

Examining a new generation of service provision in a developing country: Opportunities and Challenges of Virtual Library Services in Universities in Uganda

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Abstract: There is an overwhelming need for Virtual Library and Information Services (VLIS) due to the revolutionary and innovative use of the Internet, alternate information sources, evolving institutional policies and user needs, and potential disasters like the Covid-19 outbreak that prevented access to physical libraries. This study sought to identify benefits that both users and librarians derive from VLIS usage as well as setbacks limiting VLIS provision and utilization. Mixed methods with a pragmatic research paradigm were adopted. Data from library users and staff from 2 universities, one public and one private were gathered using surveys and interviews, respectively. 394 library users and 8 library staff made up the sample size. VLIS benefits included support with coursework, e-resource remote access, instant response to users' queries, notifications of new library additions, improvement in knowledge and skills, timely access to current information, and wide access to numerous e-resources. Challenges to VLIS entailed reliance on Google, unawareness, frustrations by requests to buy or subscribe to e-resources, poor Internet connectivity, limited Information Literacy (IL) skills, restricted access to e-resources, insufficient infrastructure, high cost of e-resources, poor attitude towards VLIS, lack of digital versions for local resources, and low concentration in virtual IL classes.

Keywords: Virtual Library and Information Services, Online academic library services, Virtual Libraries, Virtual Library Benefits, Virtual Library Challenges, Makerere University, Uganda Christian University, Uganda



1. Contextual Background: VLIS are electronic information services delivered electronically including access to databases, e-reference services through email & social media platforms, e-training, Electronic Document Delivery Services (EDDS) & technical assistance (Nalumaga & Byamugisha, 2021). VLIS are 21st-century services that libraries should adopt in order to help achieve the Sustainable Development Goals (SDGs) and provide effective and efficient information services to library users (Akpan & Eni, 2019; Anasi et al., 2018; Askin et al., 2021; Chisita, 2020; Gruss et al., 2019; Ihejirika et al., 2020; Makhafola & Van Deventer, 2020; Medawar & Tabet, 2021; Pokorná et al., 2020; Walsh & Rana, 2020). VLIS provides the most interactive interface between academic libraries and their users in order to meet the information needs of today's academic community. They create a framework for distributing library services and information over time, space, and distance (Abubakar, 2021).

2. Problem statement: Invasive technology, changing user needs, changing institutional policies, and alternative information sources that offer similar services as the library are all affecting university libraries (Madu et al., 2020). The 21st-century information environment is characterized by users who seldom come to the library but are partially or wholly dependent on Google and other information sources in the comfort of their rooms (Kumbhar & Bidve, 2016). Additionally, calamities have affected physical libraries e. g Hurricanes in Mississippi (Doolittle, 2007); Earthquakes in California (Curzon, 2000); Floods in South Carolina (Liu et al., 2017), Fire in Kansas and Makerere University administration building neighboring the University Main Library (Bailey et al., 2020; Lakwonyero, 2020). Disastrous pandemics like Covid-19 and others that may possibly strike in the future, coupled with the changing institutional policies leave VLIS provision as the most viable option for libraries to thrive.

3. Purpose: With this steady twist of events, it was not clear how University libraries in Uganda were providing VLIS to fulfill their information provision mandate in the face of the statutory blended learning and teaching approach, fierce competition, and the changing institutional policies. This study examined the opportunities and challenges of VLIS with a view to identifying gaps that should be addressed in order to inform the development of strategies for successful VLIS provision.

4. Literature review: VLIS has immense benefits, both for users and providers of library services. Singh (2020) reported that users of the Punjabi university library preferred e-resources more than traditional resources because they are more informative, convenient, time-saving, and cost-effective among others. Peter et al. (2019) supplemented that VLIS are quicker to search for and retrieve than physical resources because multiple databases can be searched at

once. Online resources can also be downloaded and saved for later use, updating them is simpler than updating printed resources, and enables flexibility of access to many resources anywhere, which reduces transport costs. This frees up users' time so they can focus more on enhancing the quality of their research and publishing (Peter et al., 2019).

Despite the benefits of the opportunities that can be exploited from using VLIS, there are several challenges that threaten VLIS's success including the high cost of e-resources (Baskar, 2017; Omeluzor et al., 2022) ; competition from non-library gateways (Ifijeh & Yusuf, 2020); copyright and licensing issues (Adeoye et al., 2022), technophobia (Gruss et al., 2019; Medawar & Tabet, 2021) and password hindrances to e-resource access (Dukper et al., 2018). Other hindrances include staffing insufficiencies (Askin et al., 2021); lack of Information Literacy (IL) knowledge and skills (Gawai & Rokade), poor Internet connectivity (Barath & Sudhier, 2023; Nalumaga & Byamugisha, 2021; Rafiq et al., 2021) as well as the time-consuming and labor-intensive digitization of library physical resources. The pertinent question would be if such situations existed in Ugandan University Libraries. These were investigated in this study and reported in Section 4.

