



# Digital Literacy Skills among Librarians in Nursing and Midwifery Training Institutions in Lango Subregion

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## Abstract

This study investigated the level of digital skills (DS) among librarians working in nursing and midwifery training institutions in the Lango subregion, aiming to propose recommendations that may be adopted by these institutions to develop the DS of their librarians. The major issue underlying the study is the inadequate digital literacy skills of librarians in nursing and midwifery training institutions, which hinders their ability to effectively support teaching, learning, and access to digital health information resources. The study employed a mixed-methods approach with a convergent parallel design; the target population consisted of librarians working in nursing and midwifery training institutions. A census approach was adopted for the quantitative component, while a purposive sampling method was preferred for the qualitative component. Data were collected through both a structured questionnaire and in-depth interviews. Quantitative data were analysed using the Statistical Package for the Social Sciences (SPSS) Version 25. In contrast, qualitative data from interviews were transcribed and analysed using thematic analysis. The key findings of the study established that the librarians do not possess the basic digital skills required of a 21st-century librarian. Regarding how they acquire their digital skills, the study found that the most common methods are learning through colleagues, self-teaching, workshops, seminars, and attending library schools. Concerning the challenges faced while acquiring these skills, the major challenges identified include inadequate library ICT instructors, limited funding, frequent power outages, technophobia, unstable internet, and poor attitudes of librarians, among others. The study recommended increasing funding to the library, improving internet stability, sponsoring and encouraging librarians to pursue CPD online courses, upgrading library ICT infrastructure, securing alternative sources of power, and encouraging institutions to join CUUL and RENU, among others.

## Subject Areas

Nursing

## Keywords

Digital Literacy, Competencies, Skills, Uganda

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## 1. Introduction

The modern academic library operates in an increasingly complicated information environment [1]. Academic libraries are primarily focused on supporting the teaching, learning, and research agendas of the institutions to which they belong [2]-[6]. With developments in digital technologies, the focus has shifted to developing digital literacy skills as the attainment of these skills is crucial to functioning in the 21st century [4]-[6].

Therefore, for them to perform effectively, information professionals need to become proficient in digital literacy. Globalization, the digitalization of knowledge, and evolving technical advancements have all affected libraries worldwide [7]. Library automation, digital and virtual libraries, online and community learning, Web-casting, pod-casting, virtual conferences, Web 2.0, and Library 2.0 are the results of these [8]. Every day, Information and Communication Technologies (ICT) are becoming more advanced, which has an impact on how services are provided across all societal sectors [9]. As new information technology-related services are introduced to enhance the library's overall operations and traditional services, the library is not left behind. These abilities, sometimes referred to as digital literacy skills, will be necessary for librarians to function in the twenty-first century.

[10] noted that the issue with using these resources has arisen due to the growth in their quantity. Librarians must become proficient in digital literacy to meet the needs of their users and guarantee full utilization of these resources. Libraries and librarians are now faced with the difficulty of acquiring these digital literacy skills to satisfy the requirements of their users promptly and remotely, as well as to effectively use these 21st-century resources. It is essential to educate librarians about the importance of having these digital literacy abilities to guarantee better service delivery and more involvement in the field of information communication technology. With these digital literacy abilities, librarians will be able to traverse the information landscape and create and utilize information resources to their fullest potential.

Digital literacy, according to [11], is a comprehensive set of abilities that people must acquire to succeed in the modern digital environment. It refers to the ability of individuals and communities to meaningfully understand and use digital technologies, encompassing critical thinking, media literacy, computer proficiency, and information fluency, known as Digital Literacy Mission [12] [13]. Digital lit-

eracy represents the capacity to engage in various critical and creative activities, including analysing, communicating, and producing meaning from diverse information and technological sources [14]. Similarly, [15] describes digital literacy as the ability of librarians to independently learn and work in a digital environment. The skills that a person with digital literacy may learn and utilise are the primary focus of these two definitions. Among these are critical thinking and creativity, which are essential abilities in the workforce.

