Information Science & Technology Abstracts	158	153
Library Literature and Information Science Full Text	1,103	1,101
ERIC	25,296	25,289
Google Scholar	17,100	17,096

Source: Researcher (2022)

The search was limited to papers published between 2020-2022 when COVID-19 was reported and necessitated online education, hence online modes of teaching IL. Because of the novelty of 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, but the applicability to the Kenyan context was considered since there were no studies done in Kenya. Only articles published in the English language were reviewed. To ensure the validity and reliability of the articles reviewed, the authors of this study independently assessed the literature. Each article was read, and if it focused on online modes of IL delivery, skills and resources required for online teaching and learning, and challenges experienced during delivery of virtual teaching by librarians were included, otherwise, articles on conventional modes of delivery of IL and not focusing on remote education were excluded.

IV. FINDINGS AND DISCUSSION

A total of 18 articles met the inclusion criteria and therefore were reviewed, as shown in Table 2. The review involved identifying the themes guided by the research objectives. The following themes emerged and are presented as the findings.

Modes of IL Delivery in University Libraries during COVID-19

The first research objective was to determine the online modes of IL delivery employed by university libraries. The following modes of IL delivery were used during the COVID-19 pandemic, as reported in various literature. Asynchronous, synchronous, and a blend of both forms were used. Some of the asynchronous forms used were through pre-recorded IL sessions shared online via class mailing lists, WhatsApp, and Telegram groups; some libraries created YouTube channels, and others developed online classes using LMS such as Moodle. It was found that the most common mode of asynchronous delivery was sharing of IL pre-recorded sessions through

the class mailing list, while the use of a YouTube channel as a platform to upload and share the sessions was the least. Online guides and tutorials were also developed to demonstrate certain IL skills, such as searching and retrieving information, referencing, and information organization in libraries. The guides were either in portable document format (pdf) or PowerPoint slides which were uploaded onto the library's website for students to download and make reference. The synchronous formats of delivery involved the use of videoconferencing tools such as Zoom, Google Meet, Microsoft Teams, Skype, Webex, and Blackboard Collaborate, among others. Zoom, Google Meet, and Microsoft Teams were shown as the top most heavily used tools, while Skype, Blackboard Collaborate, and Webex, in that order, were the least used. Literature attributes this order of preference to features such as: the maximum number of participants a platform can allow at one given time, the ability to work on diverse technological devices, the ability to share screens, and support for scheduling of classes.

Some universities developed emergency remote learning strategies to handle online classes. These online classes were delivered via learning management systems such as Moodle, Google Classroom, Canvas, and Blackboard. It was reported that some librarians in those universities anchored IL in the LMS, however, adequacy of IL content, course structuring, and diversity in the content format adopted were noted as challenges facing the successful deployment of IL training.

It was found that a multi-platform approach was used by university libraries to deliver IL, such as social media, learning management systems (LMS), and video conferencing tools. Although various formats were used, asynchronous modes were more popular than synchronous, and LMS was adopted by some universities but with challenges reported on its implementation.

Skills and Resources Required by Librarians for Online Delivery of IL

The second research objective was to determine the skills and resources necessary for librarians to provide

information literacy during the pandemic period. 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 a key skill for effective navigation in the online environment. Various studies showed that the remote delivery of IL necessitated librarians to be equipped with new skills like social networking, instant messaging, blogging, and surfing the net, among other hosts of digital-oriented competencies. The following skills have been highlighted to have been key for the effective delivery of online IL: use of videoconferencing tools, digital communications, web and web 2.0 applications; knowledge of the use of learning management systems and adaptation of various instructional methodologies and content. Findings show that online teaching was a common concept, however only a few university libraries had adopted it before the pandemic, and therefore this called for the skilling of the librarians to be able to deliver IL virtually.

Further analysis of how the librarians were being skilled revealed that they acquire these skills through assistance by their colleagues, self-learning through YouTube channels, or trial and error methods (Chewe & Zulu, 2020; Wegener, 2022; 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 skills as technology proliferates and remain relevant in the ever-changing environment.