5. Methods: This study adopted mixed methods and collected data from library users and library staff at two universities; Makerere (public) and Uganda Christian University (private) through surveys and interviews. 3585 VLIS users who were enrolled with UCU's RemoteX system and 14341 users with Makerere University's My Loft remote access platform made up the study population. These comprised faculty, researchers, undergraduate and graduate students. In total, there were 17926 VLIS users between the two universities. 36 library staff members from Makerere University and 15 from UCU were also included in the study. Proportionate stratified sampling was used to select 326 and 81 VLIS users from Makerere and UCU, respectively, based on a sample size of 407 VLIS users determined using Krejcie and Morgan's formula (Krejcie & Morgan, 1970).

We applied purposive sampling in the selection of library staff, who were deemed to have extensive knowledge on the topic and would therefore provide in-depth information about VLIS in the libraries studied. Finally, University librarians, who are in control of decision-making, Reference librarians who deal with users directly, E-Resources librarians who manage electronic resources, and systems administrators who handle the technical aspects were chosen from a pool of librarians for key-informant interviews. Qualitative data were analyzed

using content analysis while quantitative data was analyzed using the SPSS software program for Windows, version 21 to generate descriptive statistics.

6. Findings

Response rate: A 97% response rate was achieved out of the 407 users targeted, with 394 satisfactorily filled questionnaires analysed. Any response rate of more than 70%, is considered statistically acceptable (Johnson & Shoulders, 2019). Eight library staff interviewed, including four each from Makerere University and UCU.

7. Opportunities for Virtual Library and Information Services

The first question asked users to state the extent to which they agree with the structured statements regarding how Virtual Library & Information Services have benefitted them as presented in Table 1 below.

Table 1 Users' responses on the benefits of VLIS

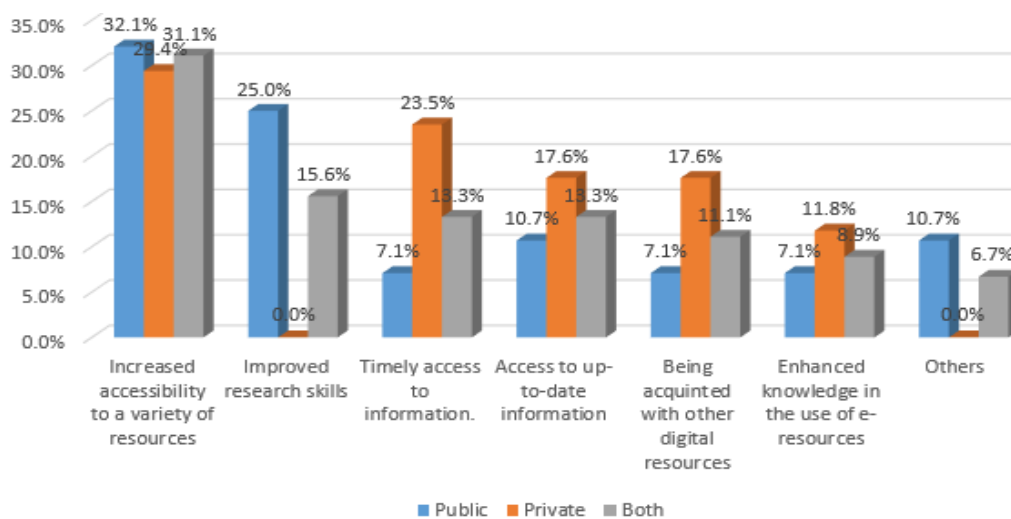
	University	Mean	Total Mean	p-value
Accessing VLIS has assisted me with my coursework	Public	3.79	3.9	.254
	Private	3.96		
Accessing VLIS has assisted me with research work	Public	3.78	3.9	.348
	Private	3.92		
I can access library resources & services while off-campus	Public	3.66	3.9	.003
	Private	4.13		
I am easily informed of the newly acquired information materials	Public	3.30	3.4	.383
	Private	3.44		
I get online news and updates about library events	Public	3.14	3.2	.220
	Private	3.35		
I can contact the librarian to answer my queries from anywhere	Public	3.15	3.2	.453
	Private	3.29		
I efficiently and promptly receive library resources thus saving time and transport costs since there is no need to travel to campus to access library resources	Public	3.38	3.5	.092
	Private	3.68		

The Table above shows that VLIS have had major contributions to the users in different ways. Assisting users to complete their coursework was identified as the main benefit of VLIS in the two universities and the mean differences between the two universities were insignificant ($p > 0.05$). Users also stated that

utilizing VLIS was important to them in accessing library resources and services while off-campus and this benefit was significantly reported by users in the private (mean=4.13) university than those in public (mean=3.66) which appears to suggest that remote access is more appreciated among users in the private university as compared to public university.