Libraries now have more chances because of digital technologies. For example, it offers convenient access to services and information without regard to location or time constraints. Additionally, it enables various users to interact with library resources and services through the use of various electronic tools, apparatus, systems, and materials that generate, store, or distribute information [16]. Digital technology has impacted every facet of library operation, including the way they manage information, provide new channels of communication and interaction with library materials, and direct users toward and enable access to these resources [17].

In light of current technological advancements, libraries are enhancing their procedures and services as they begin to recognize the potential of technology [18]. To meet user needs, librarians must have a certain level of digital skills (DSs) due to the constantly evolving information landscape, technology, and services. Therefore, to provide invaluable support to library users, librarians need to improve their DSs [19]. These skills are essential to keep pace with rapid changes in libraries, transforming traditional librarian abilities into digital skills [20].

[21] proposed DSs that people must have in order to be considered digitally competent. These abilities include understanding the fundamentals of computing devices, being able to use computer networks, participating in online communities and social media, finding, gathering, and assessing information, and having critical thinking abilities, all of which are vital for managing resources and keeping them accessible at all times.

Globalisation, the emergence of digital technology, and the spread of information have made the world a smaller place where everyone must now have access to and use both traditional and electronic forms of information [22]. Library personnel must possess digital literacy abilities in this age of technological dependence and the development of digital library services. Since traditional library services are now being replaced with electronic ones, it is critical for librarians to have up-to-date digital literacy abilities [23]. These researchers observed that librarians in the Lango subregion's nursing and midwifery training institutes still do not completely understand how important digital literacy skills are to the efficient use of their services.

These librarians don't seem to know anything about computers at all. They can barely use the computer, browse the internet, or check their email. The majority of them also don't seem to have the computer abilities necessary to get information or operate an automated library. To address the demands of their teaming

users, librarians must possess these abilities because of the monumental burden of information management in the twenty-first century. Digital competencies and all knowledge, memory, and communication abilities are essential for meeting the demands of library users.

Although thousands of students are served by these nursing and midwifery training institutes far more frequently than by universities, the majority of trainings have been concentrated on enhancing the capacity of librarians employed by universities through consortium arrangements where the nursing and midwifery training institutions are not members. Consequently, given this situation, the current study was required and will examine the digital skill level of the librarians employed by these nursing and midwifery training institutions, as well as the methods by which they obtain these skills and the difficulties they encounter in doing so. The study's conclusions can be used to update the LIS curriculum and employment requirements. They can also be used to educate library personnel about the digital literacy skills necessary for self-improvement through webinars, conferences, seminars, and workshops. It will also shed light to the management of these institutions on how to build the digital skills of their respective librarians in this fast-changing information environment. Hence this study will answer the following research questions (RQ).

### **Research Questions**

RQ1. What is the level of digital literacy skills possessed by librarians working in Nursing and midwifery training institutions in Lango subregion?

RQ2. Through what means do the librarians working in Nursing and midwifery training institutions in Lango subregion acquire their digital literacy skills?

RQ3. What are the challenges encountered by these librarians when acquiring digital literacy skills?

## **2. Literature Review**

The integration of digital technologies into library and information services, particularly in health training institutions, underscores the increasing need for librarians to possess strong digital literacy skills. This study adopted the Jisc Digital Capabilities Framework, an internationally recognised model that provides a structured approach for evaluating and enhancing digital competencies within higher education institutions. The framework outlines key skill areas such as information, data, and media literacy; digital communication; content creation; problem-solving; digital learning; and digital identity management. It enables systematic assessment of skill levels, helping to identify both strengths and gaps in librarians' digital capabilities [24]-[27].

### **2.1. Level of Digital Literacy Skills Possessed by Librarians**

Empirical studies across Africa and Asia highlight a recurrent trend: librarians possess strong foundational digital skills, such as email communication, social

media usage, database searching, and file management [28] [29]. However, they generally exhibit limited proficiency in advanced digital competencies, including metadata creation, digitization, website development, and repository management [30]. These limitations hinder the effective deployment of digital tools in support of teaching, learning, and evidence-based practice in health education institutions. The development of digital skills among librarians is often informal and fragmented. Many professionals acquire competencies through workshops, peer learning, self-teaching, and in-service training, with few reporting formal training during academic programs [31] [32]. This mode of acquisition, while flexible, often lacks depth and consistency, especially in the absence of sustained institutional support.

