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DIGITAL LITERACY SKILLS INDICATORS AND SERVICE DELIVERY OF LIBRARIANS IN NORTH-CENTRAL NIGERIAN PUBLIC UNIVERSITIES

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Abstract
Library service delivery provides interaction between librarians and library users to satisfy their academic goals. Therefore, this study investigated the influence of digital literacy skills indicators on service delivery of librarians in public universities in North-Central Nigeria. The study adopted the survey research design. The population comprised 274 professional librarians in public universities in North-Central Nigeria. A sample size of 274 was determined using total enumeration to select the respondents. A validated, structured questionnaire was used for data collection. Cronbach's alpha reliability coefficient for the variables ranged from 0.97 to 0.96. A return rate of 89.8% was achieved. Descriptive and inferential (linear and multiple regression) statistics were used to analyse the data. Descriptive and inferential statistics were used to analyse the data. The findings revealed that digital literacy skills indicators (Adj.R^2 = 0.423, F (6, 245) = 30.921, p < 0.05) had a significant influence on librarians' service delivery. The finding of the study revealed that the librarians strongly agreed to the perceptions held in their service delivery. This implies that the librarians deliver library services with empathy, responsiveness, reliable, tangible and with assurance. The finding also revealed that the level of digital literacy skill of the librarians is very high. This implies that to a very high extent, the librarians have the ability to access, locate, search, use, communicate and evaluate information. The result further reveals that the librarians have the ability to search, while ability to evaluate had the lowest. The study recommend services should be improved among librarians, and also librarians should improve on their digital literacy skills especially on how to search, access, use, and communicate information as these are necessary that librarians are not left behind. This could be achieved by giving adequate training and orientation, sensitization, attending seminars and workshop.

Keywords: Library, librarians, library management, service delivery, digital literacy skills

Background to the Study

Service organizations could be seen as that part of the economy that create services instead of goods. Hence, the activities coming from the provider or rendered to anyone in need of it could be regarded as service delivery. Organizations have to measure how effective these services are because it is associated with how well or poorly the organizations are performing in relation to the services provided. As noted by Akanmidu (2021) and Gaitho (2017), service delivery refers to the process of providing and delivering a service to customer or clients. It involves the activities and steps taken to ensure that a service is delivered efficiently and effectively to meet the needs and expectations of recipients.

Public service delivery is designed around the needs and welfare of the citizens. Most public delivery systems are marred by delays, lack of transparency, and varied inefficiencies. Any organization that is aimed at providing services to the public should deliver it efficiently and effectively such that the customers will be satisfied. This is due to not rendering service on time is as good as the services not being delivered to the intended beneficiaries as it fails to meet the expectations of the beneficiaries (Sapru, 2020).

Onuoha and Chukwueke (2019) assert that service delivery in the library is equally a crucial component in evaluating the productivity and efficacy of librarians in academic libraries. University libraries are set up concurrently with the parent institution to assist the community's teaching, learning, and research efforts by offering timely and relevant information. The library accomplishes this purpose through gathering, organizing, preserving, and sharing information with the community and its parent organization. As a result, university libraries, according to Adeniran (2011), are service-oriented businesses created to address the information demands of their customers by offering pertinent information resources and services. For Akanmidu (2021), library service delivery is divided into two main categories which are the technical and the customer services. Other scholars also believe that library services delivery can be divided into traditional and advanced categories.

Service delivery will be assessed using the indicators identified by Parasuraman et al. (1985), namely tangibility, reliability, responsiveness, assurance, and empathy. However, evidence from literature as noted by Agoh and Omekwu (2021) has revealed low level of service delivery and these are resulted from inadequate information materials, obsolete resources, epileptic power supply, poor funding, inadequate infrastructure, poor policies and facilities, inadequate operational systems and strategies for service delivery. Similar challenges may be facing the delivery of effective library services by librarians in public universities in North-Central, Nigeria. In view of these factors, this study examined the roles of technology use in improving or enhancing service delivery in public universities in North-Central in Nigeria. The ability to accomplish these could be determined by the digital literacy skills of the librarian.

