

Leveraging Web-Based Resources for Enhancing Reference Services in Federal University Libraries in Southeast Nigeria

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ABSTRACT

The study investigated the use of web-based resources by Librarians for effective reference service delivery in federal university libraries in South East Nigeria. The study employed descriptive survey design. The population of the study is 150 professional librarians in the five (5) federal university libraries in South East, Nigeria. Total enumeration technique was used. The instrument for data collection are Questionnaire and observation checklist. The questionnaire is named (UWERLESDQ). The data collected was coded into Statistical Package for the Social Sciences (SPSS) version 22 and was analyzed using frequency count, mean and standard deviation and presented using table. The findings of the study show that, only Nnamdi Azikiwe Library, University of Nigeria, Nsukka has adequate web-based resources. Festus Aghagba Nwako Library, Nnamdi Azikiwe University, Awka and Alex Ekwueme Federal University, Library has moderate level of availability of web-based resources, while there are inadequate web-based resources on the library web page of Federal University of Technology, Owerri library and Michael Okpara University of Agriculture, Library. The findings of the study also show that there is low extent of use of web-based resources for effective reference service delivery in all the university and also web-based resources are not used to offer any types of reference service delivery, except user education in all the university libraries studied. However, majority of the Librarians in the five federal university libraries are satisfactorily competent in the use of web-based resources for reference service delivery but are not using it due to many challenges such as erratic electric power supply, low internet bandwidth, inadequate connected computer system in reference sections, sub-standard telecommunication infrastructures etc. The study recommended that management of the Federal university libraries in southeast, Nigeria should subscribe to more web-based resources and provide the links to access open access web-based resources through their respective web page. The management of the Federal university libraries in southeast, Nigeria should encourage r staff, most especially those in reference section to always use web-based resources when offering reference and information service to their users.

Keywords: *Impact, Library, Information Science, Sustainable, Development and Goals*

Introduction

Every university library requires web-based resources to carry out their expected services as traditional method of

delivery library service will not be enough. The web-based resources are identifiable resource that could be in digital, physical, or abstract format and they are presented or connected to the World Wide Web. Web-based resources can be seen as digital resources that are residual on the web and

access to them requires internet enabled computer system (Uddin, Mamun and Rahman, 2019). University libraries serve as the intellectual repository of any university. They are libraries attached to universities to provide information resources and services to support the teaching, learning and research objectives of the university. University Libraries are the heart of the university education, because it provides library and information services and resources in various formats to support the teaching, learning and research objectives of the institution. Omeluzor, Dolapo, Agbawe, Onasote and Abayomi (2017) opines that, University library is an established and organised arm of a university with a clear mandate to provide relevant and up to date information resources that meet the information needs of its users. Madu (2014) defined the university library as one attached to an institution of higher learning of the status of a university and that it serves primarily students and others who need its services.

A university library is an academic institution that serves students, workers, and the community by providing library and information services to support teaching, learning, and research (Ifidon & Okoli 2012). It is responsible for the selection, acquisition, processing, storage, and dissemination of information resources to a wide range of users. University libraries are central to the functions of universities and contribute to the overall development of society through their provision of relevant information. Library and information services include cataloguing, classification, circulation services, registration, renewal, book reservation, current content, selective dissemination of information, indexing and abstracting services, bibliographic services, literature search services, interlibrary loan, document delivery, translation services, referee services, and reference services. Reference services are personal assistance provided by reference librarians to users, aiming to help them locate information resources that will be of help (Atande & Uchendu, 2017). These services include

reference and referral services, orientation activities, and instruction sessions that teach critical thinking skills for using library information resources. The importance of reference services in any library is crucial due to the proliferation of various information sources leading to information explosion, ignorance, and lack of search skills among library users (Madukoma, 2015).

Traditionally, reference services in university libraries are offered through face-to-face interaction between the reference staff and the user, where the queries of the user are being answered by the reference staff using available print resources in the library. This method of delivering reference service involves using print reference resources in the reference section of the library. One of the weaknesses of this traditional mode of reference services is space and time; this implies that it can only be provided if the user and the librarian meet face-to-face, hence, distance becomes a major barrier. According to Kudu (2011) traditional reference services cannot meet the information need of the 21st century users. However, over the past two decades, university libraries have experienced major shifts in technology. The emergence of the information superhighway has challenged university libraries to use web-based resources for providing reference services to their university populations so as to adequately meet their information needs and to remain relevant in this era where Internet and its super information resources is competing with university libraries. For university libraries and librarians to effectively deliver reference service to her users, web-based resources must be adequately and effectively used. The librarian who provides reference services to users is called reference Librarian. The reference librarian is the image maker of the library; he is also the intermediary between the library resources and their user. According to Udo-Anyamvu (2018) the reference librarian plays the role of an intermediary between the library users and

the world of information materials/ resources in the library. His skill in matching the right resources with the right user will distinguish him as a reference librarian par excellence. In the 21st century, reference librarian has to use web-based resources to provide effective information delivery to her users if they will continue to be patronized by information users who have other alternative apart from libraries.

Web-based resources are resources that are made available via web platforms and this is achievable with an internet enabled device. The web platforms provide access to stored information resources on multiple databases as these web services are possible through a web application. A web-based resource is an identifiable resource that could be in digital, physical, or abstract format and they are presented or connected to the World Wide Web. Web-based resources are digital resources that are residual on the web and access to them requires internet enabled computer system (Uddin, Mamun and Rahman, 2019). The term web-based resources consist of online journal, online database, online magazines, online archives, online theses and dissertation, online conference papers, online government papers, scripts and monograph in electronic forms (Deng, 2010). DOAJ, MEDLINE, ZLibrary, PDFDrive, ScienceDirect, AGORA, HINARI, OARE, LexisNexis and Ebscohost are examples of web-based resources (Ani and Edem, 2012).