## 2.2. The Means through Which Librarians Acquire Their Digital Literacy Skills

**Formal Education and Institutional Training:** Many librarians enhance their digital competencies by participating in formal education programs and attending workshops or seminars. For instance, a study at Jimma University in Ethiopia revealed that librarians acquired digital literacy skills through formal education (94.66%) and workshops/seminars (97.57%) [33]. Similarly, in Uganda, the “Digital skills @ your local library” project trained 50 librarians from 27 public and community libraries, equipping them to provide digital skills training to their communities [34].

**Self-Directed Learning:** Librarians often engage in self-directed learning to improve their digital skills. This includes utilizing online resources such as YouTube tutorials (87.37%), self-study using user guides (55.33%), and learning through trial and error (24.27%) [33]. Such approaches allow librarians to learn at their own pace and focus on areas most relevant to their roles.

**Collaborative Initiatives and Peer Support:** Collaboration with peers and participation in community-based programs also play a significant role. In Uganda, the EIFL-led initiative emphasized user needs assessments to tailor digital literacy training effectively [34]. Additionally, support from colleagues (49.02%) and training offered by library management (83.49%) contribute to skill development [33].

**Integration into Curriculum and Institutional Support:** While some institutions integrate information literacy into their curricula, challenges remain. At Aga Khan University in Uganda, information literacy was embedded in certain course units like research and academic writing, but there was no standalone course, and collaboration between faculty and librarians was minimal [35]. This highlights the need for more structured programs and institutional support to enhance digital literacy among librarians.

## 2.3. Challenges Encountered by the Librarians When Acquiring Digital Literacy Skills

Numerous challenges inhibit the acquisition and application of digital literacy

skills. Chief among these are insufficient funding, poor ICT infrastructure, lack of access to internet and training resources, and curricula that do not align with evolving digital demands [28] [29]. Moreover, a lack of continuous needs assessments and limited administrative commitment to librarian capacity development further exacerbate the digital divide [23]. These constraints are particularly pronounced in under-resourced settings like Uganda's Lango sub-region. In addition to technical skills, librarians are increasingly expected to adopt multifaceted roles as digital curators, embedded educators, and research support professionals [36]. However, studies reveal a significant gap in these competencies, particularly in areas such as copyright management, reference software usage, and support for digital scholarship [37] [38]. This points to the urgent need for curriculum reform in Library and Information Science education and investment in professional development pathways tailored to the changing landscape of library services.

In summary, the literature reveals a significant mismatch between the evolving demands placed on librarians and their current digital literacy capabilities, especially in rural health training institutions. Addressing this gap requires strategic investment in infrastructure, context-sensitive training programs, and policy frameworks that support lifelong learning for librarians. Utilising structured models such as the Jisc Framework can enhance both the evaluation and development of digital competencies, ultimately improving the quality of information services provided in nursing and midwifery training institutions in the Lango sub-region.