Literacy literally means being able to read and write, but when applied to libraries, it means having the skills to locate, comprehend, interpret, create, communicate, and compute utilizing printed and written materials connected to various contexts in the library. To attain goals, develop knowledge and potential, and be able to fully participate in the context in which they find themselves, people need to have a continuum of learning that literacy provides (Montayo, 2018). As a result, it is expected of librarians to be digitally literate so that they can actively participate and learn the digital knowledge and skills required in the course of their service delivery to the university community.

Oriogu, Subair and Oriogu-Ogbuiyi (2017) define digital literacy as a set of abilities that enable people to successfully complete information retrieval tasks in technology contexts. According to the American Library Association (2017), using technology for tasks including finding, evaluating, creating, and communicating

information necessitates the application of both cognitive and technical skills. Digital literacy skills are needed in libraries because the development and use of technologies are affecting the way information professionals work and repackage information in the digital age. Academic library services have changed, and new digital technologies like smartphones, tablets, desktops, and laptops have encouraged creativity. With the development of new technology, libraries are evolving into a variety of formats, such as electronic or virtual/digital libraries, which has an impact on how library professionals' jobs are changing. So, according to Kaeophanuek et al. (2018), being digitally literate is having the ability to use digital technology to gather, manage, integrate, process, and synthesize information. For the purposes of this study, Eisenberg and Berkowitz's (1990) six (6) ideas of information literacy which are task definition, information seeking (search), find, access, synthesis (evaluation), and use, were employed as the foundation for the digital literacy skills indicators.

Statement of the Problem

The major role of academic librarians is to provide efficient and adequate service in support of the research, teaching and learning functions of their users. However, literature and observation have shown low level of services being delivered in the library. This is evidenced by uncomfortable infrastructure, inadequate staff strength, unskilled staff, and inadequate space (Udem et al., 2020). There is also low service delivery in Nigerian libraries due to obsolete library resources and librarians' disposition to service (Abdulsalami and Efosa, 2020). However, factors such as digital literacy skills of librarians and its indicators may also contribute to the level of service delivery in public universities in North-Central Nigeria. In view of the fact that scholars have studied digital literacy skills indicators independently, there is a dearth of literature with regards to the combined influence of digital literacy skills indicators on service delivery of librarians in North-Central public university libraries in Nigeria.

Objectives of the Study

1. find out the perception of librarians' regarding service delivery in public universities in North-Central, Nigeria;
2. Determine the influence of digital literacy skills indicators on service delivery of librarians in public universities in North-Central, Nigeria

Research Questions

The following research questions were raised based on the objectives of the study:

1. What is the perception of librarians' service delivery in public universities in North-Central, Nigeria?
2. What is the level of digital literacy skills possessed by librarians in public universities in North-Central, Nigeria?

Hypothesis

The following null hypothesis was tested at 0.05 level of significance:

H01: Indicators of digital literacy skills will not have any influence on service delivery of librarians in public universities in North-Central, Nigeria

Indicators of Digital Literacy Skills

Phuapan et al. (2016) identified six markers of digital literacy: access, manage, integrate, evaluate, produce, and convey information. For the purposes of this study, Eisenberg and Berkowitz's (1990) six (6) ideas of information literacy which are task definition, information seeking (search), find, access, synthesis (evaluation), and use, were employed as the foundation for the digital literacy skills indicators. The ability to search is the librarian's capacity to carefully browse in an effort to find and uncover information. Locate has the capacity to locate the necessary data. When it comes to access, librarians must be able to gather and retrieve information, while when it comes to evaluation, they must be able to weigh the material they have obtained to ensure that it will satisfy the user's information needs. Last but not the least, use refers to the librarian's capacity to apply the knowledge acquired digitally. Based on the significance of having strong digital literacy abilities, Bitri (2016) underlines the necessity for information professionals to develop the necessary digital skills to use new technology tools, which will support efficient service delivery. In the face of a new century marked by technology in library service delivery, university libraries cannot afford to remain static. As a result, in order to be effective, librarians working in today's libraries must develop new competencies and pertinent abilities.