Technology has significantly impacted modern library service delivery, revolutionizing web-based library services and serving as information gateways for accessing digital information resources. These resources, located on the web, require an internet-enabled device and can be accessed anywhere in the world. Web technology has transformed the way information is organized in libraries, allowing for preservation, retrieval, and dissemination of information Norris (2014). As libraries transition to a digital environment, improved access to remote

library collections makes electronic information resources more realistic and attractive (Uddin, Mamun and Rahman, 2019). Websites are notable web-based resources that communicate via a browser, facilitated by the World Wide Web. Without a web browser, the usability and accessibility of web applications would be impossible. The web is a repository of pages used to access static or dynamic content via interconnected networks, a system of interlinked hypertext documents accessed via the internet (Khanzode & Sarode, 2016). The World Wide Web is a vast repository of web-based resources used in reference services delivery to users via an internet-enabled device. Web-based resources are digital resources found on web sites, which are folders that house a pool of information content on web pages. They are dynamically allowing users to interact with them and make them more accessible.

Web-based resources are increasingly being used by university libraries to meet the information needs of their users. These resources are made available to users through web platforms, which are made possible by the World Wide Web. Many libraries worldwide are focusing on online or web-based resources to provide efficient reference services (Deepa & Abdul Azeez, 2016). This digital reference service delivery aims to provide prompt responses to users' information needs, unlike traditional methods that can be time-consuming and delaying. Preliminary examination of university libraries in South East, Nigeria, reveals that most have both open-source and subscription-based web-based resources. Open-source resources include DOAJ, DOAB, Pubmed Central, Virtual Library on Capacity Development, Educational Resource Information, and Z-Lib. Subscription-based resources include Science Direct, ARDI, AGORA, EBSCO-HOST, JSTOR, MEDLINE, HINARI, TEEAL, Cellpress, Database of African Theses and Dissertations (DTAD), OARE, and LexisNexis (Haridasan & Firdaus, 2021). However, there is a lack of literature

on the use of web-based resources by reference staff in the delivery of reference services. This study aims to fill this gap by examining the use of web-based resources by librarians for effective reference service delivery in university libraries in South East Nigeria.

Purpose of the Study

The main purpose of the study is to examine the use of web-based resources by Librarians for effective reference service delivery in federal university libraries in South East Nigeria. Specifically, the study was sought to:

1. Identify the web-based resources available for effective reference service delivery in federal university libraries in South East, Nigeria.
2. Determine the extent of use of available web-based resources by Librarians for effective reference service delivery in federal university libraries in South East, Nigeria.
3. Examine the reference services that Librarians uses web-based resources to provide in federal university libraries for effective reference service delivery in South East, Nigeria.
4. Determine the extent to which the use of web-based resources by Librarians contribute to effective reference service delivery in federal university libraries in South East, Nigeria.
5. Determine the competency possessed by librarians in the use of web-based resources for effective reference service delivery in federal university libraries in South East, Nigeria
6. Proffer strategies to enhance the use of web-based resources by Librarians for effective reference service delivery in federal university libraries in South East, Nigeria.

Literature Review

Competencies of Librarian in the Use of Web-Based Resources for Effective Reference Service Delivery in University Libraries

Some of the competencies of Librarian in the use of web-based resources for effective reference service delivery in university libraries are connecting to the internet, switching on/off computers, uploading/downloading web-based files, storing web-based files on personal computer, sending and receiving emails, among others. Anunobi and Ogbonna (2012) revealed a low competency in the use web-based resources by the librarians. In developed countries like America and UK, there are high levels of knowledge of the benefit of Web applications in providing effective library services and libraries in these countries have already been adopted and implemented (Hussain, 2018). Oyovwe-Tinuoye, Krubu and Ijiekhuamhen (2017) revealed that librarians' competency of social tagging and book marking is limited. Users do not also have knowledge of the protocols involved in social communication. Competency is what prompt the use of technology by people as what one is not competent of, one cannot use. Eze (2016) opined that the popularity of Web applications is affecting the way that academic libraries operate. There are currently a lot of studies on the use of web 2.0 in developed countries with only a few corresponding studies on the competency and use of web applications by librarians in Nigeria (Oyovwe-Tinuoye, Krubu, and Ijiekhuamhen, 2017).

Studies such as Abidin, Kiran and Abrizah (2013) and Ezeani and Igwesi (2012) revealed that library professionals in developing countries have low knowledge of the existence of Web applications in library services. Okello-Obura and Ikoja-Odongo (2010) emphasized that, an adequate knowledge of computers and retrieval techniques is desirable to search the

electronic resources effectively. Ekenna and Iyabo (2013) argued that some search strategies like use of Boolean logic, truncation, wildcat and proximity features are useful for using web-based resources. Van-Deursen and Van-Dijk (2014) distinguished four types of digital skills: Operational skills that is being able to operate an internet browser, Formal Skills which is ability to navigate on the internet by recognizing and using hyperlinks, information skills that is, ability to locate, select and process information and evaluate the information source and strategic skills that is, taking advantage of the internet by goal-oriented action and making decisions to gain personal benefits.

Strategies for enhancing the use of web-based resources by Librarians for effective reference service delivery in university libraries

Some strategies for enhancing the use of web-based resources by Librarian for effective reference service delivery in university libraries are adequate skills, constant power supply, standard internet connectivity, adequate workstation computers, adequate telecommunication facilities, and subscription to fee based electronic resources. Idiegbeyan-Ose et al (2016) recommended some effective strategies that could be deployed when using web-based resources for reference service delivery to include that, Government of developing countries should formulate policies of the web and also, they should provide adequate ICT infrastructures for libraries in developing countries. Government and other institutions should try as much as possible to bridge the digital gap and this will enable university libraries to take the full benefits of web base resources and at the same time remain relevant in this present day.