### 3. Methodology

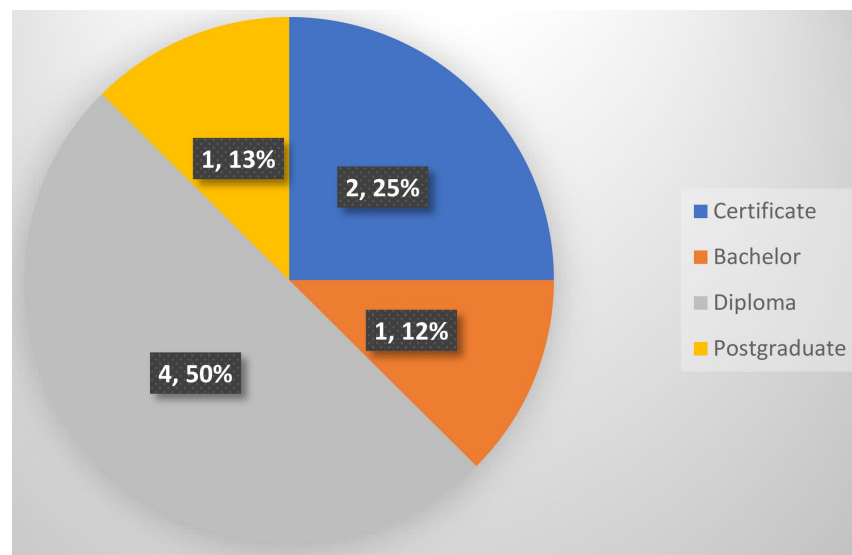
This study employed a mixed-methods approach with a convergent parallel design to thoroughly investigate digital literacy skills among librarians in nursing and midwifery training schools in the Lango Subregion. The convergent design facilitated the simultaneous collection and analysis of both quantitative and qualitative data, enabling comparison and integration of results to enhance the validity and depth of the findings [39]. A census sampling technique was utilised for the quantitative component, including all librarians in the identified nursing and midwifery institutions due to their small numbers. For the qualitative component, purposive sampling was applied to select key informants among the librarians who demonstrated in-depth knowledge and experience in applying digital literacy skills. This approach ensured that the qualitative data would provide rich, context-specific insights [39]. Data were collected through both a structured questionnaire and in-depth interviews. The questionnaire was designed to gather quantitative data on the availability, access, and use of digital tools and self-assessed digital literacy levels among the librarians. In-depth interviews were conducted to explore librarians' experiences, challenges, and perceptions regarding digital literacy in greater detail. Quantitative data were entered and analysed using the Statistical Package for the Social Sciences (SPSS) Version 25. In contrast, qualitative data from interviews were transcribed and analysed using thematic analysis.

#### 4. Findings of the Study (See Tables 1-6 and Figures 1-3)

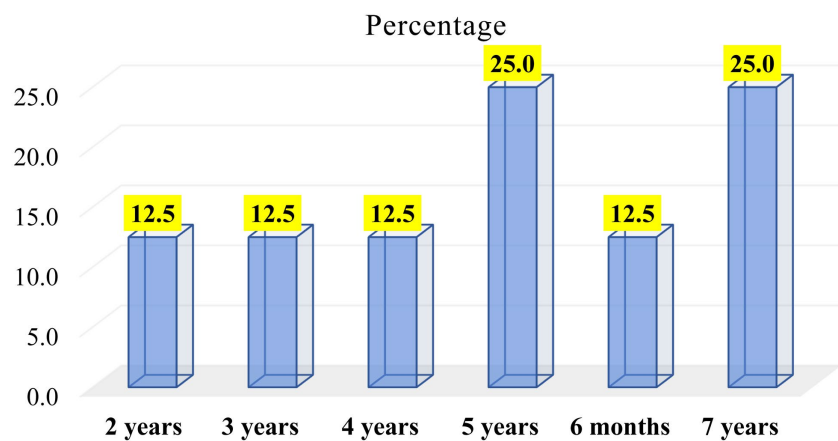
Interview data supported these findings by revealing that most librarians were only comfortable with basic ICT tasks such as typing documents and sending emails. Specialised digital library functions remained a challenge:

**Table 1.** Socio-demographic characteristics of participants N = 8.

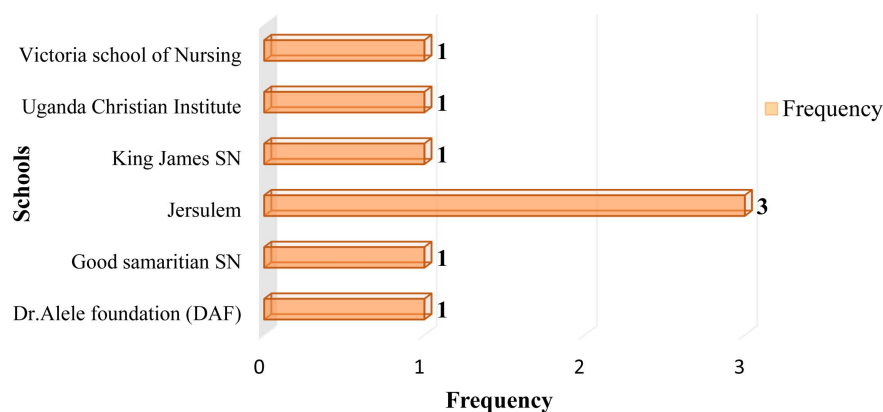
Socio-demographic characteristics	Measures	Frequency	Percentage (%)
<b>Age group, Mean (SD)</b>	31 ( $\pm$ 3.8)		
20 - 30		4	50.0
>30		4	50.0
<b>Gender</b>			
Male		2	25.0
Female		6	75.0