Research Methodology

The study adopted a survey research design. The population for this study comprised professional librarians in all the federal and state universities in North-Central Nigeria. In North-Central Nigeria, there are 15 public universities comprising of eight (8) Federal Universities and seven (7) state universities with 274 professional librarians. The sample size for this study was determined with total enumeration. This was used because of the small size of the population of librarians.

Table 1: Population and Sample Size of Librarians in Federal and State Universities in North-Central, Nigeria

S/N	Universities and Location	Ownership	Professionals Librarians
1.	University of Ilorin	Federal	24
2.	University of Jos	Federal	34
3.	Federal University of Technology Minna	Federal	30
4.	University of Abuja	Federal	26
5.	Joseph Sarwuan Tarka University Markurdi, Benue State.	Federal	37
6.	Federal University Lokoja, Kogi State	Federal	14
7.	Federal University, Lafia, Nasarawa State	Federal	10
8.	Federal University of Health Sciences, Otukpo, Benue State	Federal	4
9.	Benue State University, Makurdi	State	22
10.	Kogi State University, Anyigba	State	20
11.	Nasarawa State University, Keffi	State	15
12.	Plateau State University, Bokkos	State	4
13.	Ibrahim Babangida University, Lapai, Niger State	State	15
14.	Kwara State University, Ilorin	State	15
15.	Confluence University of science and Technology Osara, Kogi State	State	4
	Total		**274**

Source: Librarians' Record from the University Librarians Offices

A questionnaire titled "Digital literacy skills and service delivery" was used as the instrument for data collection. The questionnaire was divided into section B measured the extent of service delivery using a scale ranging from: Strong Agree (4); Agree (3); Disagree (2); Strongly Disagree (1). Section C contained items on digital literacy skills in the public universities using a scale with response ranging from Very High (4); High (3); Low (2); and Very Low (1).

It was validated for face and content validity by experts in the library and information science field. For the reliability of the instrument, the researcher conducted pilot study and the result of the Cronbach's Alpha test determined the reliability of the main constructs in the survey. Instrument-digital literacy skills and service delivery. The reliability test estimated the consistency of people's responses to the items within a scale and the value (<0.6) is adequate for the study (Hair et al, 2014). The Cronbach alpha coefficient values for the variables were (Section B: Service delivery=0.96), and (Section C: Digital literacy skills Scale =0.97). The reliability results for the variables are all accepted for the study since their reliabilities are greater than 0.6, the minimum acceptable reliability for a research instrument.

The researcher administered the corrected copies of the questionnaire to the e

respondents in the study sample areas. The data collected was analysed using descriptive statistics such as frequency counts, percentages, the mean and standard deviation and inferential statistics analysed the research questions in this study. Regression analysis was used to establish the influence of the independent variable on the dependent variable. Analysis of the questionnaire was coded and analysed using the Statistical Package for Social Science Software (SPSS Version 25).

Results

Research Question One: What is the perception of librarians' service delivery in Public Universities in North-Central, Nigeria?