The major challenge in the utilization of ICT has been identified as funding. This is evident because the other challenges identified hinge on finance. More generous financial support should be made

available to libraries to provide the basic infrastructural facilities. The university management should also increase the budget of the libraries, knowing fully well that the provision of online services is capital intensive. The monthly impress of the libraries should be made regular. Library administrators should seek funds from the many foreign agencies and foundations who give financial assistance and equipment to libraries (Krubu and Osawara, 2011; Eze and Uzoigwe, 2013). Similarly, Eke and Ekwelem (2014) suggested improved internet connectivity, re-orientation/orientation of library staff, provision of computer facilities, improved electricity/steady power supply, and training of library users on online reference services as the possible strategies to enhance the use of ICT in effective reference and information service delivery in Nigerian university libraries.

Similarly, Fabunmi (2019) suggested that, government must increase the funding of academic institutions. This is imperative seeing that some of the private institutions owners' lukewarm attitude is inspired by similar attitude on the part of government. It is only when the funding of academic institutions is increased that the academic libraries in Nigeria will have the required funds to increase their ICT applications. Even with increased funding, the desire results will not be seen unless comprehensive ICT policies are developed and documented as well as published for scrutiny at the national, institutional and library levels. Similarly, Okiy (2015) suggested that university libraries should seek for more grants and fund to upgrade or establish the necessary web-based information infrastructures. The author further stated that, the information in digital format is more space-saving and it is easier and cheaper to communicate via telephone over long distances. With the shift and emphasis on access rather than ownership, the cost of both hardware and software, and lack of adequate web technology skilled librarians makes the formation of a library consortium very

critical to building a successful virtual library project. To meet the consumers' needs, digital library systems must be dependable; must be reasonably priced; must have powerful, easy-to-use, intelligent search engines; must have attractive user interfaces; must allow the consumer to inspect the "product" before buying; and must allow access from, and delivery to, the consumer's workstation.

Librarians and information professionals should be involved in all library initiatives. Training should be organized for the librarians and information professionals that will be involved in building a virtual library (Elisha, 2016). The author also asserted that, virtual library should provide access to subscribe electronic resources, free web-based resources, locally digitized resources and open access resources. To help address the cost electronic and proprietary software, the government of Nigeria should encourage the use of open-source software and open access electronic resources. Edem (2015) posit that students must be given the kind of training that would impart sufficient understanding of the technology that powers the information society. An information literacy programme should be incorporated into the curriculum of schools to provide students with a wider range of information handling skills which encompasses accessing, processing and retrieving relevant, timely, accurate information for identified need. According to Opeke (2014), such skills will empower students to be conscious of the power of information in all spheres of life and hence be able to apply the same in decision making and the construction of structures that make for enduring political, social and economic development of a nation. Also, Okiy (2015) suggested that the Nigerian Universities Commission, the Nigerian Library Association, the Librarians' Registration Council of Nigeria, etc, should be properly sensitized and coordinated to carry out this exercise. Government should put policies in place to promote the provision of adequate

library facilities and resources at all levels of the educational system in Nigeria.

Methodology

This descriptive survey was designed to study the opinions and views of librarians in federal university libraries in South East, Nigeria. The study was conducted in the region, which is one of six geopolitical zones in the country and comprises five states: Abia State, Anambra State, Ebonyi State, Enugu State, and Imo State. The major occupation of the residents in the South East region is trade, with few farmers and civil servants.

The study included 154 professional librarians from five federal university libraries in South East, Nigeria. The total population of the study was 154 librarians, and total enumeration technique was used. A structured questionnaire titled "UWERESDQ" was developed by the researcher for the study, divided into two parts: Part A focused on demographic information of the respondents and Part B focused on answering research questions. The questionnaire was further subdivided into three clusters: Cluster one dealt with the extent of use of web-based resources by Librarians for effective reference service delivery in federal University libraries in South East, Nigeria, and Cluster two focused on the reference services web-based resources are used for in federal university libraries in South East, Nigeria.

The observation checklist was used to identify web-based resources available on the federal university library web page or portal. To ascertain the validity of instruments, the questionnaire and observation checklist were subjected to validation by three experts: two from the Department of Library and Information Science of University of Nigeria Nsukka and one from Measurement and Evaluation Unit, Department of Science Education. The experts were requested to look at the content of the questionnaire and observation

checklist to ensure it aligns with the purposes of the study and research questions.

The researcher personally visited all the web pages or portals of the federal university libraries under study to observe and tick the appropriate items on the observation checklist. The questionnaires were administered with the help of research assistants who were also librarians of the federal university libraries under study. The

data collected was coded into Statistical Package for the Social Sciences (SPSS) version 22 and analyzed using frequency count, mean, and standard deviation. The decision rule was based on the criterion mean of 2.50, with items with a mean score of 2.50 or above being accepted and those below 2.50 being rejected.

RESULTS

Research Question 1: What are the web-based resources available for effective reference service delivery in federal university libraries in South East, Nigeria?