**Figure 1.** Level of education of the participants.



**Figure 2.** Participant's years of experience.



**Figure 3.** Institutions of the participant.

**Table 2.** Computer and internet access.

Variables	Frequency	Percentage (%)
<b>Computers dedicated to student</b>		
5	1	12.5
16	1	12.5
30	1	12.5
5	2	25.0
<b>None</b>	<b>3</b>	<b>37.5</b>
<b>Computers (Library) dedicated to staff</b>		
2	3	37.5
4	1	12.5
<b>None</b>	<b>4</b>	<b>50.0</b>
<b>Does your library have internet</b>		
Yes	5	62.5
No	3	37.5
<b>Where do you get your internet</b>		
Use of router	5	100.0

**Table 3.** Library information and support services.

	Frequency (N = 8)	Percentage (%)
<b>Ever heard of consortium of Uganda University libraries</b>		
Yes	1	12.5
No	7	87.5
<b>Have you heard about Research 4 life</b>		
Yes	2	25.0
No	6	75.0
<b>If yes, is your in institution registered for research 4 life</b>		
No	2	100.0
<b>Does your institution pay for electronic resources?</b>		
Yes	1	12.5
No	7	87.5

**Table 4.** Level of digital literacy skills possessed by “librarians” working in Nursing and Midwifery training institutions in Lango sub-region. N (%).

S/no	Indicate your Digital skills level	Excellent	V. good	Good	Poor
	Basic computing, for example, Word, PPT,	1 (12.5)	3 (37.5%)	2 (25)	2 (25)
	Database search skills [navigating]	0 (00)	1 (12.5)	2 (25)	5 (62.5)
	Search engines and search strategies	1 (12.5)	1 (12.5)	1 (12.5)	5 (62.5)
	Metadata development skills	0 (0)	0 (0)	2 (25)	6 (75)
	Digitization skills like scanning, editing	0 (0)	0 (0)	2 (25)	4 (50)
	Sending and receiving e-mails	2 (25)	0 (0)	2 (25)	4 (50)
	Graphic design	1 (12.5)	1 (12.5)	0 (0)	6 (75)
	Uploading documents to online platforms	1 (12.5)	0 (0)	3 (37.5%)	4 (50)
	Skills in using different social media	2 (25)	2 (25)	2 (25)	2 (25)
	Digital library development skills	1 (12.5)	0 (0)	1 (12.5)	6 (75)
	Skills of using browsers e.g. Firefox,	0 (0)	0 (0)	3 (37.5)	5 (62.5)
	Cloud storage like, Google drive	0 (0)	0 (0)	2 (25)	6 (75)
	Computer operating systems, like Windows,	0 (0)	0 (0)	0 (0)	8 (100)
	Bibliographic management tools, e.g. Zotero	0 (0)	0 (0)	0 (0)	8 (100)
	Using repository management software, DSpace	0 (0)	0 (0)	1 (12.5)	7 (87.5)
	Use of Library Management software (Koha)	0 (0)	0 (0)	1 (12.5)	7 (87.5)
	Using plagiarism software like Turnitin	0 (0)	1 (12.5)	1 (12.5)	6 (75)
	Library website development skills	1 (12.5)	1 (12.5)	2 (25)	4 (50)
	Ability to create different file formats	1 (12.5)	0 (0)	2 (25)	5 (62.5)

*“I can type and send emails, but when it comes to database searching or using library management systems, I struggle a lot. We were never trained in these areas.” (Librarian, Institution D)*

*“I know how to use Microsoft Word and Excel, but I am not confident with things like referencing tools or e-library platforms.”* (Librarian, Institution A)

Both data sets indicate a skills gap between basic digital familiarity and the more advanced digital competencies required for professional library services in health training institutions.