In addition to the benefits mentioned above, further results indicate that the use of VLIS enables users to be kept informed of the newly acquired information materials as well as have the opportunity of contacting librarians to answer users’ queries at any time from anywhere but the mean values for these benefits hardly reached 3.5. A few also cited getting online news and updates about library events as another benefit that accrues to them as a result of using VLIS. Apart from the structured statements’ users were also issued with an Open-ended question “Would you like to mention other ways in which VLIS has benefitted you in meeting your information needs?” The Graph below shows users’ responses to this open-ended question.

Graph showing extra benefits of VLIS to users



Users’ responses to the open-ended question indicated VLIS benefits to include increased accessibility to a variety of resources (31.1%) which was mainly reported by users of VLIS in public universities (32.1%) relative to private (29.4%), improved research skills (15.6%), timely access to information (13.3%) which is also up-to-date (13.3%) as well as increased knowledge in the use of e-resources (8.9%) among others.

Librarians too submitted their opinions on how they have benefited from VLIS. From the private university (UCU), a library staff informed that VLIS has been of benefit, especially to postgraduate students who embrace e-resources more. She explains that most of them were physically far away from the university and hence cannot trek to the university regularly, hence relying heavily on VLIS. She cites an example that if one wants to borrow a book, they first consult with the catalog to ascertain whether the desired book is actually available or borrowed out.

...The postgraduates embrace e-resources because most of them are in far places, and they do not want to move all the time so when they get to know how to use these resources very well, they benefit a lot and then also know what is available...UCU Library Staff

From the public university (Mak) a library staff remarked that VLIS has eased communication between library users and staff. She explained that during the lockdown, the library acquired a Zoom account which eased online discussions and training.

...they have made it easy to easily reach out to us...the user doesn't have to walk to the library to make a request...during the lockdown, library [got]... a Zoom account so if [anyone] wants my service, [they]didn't have to come to my office for training. [We] would just set an online meeting for a discussion. Through WhatsApp, it's a matter of text, and...resources [are] more available to our users. Makerere Library Staff

Additionally, MyLoft access system helps international students access library resources even when they return back to their home countries since the content can be downloaded from their remote locations and accessed offline.

The remote access system...[aids] our international students access the virtual library even when they go back to their countries. MyLOFT provides an offline interface, once I have downloaded my resources with my phone, or if I am travelling out of the country and I want to make notes while on the plane, I don't have to open my laptop. I just go to whatever I download from my phone and I make references. Makerere Library Staff

Virtual training can be recorded for future re-visiting and consultation. A library staff informed us that if information literacy is conducted virtually, there is a possibility of recording the training session such that a user retrieves it later for further consultation.

...The good thing with virtual is the recording. They can always go to the recording, where they didn't understand. UCU Library staff

7. Challenges Affecting Virtual Library and Information Services

Whereas there are numerous benefits accruing from VLIS usage and consumption, there are also several challenges that deter successful VLIS provision in university libraries in Uganda. Library users were issued with a set of structured questions and requested to pick the most appropriate option on a Likert scale of strongly disagree (1) to strongly agree (5). The Table below presents users’ responses regarding factors limiting VLIS

Table 2: Challenges Limiting VLIS Provision and Utilization among university library users

	University			
	Public (n=317)	Private (n=77)	Total (n=394)	p- value
	Mean	Mean	Mean	
I lack awareness of the available VLIS	3.64	3.32	3.58	0.053
I use alternative sources other than those provided by the library e.g Google	4.01	3.88	3.98	0.369
I find the library website complicated to browse	3.15	3	3.12	0.337
I am hindered by password requirements before log-in.	3.42	2.92	3.32	0.003
I am frustrated by requests to buy/subscribe to get resources	3.57	3.49	3.56	0.629
I have limited ICT skills	2.78	2.52	2.73	0.120
I lack time to attend library training to acquire Information literacy skills	3.07	2.99	3.05	0.614
I am reluctant to attend library training to acquire information literacy skills	2.79	2.65	2.76	0.389
I have insufficient financial resources to enable me to access a computer and internet data	3.27	2.74	3.16	0.002
This university has insufficient infrastructure & ICT equipment	3.03	1.9	2.81	0.000
The internet provided by the university is slow, and that hinders my access and use of VLIS.	3.31	2.56	3.16	0.000
The inefficiency of Library staff who provide VLIS	3.03	2.35	2.9	0.000