Table 1: Observation Checklist Results of web-based resources available for effective reference service delivery in federal university libraries in South East, Nigeria

S/ N	Web-based resources	NAL, UNN		UNIZIK Library		FUTO, Library		MOUAU, Library,		AEFUNAI, Library		Overall		DE
		A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	
1	Online public Access Catalogue	√			X	X		X		X		1	4	NA
2	Institutional Repository	√		√			X	√		X		3	2	A
3	Directory of Open Access Journal (DOAJ)	√		√		√		√		√		5	0	A
4	Directory of Open Access Books (DOAB)	√		√		√		√		√		5	0	A
5	HINARI	√		√		√			X	√		4	1	A
6	ARDI	√		√		√			X	√		4	1	A
7	OARE	√		√		√			X	√		4	1	A
8	AGORA	√		√		√			X	√		4	1	A
9	EBSCOHOST Journal	√		√		√			X	√		4	1	A
10	EBSCOHOST Books	√		√		√			X	√		4	1	A
11	Nature publishing Group	√		√					X	√		4	1	A
12	Edward Elgar's Journals and development Studies eBooks	√		√			X		X	√		3	2	A
13	JSTOR	√		√		√			X	√		4	1	A
14	Science Direct	√		√		√			X		X	3	2	A
15	Cellpress	√			X		X		X	√		2	3	N-A
16	INASP	√			X		X		X	√		2	3	N-A
17	TEEAL	√			X		X		X	√		2	3	N-A
18	Pubmed central	√			X		X		X	√		2	3	N-A
19	Virtual library capacity development	√			X		X		X	√		2	3	N-A
20	Educational Resources Information (ERIC)	√		√			X	√			X	3	2	A
21	Z-Library	√		√			X	√			X	3	2	A
22	Proquest	√		√			X	√			X	3	2	A
	Total	22		16		10		6		16				

Data from table 1 above shows that all the 22 web-based resources presented by the research such as Online public Access Catalogue, Institutional Repository, Directory of Open Access Journal (DOAJ), Directory of Open Access Books (DOAB), HINARI, ARDI, OARE, AGORA, EBSCOHOST Journal, EBSCOHOST Books, Nature publishing Group, Edward Elgar's Journals and development Studies eBooks, JSTOR, Science Direct, Cellpress,

INASP, TEEAL, Pubmed central, Virtual library capacity development, Educational Resources Information (ERIC), Z-Library, and Proquest were available on the library web page of Nnamdi Azikiwe Library, University of Nigeria, Nsukka. 16 out of 22 web-based resources presented were available in Festus Aghagba Nwako Library, Nnamdi Azikiwe University, Awka and Alex Ekwueme Federal University, Library. 10 out of 22 web-based resources presented were available in Federal University of

Technology, Owerri library, while 6 out of 22 web-based resources presented were

available in Michael Okpara University of Agriculture, Library.

Research Question 2: To what extent are available web-based resources used by Librarians for effective reference service delivery in federal university libraries in South East, Nigeria?

Table 2: Mean Response on the Extent of Use of Web-Based Resources by Librarians for Effective Reference Service Delivery in Federal University Libraries in South East, Nigeria.

S/ N	Web-based resources	NAL, UNN		UNIZIK Library		FUTO, Library		MOUAU, Library,		AEFUNA, Library		Overall		
		\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	D
1	AGORA	1.00	0.00	4.67	5.03	1.03	0.18	1.85	0.90	1.36	0.48	1.98	1.32	LE
2	Nature publishing Group	1.07	0.26	1.70	0.46	2.45	0.48	2.18	0.75	1.63	0.81	1.81	0.55	LE
3	EBSCOHOST Journal	1.45	0.50	2.76	1.19	1.91	0.50	1.63	0.81	1.00	0.00	1.75	0.60	LE
4	Science Direct	1.05	0.22	1.07	0.26	2.46	0.73	1.92	0.75	1.93	0.26	1.69	0.44	LE
5	JSTOR	1.00	0.00	1.51	0.77	1.91	0.98	1.79	0.77	1.88	0.33	1.62	0.57	LE
6	ARDI	1.62	0.49	1.93	0.26	1.08	0.28	1.65	0.66	1.45	0.50	1.55	0.44	LE
7	EBSCOHOST Books	1.50	0.51	1.00	0.00	1.25	0.63	2.08	0.68	1.85	0.90	1.54	0.54	LE
8	Proquest	1.00	0.00	1.07	0.25	1.48	0.70	2.18	0.75	1.91	0.50	1.53	0.44	LE
9	Educational Resources Information (ERIC)	1.88	0.33	1.18	0.38	1.59	0.49	1.63	0.81	1.21	0.40	1.50	0.48	LE
10	Directory of Open Access Journal (DOAJ)	1.74	0.45	1.00	0.00	1.02	0.13	1.92	0.75	1.62	0.49	1.46	0.36	VLE
11	Cellpress	1.00	0.00	1.32	0.47	1.36	0.48	1.92	0.68	1.59	0.49	1.45	0.42	VLE
12	Z-Library	1.40	0.50	1.02	0.13	1.70	0.46	2.08	0.68	1.03	0.18	1.45	0.38	VLE
13	Edward Elgar's Journals and development Studies eBooks	1.07	0.26	1.48	0.70	2.06	0.97	1.53	0.67	1.00	0.00	1.43	0.52	VLE
14	Online public Access Catalogue	1.05	0.22	2.00	0.00	1.39	0.49	1.53	0.67	1.07	0.26	1.41	0.31	VLE
15	OARE	1.05	0.22	1.59	0.49	1.21	0.40	1.71	0.76	1.50	0.51	1.41	0.48	VLE
16	HINARI	1.40	0.50	1.88	0.33	1.00	0.00	1.65	0.66	1.00	0.00	1.39	0.30	VLE
17	Institutional Repository	1.05	0.22	1.36	0.48	1.19	0.39	1.79	0.77	1.40	0.50	1.36	0.47	VLE
18	Virtual library capacity development	1.00	0.00	1.02	0.14	1.93	0.26	1.85	0.90	1.00	0.00	1.36	0.26	VLE
19	INASP	1.00	0.00	1.02	0.13	1.00	0.00	1.65	0.66	2.00	0.00	1.33	0.16	VLE
20	Pubmed central	1.00	0.00	1.00	0.00	1.88	0.33	1.71	0.76	1.00	0.00	1.32	0.22	VLE
21	Directory of Open Access Books (DOAB)	1.07	0.26	1.00	0.00	1.05	0.22	1.92	0.68	1.05	0.22	1.22	0.28	VLE
22	TEEAL	1.00	0.00	1.00	0.00	1.00	0.00	1.65	0.66	1.36	0.48	1.20	0.40	VLE