**Table 5.** Ways of acquiring digital skills (Multiple response questions).

		Responses	
		Frequency (N)	Percentage
Ways of acquiring digital skills	Library schools	5	21.7%
	Workshop/seminar	4	17.4%
	<b>Through colleagues</b>	<b>6</b>	<b>26.1%</b>
	Webinar	1	4.3%
	Self-teaching	5	21.7%
	In house capacity building training	2	8.7%
Total		23	100.0%

The interviews confirmed that informal and peer-supported learning were the primary modes of skill acquisition:

*“Most of what I know, I learned by myself or from my friends. We try to teach each other what we know, especially when someone gets new information.”* (Librarian, Institution C)

*“There is no regular training program here. When NGOs come for workshops, that’s when we get a chance to learn something new.”* (Librarian, Institution B)

Librarians mainly rely on non-structured, informal methods for skill acquisition due to the absence of institutional digital literacy development programs. This limits the depth and consistency of skills gained.

**Table 6.** Challenges faced while acquiring digital literacy skills.

S/no	Statement	Agree n (%)	Disagree n (%)
	Lack of budget and funds allocated to support library	8 (100)	0 (0)
	Lack of stable internet connectivity	5 (62.5)	3 (37.5)
	Poor library ICT infrastructure – computers	6 (75)	2 (25)
	Library workshops are costly (not affordable)	4 (50)	4 (50)
	Lack of articles search skills	7 (87.5)	1 (12.5)
	LIS curriculum not upgraded with digital literacy skills	7 (87.5)	1 (12.5)
	Lack of time	4 (50)	4 (50)
	Lack of support from library associations,	3 (37.5)	5 (62.5)
	Management is not allowing us to attend workshops	2 (25)	6 (75)
	Poor attitude of the librarians	4 (50)	4 (50)
	Frequent power outages and absence of standby generator	3 (37.5)	5 (62.5)
	Technophobia	6 (75)	2 (25)

These challenges were echoed and elaborated upon in interviews:

*“We only have one computer and sometimes it's not working. Without the right tools, how can we practice what we learn?”* (Librarian, Institution A)

*“There's no internet most of the time, and when it's available, it's very slow. This makes it hard to access online resources or do anything meaningful.”* (Librarian, Institution D)

*“Most of the training programs are designed for academic staff, not library staff. We are often left out.”* (Librarian, Institution C)

The combination of poor infrastructure, unreliable internet, and exclusion from institutional training leaves librarians disempowered and underprepared to effectively engage with digital tools in their work environment.

## 5. Discussion and Conclusion

A total of 8 librarians participated in the study (**Table 1**), with equal representation across different age groups and a majority being female (75%). Regarding the level of education (**Figure 1**), the librarians had varying levels of educational attainment: 4 (50%) held diplomas, 2 (25%) had certificates, and 2 possessed either a bachelor's or a postgraduate diploma. It should, however, be noted that neither the bachelor's degree nor the postgraduate diploma is in library and information science. In terms of work experience (**Figure 2**), their professional experience varied widely, with some having as little as 6 months and others having up to 7 years. Three of the 8 participants were from the Jerusalem School of Nursing and Midwifery. Concerning access to technology, the availability of computers in the libraries varied significantly. While some institutions had up to 30 computers dedicated to students, others had none, indicating disparities in technological resources. Half of the libraries lacked computers dedicated to staff use. Furthermore, 62.5% of the libraries had internet access, and all utilized routers for connectivity (**Table 2**). Awareness of consortia such as the Consortium of Uganda University Libraries was notably low, with only 12.5% of participants having heard of it. Similarly, awareness of Research4Life was limited, with only 25% of librarians familiar with the program, and none of the institutions were registered for it. Additionally, 87.5% of institutions did not pay for electronic resources, further highlighting limited access to digital tools (**Table 3**). The level of digital literacy among the librarians varied across different skill sets. Basic computing skills, such as using Word and PowerPoint, were fairly distributed, with 37.5% rating themselves as very good. However, more advanced skills like database searching, metadata development, and digitization were significantly lacking. For instance, 62.5% rated their database search skills as poor, and none had excellent skills in key areas such as digital library development or using bibliographic management tools like Zotero. The most proficient areas were basic tasks such as sending and receiving emails, where 25% of participants rated themselves as excellent (**Table 4**). In acquiring digital skills, librarians learned through various methods, with learning from colleagues being the most common (26.1%). Other significant sources included li-