Table 2: Perception of Librarians' Service Delivery

Librarians' Service Delivery	Strongly agree (4)	Agree (3)	Disagree (2)	Strongly disagree (1)	Mean	Std.
Empathy					**3.47**	**0.532**
I give attention to users concerns.	135 (54.9%)	106 (43.1%)	5 (2.0%)	0	3.53	0.539
I treat users with respect	132 (53.7%)	113 (45.9%)	1 (0.4%)	0	3.53	0.508
I demonstrate understanding of specific needs	119 (48.4%)	125 (50.8%)	2 (0.8%)	0	3.48	0.516
I ensure that user's opinion is valued	113 (45.9%)	130 (52.8%)	3 (1.2%)	0	3.45	0.522
Librarians understand the users feelings	101 (41.1%)	133 (54.1%)	12 (4.9%)	0	3.36	0.574
Responsiveness					**3.43**	**0.521**
Librarians are always willing to help users	153 (62.2%)	91 (37.0%)	2 (0.8%)	0	3.61	0.504
I respond to users' information request with courtesy	103 (41.9%)	140 (56.9%)	3 (1.2%)	0	3.41	0.516
I ensure that users information needs are treated with utmost efficiency	100 (40.7%)	145 (58.9%)	1 (0.4%)	0	3.40	0.500
I respond to users request for information as expected	91 (37.0%)	153 (62.2%)	2 (0.8%)	0	3.36	0.498
I respond to users request within an acceptable time frame	96 (39.0%)	144 (58.5%)	2 (0.8%)	4 (1.6%)	3.35	0.585
Tangibles					**3.40**	**0.613**
I ensure neatness of the library environments for library users	165 (67.1%)	80 (32.5%)	0	1 (0.4%)	3.66	0.499
I arrange books on display racks for users' awareness	126 (51.2%)	110 (44.7%)	9 (3.7%)	1 (0.4%)	3.47	0.590
I ensure orderly arrangements of catalogue cards entries for users' access	110 (44.7%)	122 (49.6%)	5 (2.0%)	9 (3.7%)	3.35	0.701

I ensure that infrastructures are adequate for the library users	97 (39.4%)	133 (54.1%)	15 (6.1%)	1 (0.4%)	3.33	0.606
I provide up-to-date computer equipment for information retrieval	83 (33.7%)	130 (52.8%)	32 (13.0%)	1 (0.4%)	3.20	0.668
Assurance					**3.39**	**0.511**
I assure users access to available information resources	113 (45.9%)	131 (53.3%)	2 (0.8%)	0	3.45	0.515
I assure users of prompt delivery of information resources in requested format	111 (45.1%)	134 (54.5%)	1 (0.4%)	0	3.45	0.506
I assure users of the relevance of information provided	91 (37.5%)	155 (63.0%)	0	0	3.37	0.484
I assure that users are convenient with the service provided	91 (37.0%)	154 (62.6%)	1 (0.4%)	0	3.37	0.491
I assure that users have the needed knowledge to instill confidence in them	86 (35.0%)	150 (61.0%)	9 (3.7%)	1 (0.4%)	3.30	0.557
Reliability					**3.37**	**0.513**
I treat users' information needs promptly	117 (47.6%)	122 (49.6%)	7 (2.8%)	0	3.45	0.553
I provide sufficient information needs of users	111 (45.1%)	135 (54.9%)	0	0	3.45	0.499
I deliver users request as promised	109 (44.3%)	131 (53.3%)	6 (2.4%)	0	3.42	0.542
I deliver error-free information to users	70 (28.5%)	170 (69.1%)	6 (2.4%)	0	3.26	0.492
I speedily correct wrongly posted users information	69 (28.0%)	173 (70.3%)	4 (1.6%)	0	3.26	0.477
Grand Mean					**3.41**	**0.538**

Source: Researcher's Field Survey, 2023
Decision Rule: 1.0-1.74 = Strongly Disagree; 1.75-2.49 = Disagree; 2.50-3.24 = Agree; 3.25-4.0 = Strongly agree

Table 2 presents the result on the perception of librarians on service delivery in public universities in North-Central, Nigeria. The table revealed that the librarians strongly agreed that service delivery was high with a grand mean of x=3.41, SD = 0.538 on a 4-point Likert-type scale. This implies that the librarians deliver library services with empathy, responsiveness, reliable, tangible and with assurance. Going by the parameters measuring librarians' service delivery, the results revealed that empathy had the highest, which implies that their service delivery was good with an average mean of x=3.47, SD =

0.537, while reliability had the lowest, which implies that their service delivery was not as good with an average mean of x=3.37, SD = 0.513.

Research Question Two: What is the level of digital literacy skills possessed by librarians in public universities in North-Central, Nigeria?