Data from table 2 shows that the extent of use of available web-based resources by Librarians for effective reference service delivery in federal university libraries in South East, Nigeria is low. This is because the mean score of the items ranges from 1.20 to 1.98 which is within low extent and very low extent, while item 1-9 are used to a low extent, item 10-22 are used to a very low extent. Also, apart from users education, web-based resources are use to a low extent when offering other types of reference services such as Translation services, Referral services, Answering user's queries, Assistance in locating information resources in the library, Current Awareness Services, Information

delivery services, E-Mail Reference Service, Web-form/query form reference service, Live-chat reference service, Telephone reference service, Short message service (SMS) reference service, Ask-a-service, Video-call reference service, Social media reference service, Reference robot service, Collaborative digital reference service, and Voice-call reference service.

Research Question 3: Reference services that Librarians uses web-based resources to provide in federal university libraries for effective reference service delivery
Table 3: Mean Response on the reference services that Librarians uses web-based resources to provide in federal university libraries for effective reference service delivery

S/N		NAL, UNN		UNIZIK Library		FUTO, Library		MOUAU, Library,		AEFUNAI, Library		D	SD	SD	D	
		\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD					
1	User Education	3.77	0.42	3.42	0.67	3.21	0.68	3.18	0.91	3.47	0.80				0.70	HE
5	Assistance in locating information resources in the library	1.00	0.00	1.67	0.03	1.03	0.18	1.85	0.90	1.36	3.41	0.70	HE	1.98	1.32	LE
6	Current Awareness Services	1.45	0.50	2.76	0.56	1.91	0.50	1.63	0.81	1.00	0.00	LE	1.75	0.60	LE	
3	Referral services	1.62	0.49	1.93	0.26	1.08	0.28	1.65	0.66	1.45	0.60	LE	1.55	0.44	LE	
7	Information delivery services	1.50	0.51	1.00	0.00	1.25	0.63	2.08	0.68	1.85	0.50	LE	1.46	0.54	LE	
9	Web-form/query form reference service	1.05	0.22	1.36	0.48	1.19	0.39	1.79	0.77	1.92	0.22	VLE		0.22	VLE	
8	E-Mail Reference Service	1.05	0.22	2.00	0.00	1.39	0.49	1.53	0.67	1.92	0.44	VLE	1.43	0.49	VLE	
4	Answering user's queries	1.05	0.22	1.59	0.49	1.21	0.40	1.71	0.76	1.50	0.49	VLE	1.41	0.48	VLE	
18	Voice-call reference service	1.62	0.49	1.93	0.26	1.08	0.28	1.65	0.66	1.45	0.50	VLE	1.40	0.49	VLE	
2	Translation services	1.40	0.50	1.88	0.33	1.00	0.00	1.65	0.66	1.00	0.48	VLE	1.39	0.30	VLE	
17	Collaborative digital reference service	1.40	0.50	1.88	0.33	1.00	0.00	1.65	0.66	1.00	0.00	VLE	1.36	0.26	VLE	
12	Short message service (SMS) reference service	1.40	0.50	1.02	0.13	1.70	0.46	2.08	0.68	1.03	0.30	VLE	1.21	0.51	VLE	
14	Video-call reference service	1.05	0.22	1.36	0.48	1.19	0.39	1.79	0.77	1.40	0.26	VLE	1.81	0.51	VLE	
11	Telephone reference service	1.88	0.33	1.18	0.38	1.59	0.49	1.63	0.81	1.21	0.40	VLE	1.08	0.50	VLE	
16	Reference robot service	1.07	0.26	1.00	0.00	1.05	0.23	1.92	0.68	1.04	0.50	VLE	1.07	0.22	VLE	
13	Ask-a-service	1.00	0.00	1.07	0.25	1.48	0.70	2.18	0.75	1.91	0.22	VLE		0.50	VLE	
15	Social media reference service	1.74	0.45	1.00	0.00	1.02	0.13	1.92	0.75	1.62	1.03	0.50	VLE	1.02	0.22	VLE
10	Live-chat reference service	1.74	0.45	1.00	0.00	1.02	0.13	1.92	0.75	1.65	0.49	VLE	1.00	0.00	VLE	
											0.66	VLE				
											0.00	VLE				

Data from table 3 shows the responses on the Reference services that Librarians uses web-based resources to provide in federal university libraries for effective reference service delivery. From the results, apart from users education, with mean of 3.41, web-based resources are use to a low extent when offering other types of reference services such as Translation services, Referral services, Answering user's queries, Assistance in locating information resources in the library, Current Awareness Services, Information delivery services, E-Mail Reference Service, Web-form/query

form reference service, Live-chat reference service, Telephone reference service, Short message service (SMS) reference service, Ask-a-service, Video-call reference service, Social media reference service, Reference robot service, Collaborative digital reference service, and Voice-call reference service with mean score ranging from 1.00 to 1.98 which implies low extent of use.

Research Question 4: To what extent does the use of web-based resources by Librarians contribute to effective reference service delivery in federal university libraries in South East, Nigeria?