ICT infrastructure has been identified as one of the critical resources in online IL training. The ICT resources required for effective delivery of IL are laptops or smartphones; internet connection; assistive technologies for special needs persons; telecommunication and videoconferencing platforms such as Google Classroom, Google Meet, Microsoft Teams, BigBlue Button, and Zoom; learning management systems such as Moodle, Canvas, Google Classroom, Blackboard, Collaborate among others. Analysis of the literature on accessibility to these resources reveals that the majority of the librarians and students at first did not have access to digital devices as they mostly relied on desktops in their offices and computer labs, respectively (Askin et al., 2021). In addition, the systems required were not available as universities were not prepared for such emergencies, and even no budgets were provided for subscriptions to the required online platforms. This led to most universities using open-source platforms such as Moodle for LMS, social media tools, and emails for

communication, and later on acquiring freemium ones such as Zoom.

Students are reported to have been majorly affected by this shift to online learning, which they described as 'resource-intensive' since they were expected to cater for the required resources as well as pay tuition fees. At the same time, IL became a critical skill to enable the students to navigate and survive in the online environment, which had become the new normal. In addition, there was inequitable access to ICT resources due to varied economic levels and under-development in some areas hence the lack of internet connectivity. Some universities responded by negotiating subsidized rates for internet connection as well as offering credit facilities to acquire digital devices such as laptops or tablets.

Challenges in the Provision of IL during COVID-19

A shift to online teaching and learning of IL posed several challenges to librarians and students. Some of the challenges reported include:

Short time frame and lack of resources: Yap and Manabat (2021) reported that one of the major challenges experienced in transitioning the teaching of the IL programme during the pandemic was the short time frame for launching the virtual platforms, which was coupled with low or lack of budgets to provide the required resources.

Network Connectivity: 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 programmes.

Inaccessibility to laptops and other necessary technological tools by librarians and students: Askin et al. (2021) reported that most libraries in Winnipeg, and Manitoba provided their staff and students with desktop PCs in their offices and computer labs respectively, which became inaccessible following the shutdown. This created a challenge of inaccessibility, while they are expected to teach and learn IL sessions through mobile digital devices.

Technological competencies: Another challenge faced by librarians in their efforts to deliver IL programmes online was low levels of technological competencies (Chewe & Zulu, 2020). Khan (2020) reported a skills mismatch among librarians where the level of digital skills librarians possess (supply) does not match the required level of digital skills (demand) and, thus, ineffective

delivery of online 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 on "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?" (p. 269).

Knowledge of pedagogical skills: To optimally deliver online IL sessions, which would encompass several modules calls for possession of pedagogical skills. Khan (2020) notes that librarians lack knowledge of pedagogical skills and academic activities, which impeded effective delivery of online IL programmes.

V. CONCLUSIONS & RECOMMENDATIONS

The COVID-19 pandemic imposed on universities a paradigm shift from the conventional methods of teaching to the virtual delivery of classes. Information literacy became an essential skill for both lecturers and students to navigate the online environment. Due to the shift to virtual teaching and learning, librarians as well transformed the delivery of IL to an online approach amidst a myriad of challenges. Synchronous and asynchronous forms of online teaching were employed at varied degrees, and the effectiveness of these modes of delivery was affected by inaccessibility of the requisite resources, unpreparedness by the librarians and students as well as the demand for new skills. The unplanned move to virtual teaching should be a lesson learned by any university since eventualities can happen, and therefore, there is a need for a university library to have in place a contingency plan in such cases. It is important to assess any new initiatives deployed in an organization, and therefore for continual improvement, libraries should evaluate the effectiveness of the modes of delivery of IL.

Some of the recommended innovative ways employed to offer IL training amidst COVID-19 were considered and contextualized in this paper and they include the following:

University libraries to develop online teaching modules in consideration of librarians' and students' needs. This will enable librarians and students to use the available resources and, in addition, allow for the development of initiatives within context. Contextualization of the online initiatives to be deployed will be cognizant of the levels of accessibility of the resources and skill-set of the would-

be users; University management should provide professional development sessions on areas librarians feel incapacitated, like pedagogical skills and online course content development, online course authoring, and course structuring; University libraries should develop contingency plans on how services and resources can be transformed in case of unexpected eventualities. Such plans to provide for a time frame for familiarization, and upskilling as well as budgets for any additional resources required; University libraries should evaluate the outcomes and measure the effectiveness of the information literacy initiatives employed for continual improvement and 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 statistics using Google Analytics to measure user-profiles and numbers.

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