brary schools (21.7%) and self-teaching (21.7%). Workshops and seminars also contributed (17.4%), while webinars and in-house capacity-building training were less influential (**Table 5**). The librarians faced numerous challenges in acquiring digital literacy skills. Notably, 100% of the participants agreed that a lack of budget and funding was a major obstacle. Other significant challenges included inadequate internet connectivity (62.5%), poor library ICT infrastructure (75%), and a curriculum that had not been upgraded to include digital literacy skills (87.5%). Additionally, some librarians experienced technophobia (75%) and noted that management often did not allow attendance at relevant workshops (25%) (**Table 6**).

## 6. Conclusions

Digital literacy skills are paramount for 21st-century librarians' career progression and efficient service delivery. Librarians are at the forefront of information management, and without these skills, they will struggle in the information explosion sweeping through all sectors. The basic duty of librarians is to solve the information needs of users, irrespective of age, geography, and literacy levels, and should drive the acquisition of digital literacy skills to ensure effective service delivery.

Digital literacy skills are important for improving personnel collaboration, civic participation, information retrieval and social interaction. Digitally literate library professionals will be better prepared for instant messaging, blogging, social networking and other digital activities. These abilities also assist librarians in providing better library services to their users based on their information and educational needs. Digital literacy competency level will go a long way to determining how librarians will perform their duties in the library. Automated and digital technologies not only help to ease the workload but also improve the service delivery, so this should be considered by libraries during the establishment of institutions to boost the teaching and learning of the parent institution.

## 7. Recommendations

### 7.1. Upgrade Internet Infrastructure

There is an urgent need to enhance internet infrastructure in the nursing and midwifery training institutions in the Lango sub-region. Reliable internet access is essential for both staff and students to access digital resources and stay updated with current information trends.

### 7.2. Provision of Computers

Institutional management should invest in procuring computers for their libraries. Acquiring digital skills without access to necessary equipment such as computers renders the training ineffective and a waste of resources.

### 7.3. Promote Awareness of Digital Literacy

Management should intensify efforts to raise awareness about the importance, rel-

evance, and practical application of digital literacy skills among library staff. This will help to cultivate a culture that values continuous learning and digital competence.

#### **7.4. Support Skill Development**

Institutions should prioritise developing digital literacy skills among library personnel. This can be achieved by allocating resources and offering support through scholarships, workshops, conferences, and other professional development opportunities.

#### **7.5. Integrate Digital Literacy in Recruitment**

Digital literacy should be a key qualification when hiring library staff. Given the growing diversity and volume of information sources, new hires must possess foundational digital competencies.

#### **7.6. Revise and Update LIS Curriculum**

The Library and Information Science (LIS) curriculum should be regularly reviewed and updated to incorporate emerging technologies and evolving practices in the library field.

#### **7.7. Ensure Continuous Training**

As digital literacy is a lifelong skill, there should be ongoing training programs for library staff. Staff should be encouraged to apply their digital skills in daily tasks, and their achievements should be recognised to boost morale and motivation.

#### **7.8. Offer Incentives and Motivation**

Institutions should introduce incentives and other motivational strategies for library staff to promote self-development and enhance service delivery. Motivation plays a key role in fostering ongoing professional growth.

#### **7.9. Join CUUL for Professional Development**

Management is encouraged to register their institutions with the Consortium of Uganda University Libraries (CUUL). This membership offers access to Continuous Professional Development (CPD) programs such as seminars and workshops beneficial to library staff.

#### **7.10. Connect to RENU for Affordable Internet**

Institutions should consider applying for connection to the Research and Education Network for Uganda (RENU), which provides affordable internet services that support online and self-paced learning.

### **Conflicts of Interest**

The authors declare no conflicts of interest.

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