Table 4: Mean Response on the extent to which the use of web-based resources by Librarians contribute to effective reference service delivery in federal university libraries in South East, Nigeria

S / N	NAL, UNN		UNIZIK Library		FUTO, Library		MOUAU, Library,		AEFUNAI, Library		Overall		
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	D
1	3.56	0.64	3.38	0.72	3.81	0.50	3.55	0.62	3.51	0.60	3.68	0.77	VHE
2	3.50	0.50	3.20	0.77	3.68	0.57	3.46	0.61	3.30	0.70	3.58	0.69	VHE
3	3.22	0.80	3.03	1.03	3.36	0.78	3.20	0.87	3.12	0.90	3.36	0.50	HE
4	3.22	0.62	3.18	0.96	3.54	0.70	3.31	0.76	2.98	0.74	3.34	0.62	HE
5	3.28	0.60	3.15	0.69	3.58	0.75	3.33	0.68	3.12	0.85	3.33	0.96	HE
6	3.14	0.72	3.12	0.89	3.64	0.62	3.30	0.74	3.10	0.78	3.28	0.63	HE
7	3.28	0.73	2.98	0.97	3.41	0.72	3.22	0.81	2.92	0.89	3.20	0.76	HE
8	3.17	0.95	3.06	0.93	3.62	0.63	3.28	0.84	2.96	0.83	3.12	0.61	HE
9	3.34	0.72	3.20	0.96	3.22	0.85	3.25	0.84	2.95	0.89	3.06	0.68	HE

Data from table 4 from shows that the extent to which the use of web-based resources by Librarians contributes to effective reference service delivery in federal university libraries in South East, Nigeria is high. From the results, use of web-based resources enhances the amount of information resources used for reference services, with 3.68 mean score; and Use of web-based resources helps to facilitate the delivery of reference services via modern technology, with 3.58 mean score, ranked 1st and 2nd respectively. Others are that, the use of web-based resources will contribute to enhanced user education through the use of digital library tour, enable the reference

librarian to offer reference services to user at the comfort of home, office etc. without necessarily visiting the physical library, helps to reduce the barrier of space and time in the delivery of reference services, helps to reduce the barrier of space and time in the delivery of reference services, help to facilitate collaborative reference services among university libraries, facilitate in the migration to online reference services among university libraries, help to increase the availability of up-to-date information resources for meeting the information needs of users, and enhance information retrieval for effective reference service delivery, with mean of 3.36, 3.34, 3.33, 3.28, 3.20, 3.12 and 3.06 respectively.

Research Question 5: What are the competencies possessed by librarians in the use of web-based resources for effective reference service delivery in federal university libraries in South East, Nigeria?

Table 5: Mean Response on the competency possessed by librarians in the use of web-based resources for effective reference service delivery in federal university libraries in South East, Nigeria

S/ N		NAL, UNN		UNIZIK Library		FUTO, Library		MOUAU, Library,		AEFUNAI, Library		Overall		D
		\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	
1	On/off computer system	3.55	0.63	3.05	0.91	3.14	0.92	3.23	0.81	3.51	0.69	3.55	0.69	H
2	Use smartphone to connect to the Internet	3.40	0.69	2.82	0.96	3.24	0.82	3.00	0.59	3.29	0.72	3.44	0.50	C
3	Use of library-oriented software to deliver reference service using web base resources	3.38	0.74	2.85	1.01	3.23	0.84	3.00	0.91	3.27	0.74	3.27	0.60	C
4	Send and receive emails	3.49	0.69	3.08	0.92	3.44	0.81	3.21	0.86	3.71	0.66	3.24	0.70	C
5	Download web base resources	3.48	0.65	3.12	1.00	3.21	0.87	3.10	0.87	3.71	0.66	3.23	0.59	C
6	Send and receive web-based resources over the internet	3.55	0.68	3.18	0.93	3.36	0.85	3.23	0.83	3.72	0.53	3.18	0.65	C
7	Navigate the web for sourcing Information resources	3.45	0.70	2.84	1.01	3.27	0.76	3.07	0.85	3.15	0.87	3.18	0.87	C
8	Using web base databases	3.41	0.76	3.05	0.85	3.06	0.97	3.02	0.88	3.27	0.90	3.08	0.64	C

Data from table 5 shows the competency possessed by librarians in the use of web-based resources for effective reference service delivery in federal university libraries in South East, Nigeria. From the results ability to On/off computer system, with mean of 3.55; Use smartphone to connect to the Internet, with 3.44 mean score; Use of library-oriented software to deliver reference service using web base resources, with mean of 3.27, Send and receive emails, with mean of 3.24; and Download web base resources, with 3.23 mean score are the major competency possessed by librarians in the use of web-based resources for effective reference service delivery in federal university libraries in South East, Nigeria.

Data from table 7 shows the responses on the strategies to enhance the use of web-based resources by Librarians for effective reference service delivery in federal university libraries in South East, Nigeria. From the results, the major strategies are Adequate fund should be allocated to acquiring web base resources, Libraries

should acquire and install standby generator or install a solar power supply in the library or reference section so as to provide 24/7 steady power supply, Improved internet connectivity, web base resources use policy should be written and implemented in the university library for reference service delivery, Young librarians that are technology savvy should be employed, and Provision of adequate computer facilities, with mean of 3.79, 3.69, 3.67, 3.60, 3.54, and 3.44 respectively ranked 1st to 6th.

Research Question 6: What are the strategies to enhance the use of web-based resources by Librarians for effective reference service delivery in federal university libraries in South East, Nigeria?