Findings of the descriptive statistics show that lack of awareness, frustrations by requests to buy/subscribe to get the resources, password hindrances requirements before logging in, use of alternative sources as well as complicated library websites appear to be the main setbacks limiting VLIS provision and utilization across the two university libraries. Although no major differences were noted between the two universities, users in Makerere university were more likely to report these limitations than those in UCU. This is indicated by the mean values where the average for Makerere university was greater than users in UCU. The main areas where significant variations existed between the two universities include password requirement for logging in ($P = 0.003$), insufficient financial resources and access to computer and Internet data ($0.002 < 0.05$), insufficient infrastructure and ICT equipment ($0.000 < 0.05$), poor Internet connectivity ($0.000 < 0.05$) and inefficient library staff who are expected to provide VLIS ($P = 0.00 < 0.05$). In all these areas, users in the public university were significantly disadvantaged compared to those in the private university.

Additionally, there was an open-ended question requesting users to give challenges/ limitations hindering them to access and utilize VLIS.

Table 3 showing extra setbacks limiting access and use of VLIS

	University					
	Public		Private		Total	
Lack of effective orientation/training about VLIS	61	19.6%	9	11.8%	70	18.0%
Poor internet connectivity	51	16.3%	21	27.6%	72	18.6%
Restricted access to (the) library/ resources	40	12.8%	10	13.2%	50	12.9%
ICT infrastructure/gadgets	20	6.4%	3	3.9%	23	5.9%
Data related issues	29	9.3%	1	1.3%	30	7.7%
Limited time to access/use the library	23	7.4%	5	6.6%	28	7.2%
Library staff	10	3.2%	0	0.0%	10	2.6%
Remote access	3	1.0%	1	1.3%	4	1.0%
Library physical infrastructure/environment	6	1.9%	0	0.0%	6	1.5%
No interest	2	.6%	2	2.6%	4	1.0%
Others	7	2.2%	4	5.3%	11	2.8%

Responses to the open-ended question revealed other challenges hindering accessibility and utilization of VLIS. In corroboration with earlier findings in which poor Internet connectivity was identified as the major need of users to be able to access VLIS, the same factors stood out as the most significant to the effective use of VLIS in the universities. This was reported by 18.6% of respondents, while lack of effective orientation or training about VLIS was also considered a major hindrance by 18% together with restricted access (12.9%) to

the library resources. Other factors included limited time to access/use the library (7.2%) high Internet data cost (7.7%) and ICT infrastructure (5.9%). Being a user of VLIS from a public university was largely associated with increased chances of citing the aforementioned limitations.

8. Discussion of findings

The study findings indicated immense benefits that accrue from VLIS, with the most highly rated including increased accessibility to e-resources (31.1%), timely access to current information (13.3%), and increased research skills (15.6%). Earlier studies also submitted cost-effectiveness, convenience, time-saving, flexibility as well as the ability to download as opportunities of VLIS (Peter et al., 2019; Singh, 2020). The unexpected finding from the structured questions however is that contacting the librarian to answer users' queries from anywhere was rated least, together with getting online news and updates about library events (Mean 3.2). These findings are unfortunate as they seem to reveal a gap on the side of VLIS providers. Much as the literature submits the flexibility of VLIS and prompt responses to users' queries as ideal benefits for VLIS, users of the surveyed universities seem to be missing this opportunity to its fullness. Indeed, these findings are confirmatory of the interview data where library staff informed response that surveyed libraries do not offer VLIS 24/7. In UCU for example, the telegram service is switched off at 10 pm until the following day. In Makerere too, users are not attended to on Sunday and at night as one staff explained that the university library has not developed an auto-response system that can work 24/7. This calls for the library management to be more intentional in responding to users' queries promptly.

9. Recommendations: We recommend the creation of all-inclusive interaction platforms where students will be able to send their queries to be addressed by librarians instantly. A telegram for example can ably manage the big numbers of Makerere University. It is recommended that each college should have a telegram group so as to handle the subject content of a given college. These telegram groups can be managed by the college librarians of the various colleges.

10. Conclusion: The study examined VLIS benefits and opportunities at Makerere and UCU in order to inform the development of strategies for more successful VLIS provision. The findings of the study revealed that although users enjoy some benefits accruing from VLIS, more effort is needed especially in responding to users' queries. The study recommends the intensification of information literacy training so as to equip users with skills to evaluate authentic sources of information. Libraries are also recommended to be more intentional in lifting restrictions to access their e-resources, create virtual interaction

platforms for both librarians and library users, and design strategies to involve all librarians participate in VLIS provision.

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