Table 7: Mean Response on the strategies to enhance the use of web-based resources by Librarians for effective reference service delivery in federal university libraries in South East, Nigeria

S/N	Strategies	NAL, UNN		UNIZIK Library		FUTO, Library		MOUAU, Library,		AEFUNAI, Library		Overall		
		\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	D
1	Adequate fund should be allocated to acquiring web base resources	3.97	0.17	3.88	0.32	3.77	0.68	3.72	0.61	3.92	0.3	3.79	0.	VA
5	Libraries should acquire and install standby generator or install a solar power supply in the library or reference section so as to provide 24/7 steady power supply.	3.79	0.41	3.52	0.66	3.89	0.32	3.40	0.74	3.55	0.5	3.69	0.	VA
2	Improved internet connectivity	3.96	0.20	3.69	0.51	3.51	0.70	3.67	0.71	3.90	0.4	3.67	0.	VA
3	web base resources use policy should be written and implemented in the university library for reference service delivery	3.83	0.40	3.58	0.69	3.38	0.75	3.67	0.71	3.63	0.7	3.60	0.	VA
4	Young librarians that are technology savvy should be employed	3.81	0.45	3.54	0.64	3.34	0.73	3.48	0.67	3.57	0.5	3.54	0.	VA
6	Provision of adequate computer facilities	3.70	0.76	3.29	0.68	3.78	0.44	3.40	0.74	3.37	0.8	3.44	0.	A
8	Training staff in the use of web base resources for reference service delivery	3.60	0.53	3.27	0.85	3.50	0.76	3.35	0.93	3.21	0.9	3.38	0.	A
9	Training of library users on Online Reference Services	3.55	0.52	3.40	0.85	3.44	0.91	3.28	0.97	3.12	0.9	3.38	0.	A
7	Re-orientation/orientation of library staff	3.65	0.57	3.27	0.85	3.55	0.80	3.29	0.76	3.28	0.8	3.27	0.	A

Discussion of Findings

Web-based resources available for effective reference service delivery in federal university libraries in South East, Nigeria

The findings of the study revealed that, there are adequate web-based resources in Nnamdi Azikiwe Library, University of Nigeria, Nsukka. This is because all the 22 web-based resources presented by the research such as Online public Access Catalogue, Institutional Repository, Directory of Open Access Journal (DOAJ), Directory of Open Access Books (DOAB), HINARI, ARDI, OARE, AGORA, EBSCOHOST Journal, EBSCOHOST Books, Nature publishing Group, Edward Elgar's Journals and development Studies eBooks, JSTOR, Science Direct, Cellpress, INASP, TEEAL, Pubmed central, Virtual library capacity development, Educational Resources Information (ERIC), Z-Library, and Proquest were available on the library

web page. This is in accordance with that of Eke (2014) who found out that, electronic newspapers, electronic magazines, electronic journals, electronic indexes, electronic abstract, electronic thesis and dissertation, Online Public Access Catalogues, Ebscohost database, JSTOR database, ScienceDirect, HINARI database, AGORA database, Directory of open access journal (DOAJ), and Directory of open access book (DOAB) are available in Nnamdi Azikiwe Library, University of Nigeria, Nsukka.

The findings also revealed that 16 out of 22 web-based resources presented were available in Festus Aghagba Nwako Library, Nnamdi Azikiwe University, Awka and Alex Ekwueme Federal University, Library. This implies moderate level of availability of web-based resources in the Festus Aghagba Nwako Library and Alex Ekwueme Federal University, Library. This is in accordance with the findings of Haridasan and Firdaus, (2021) who found out that university libraries in Nigeria are

beginning to acquire web-based resources, however not adequate.

On the contrary, the findings revealed inadequate availability of web-based resources in Federal University of Technology, Owerri library and Michael Okpara University of Agriculture, Library. This is because Federal University of Technology, Owerri library has only ten out of twenty-two web-based resources presented on the checklist, while Michael Okpara University of Agriculture, Library has only 6. Overall, apart from Nnamdi Azikiwe Library, University of Nigeria, Nsukka, none of the other four federal university libraries has a functional Online Public Access Catalogue (OPAC). The finding is in agreement with that of Okiki, (2012) who in a study identified that most university libraries in Nigeria has little or no adequate electronic resources for providing services to their students. The author asserted that print information resources are more available in most university libraries in developing countries.

Extent of use of available web-based resources by Librarians for effective reference service delivery in federal university libraries in South East, Nigeria

The findings revealed that there the extent of use of available web-based resources by Librarians for effective reference service delivery in federal university libraries in South East, Nigeria is low. This implies that web-based resources are rarely used by librarians when offering reference services to their users. This is because the responses showed that none of the web-based resources was used to a high extent among librarian using offering reference service to the users. The findings correspond with that of Uddin, Mamun and Rahman, (2019) who found out that there is low utilization of web-based resources for service delivery in university libraries in Nigeria. the findings also further justify that of Udo-Anyamvu (2018) who reported that, librarians in Nigeria university libraries uses electronic information resources to a low extent when offering services to the users.

Reference services that Librarians uses web-based resources to provide in federal university libraries for effective reference service delivery in South East, Nigeria.

The findings revealed that, apart from users education, web-based resources are use to a low extent when offering other types of reference services such as Translation services, Referral services, Answering user's queries, Assistance in locating information resources in the library, Current Awareness Services, Information delivery services, E-Mail Reference Service, Web-form/query form reference service, Live-chat reference service, Telephone reference service, Short message service (SMS) reference service, Ask-a-service, Video-call reference service, Social media reference service, Reference robot service, Collaborative digital reference service, and Voice-call reference service. This implies that the extent of provision of electronic or online based reference services is low in all the federal university libraries in southeast, Nigeria. The finding is in accordance with that of Vinitha (2014) who found out in an earlier study that the provision of electronic information services is low in Nigeria university libraries due to many challenges. However, the findings are in disagreement with that of Pomerantz (2014), who observed that, since the invention of the World Wide Web, there has been a great increase in the number of reference services utilizing asynchronous electronic communication media to conduct the reference transaction.

Extent to which the use of web-based resources by Librarians contribute to effective reference service delivery in federal university libraries in South East, Nigeria

The findings of the study revealed that the extent to which the use of web-based resources by Librarians contributes to effective reference service delivery in federal university libraries in South East, Nigeria is very high. This is because majority of the librarians agreed that, Use of web-based

resources will enhance the amount of information resources used for reference services; helps to facilitate the delivery of reference services via modern technology; helps to reduce the barrier of space and time in the delivery of reference services; enable the reference librarian to offer reference services to user at the comfort of home, office etc. without necessarily visiting the physical library; help to facilitate collaborative reference services among university libraries; will help to increase the availability of up-to-date information resources for meeting the information needs of users; will enhance information retrieval for effective reference service delivery; will facilitate in the migration to online reference services among university libraries; and will contribute to enhanced user education through the use of digital library tour. This implies that the use of web-based resources by Librarians has the potentials to facilitate effective reference service delivery and increased users' satisfaction. The finding is in accordance with that of Awodoyin (2016) who stated that the delivery of digital reference and information services are capable of effective use of information resources and service among students even at the comfort of their home, anytime, anywhere via the necessary technologies.

Competency possessed by librarians in the use of web-based resources for effective reference service delivery in federal university libraries in South East, Nigeria

The findings of the study revealed that, majority of the Librarians possess satisfactory competency in the web-based resources for effective reference service delivery in federal university libraries in South East, Nigeria. This is because the librarians possess high competency required to On/off computer system, Send and receive web-based resources over the internet, send and receive emails, download web-based resources, navigate the web for sourcing information resources, using web-based databases, use smartphone to connect to the internet, and use of library oriented software to deliver reference service using web based

resources. This implies that majority of the librarians studied possess the skills needed to use web-based resources for effective reference service delivery in federal university libraries in South East, Nigeria. The finding is supported by the fact that most librarians possess computer operating skills, basic online navigation skills, social networking skills, sending and receiving electronic messages among others.

Strategies to enhance the use of web-based resources by Librarians for effective reference service delivery in federal university libraries in South East, Nigeria.

The findings of the study revealed that, the major strategies to enhance the use of web-based resources by Librarians for effective reference service delivery in federal university libraries in South East, Nigeria are Libraries should acquire and install standby generator or install a solar power supply in the library or reference section so as to provide 24/7 steady power supply, Improved internet connectivity, Young librarians that are technology savvy should be employed, Re-orientation/orientation of library staff, Adequate fund should be allocated to acquiring web-based resources, Training staff in the use of web-based resources for reference service delivery, web-based resources use policy should be written and implemented in the university library for reference service delivery, Provision of adequate computer facilities and Training of library users on Online Reference Services.

The finding is in accordance with that of Adebayo (2019) whose earlier study found out that, constant power supply, standard internet connectivity, adequate workstation computers, adequate telecommunication facilities, Provision of adequate technological infrastructures in the university libraries are some of the strategies to enhance the use of web-based resources. Also, with that of Amusa, and Atinmo (2016) who recommended that, the library should put in place strategies that will promote and, monitor on a regular basis the use of web-based resources and services by members of the university community. The

university and the library should make effort to organise more in-depth training for effective use of electronic resources and services by students. The problem of power outage, a national issue should be critically addressed through special budgetary allocation, an institutional commitment to ensure a 24-hour lighting system.

Conclusion

The study examined the use of web-based resources by Librarians for effective reference service delivery in federal university libraries in South East Nigeria. Based on the findings, the study concluded that, only Nnamdi Azikiwe Library, University of Nigeria, Nsukka has adequate web-based resources. Festus Aghagba Nwako Library, Nnamdi Azikiwe University, Awka and Alex Ekwueme Federal University, Library has moderate level of availability of web-based resources, while there are inadequate web-based resources on the library web page of Federal University of Technology, Owerri library and Michael Okpara University of Agriculture, Library. The study also concluded that, there is low extent of use of web-based resources for effective reference service delivery in all the university and also web-based resources are not used to offer any types of reference service delivery, except user education in all the university libraries studied. However, majority of the Librarians in the five federal university libraries are satisfactorily competent in the use of web-based resources for reference service delivery but are not using it due to many challenges such as erratic electric power supply, low internet bandwidth, inadequate connected computer system in reference sections, sub-standard telecommunication infrastructures etc.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Management of the Federal university libraries in southeast, Nigeria most especially Federal University of Technology, Owerri library, Michael Okpara University of Agriculture,

Library, Festus Aghagba Nwako Library, Nnamdi Azikiwe University, Awka and Alex Ekwueme Federal University, Library should subscribe to more web-based resources and provide the links to access open access web-based resources through their respective web page.

2. The management of the Federal university libraries in southeast, Nigeria should encourage their staff, most especially those in reference section to always use web-based resources when offering reference and information service to their users. This is because using only print information resources is inadequate of providing effective reference service delivery in the 21st century.
3. Management of the Federal university libraries in southeast, Nigeria most especially Federal University of Technology, Owerri library, Michael Okpara University of Agriculture, Library, Festus Aghagba Nwako Library, Nnamdi Azikiwe University, Awka and Alex Ekwueme Federal University, Library should urgently create a functional OPAC for the users to access and retrieve the details of resources in the libraries.
4. University library management should mandate their staff to provide online reference service such as E-Mail Reference Service, Web-form/query form reference service, Live-chat reference service, Telephone reference service, short message service (SMS) reference service, Ask-a-service, Video-call reference service, social media reference service, Reference robot service, Collaborative digital reference service, and Voice-call reference service to the users.
5. The management of the university libraries should endeavour to partner with the university management to provide constant electric power supply in the libraries, through the installation of solar power or standby generator

6. The University management should ensure that standard telecommunication infrastructures, most especially internet connectivity is adequate and accessible in the university libraries and around the university campus as it is a prerequisite for effective use of web-based resources

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