Table 3: Digital literacy skills of librarians

Digital Literacy Skills	Very high (4)	High (3)	Low (2)	Very low (1)	Mean	Std.
Ability to Search					**3.35**	**0.670**
My ability to search the Internet for information is	125 (50.8%)	118 (48.0%)	1 (0.4%)	2 (0.8%)	3.49	0.555
My ability to search online databases for information is	118 (48.0%)	105 (42.7%)	19 (7.7%)	4 (1.6%)	3.37	0.698
My search engine ability is	104 (42.3%)	113 (45.9%)	21 (8.5%)	8 (3.3%)	3.27	0.753
My ability to search by date is	92 (37.4%)	130 (52.8%)	20 (8.1%)	4 (1.6%)	3.26	0.674
Ability to Use					**3.33**	**0.635**
My ability to utilize the library information to solve a problem is	116 (47.2%)	125 (50.8%)	1 (0.4%)	4 (1.6%)	3.43	0.594
My ability to utilize online public access catalogue (OPAC) is	98 (39.8%)	132 (53.7%)	14 (5.7%)	2 (0.8%)	3.33	0.619
My ability to utilize library information to make a decision is	93 (37.8%)	144 (58.5%)	3 (1.2%)	6 (2.4%)	3.32	0.624
My ability to utilize library databases to render services is	87 (35.4%)	131 (53.3%)	22 (8.9%)	6 (2.4%)	3.22	0.704
Ability to Communicate					**3.32**	**0.609**
My ability to communicate with my colleagues efficiently is	118 (48.0%)	122 (49.6%)	2 (0.8%)	4 (1.6%)	3.44	0.601
My ability to communicate the information to others in appropriate format is	92 (37.4%)	143 (58.1%)	5 (2.0%)	6 (2.4%)	3.30	0.633
My ability to communicate with users efficiently is	85 (34.6%)	153 (62.2%)	3 (1.2%)	5 (2.0%)	3.29	0.596
My ability as a librarian to communicate in real time is	82 (33.3%)	151 (61.4%)	9 (3.7%)	4 (1.6%)	3.26	0.606
Ability to Locate					**3.30**	**0.616**
My ability to locate information on books is	100 (40.7%)	133 (54.1%)	13 (5.3%)	0	3.35	0.579
My ability to locate information on the web is	91 (37.0%)	135 (54.9%)	20 (8.1%)	0	3.29	0.608
My ability to locate information efficiently is	85 (34.6%)	151 (61.4%)	6 (2.4%)	4 (1.6%)	3.29	0.594

My ability to locate information on the Internet is	95 (38.6%)	126 (51.2%)	21 (8.5%)	4 (1.6%)	3.27	0.683
Ability to Access					**3.31**	**0.668**
My ability to access information resources is	114 (46.3%)	111 (45.1%)	15 (6.1%)	6 (2.4%)	3.35	0.706
My ability to provide quick access to information resource to users is	95 (38.6%)	143 (58.1%)	2 (0.8%)	6 (2.4%)	3.33	0.620
My ability to ethically access information is	91 (37.0%)	146 (59.3%)	3 (1.2%)	6 (2.4%)	3.31	0.621
My ability to access the library databases is	96 (39.0%)	125 (50.8%)	17 (6.9%)	8 (3.3%)	3.26	0.725
Ability to Evaluate					**3.24**	**0.650**
My ability to evaluate website is	87 (35.4%)	129 (52.4%)	24 (9.8%)	6 (2.4%)	3.21	0.713
My ability to evaluate critically if the information collected is credible is	87 (35.4%)	141 (57.3%)	12 (4.9%)	6 (2.4%)	3.26	0.660
My ability to evaluate if the information is timely is	69 (28.0%)	167 (67.9%)	4 (1.6%)	6 (2.4%)	3.22	0.591
My ability to evaluate information obtained from different sources is	84 (34.1%)	148 (60.2%)	8 (3.3%)	6 (2.4%)	3.26	0.637
Grand Mean					**3.31**	**0.641**

Source: Researcher's Field Survey, 2023

Decision Rule: 1.0-1.74 = Very low; 1.75-2.49 = Low; 2.50-3.24 = High; 3.25-3.99 = Very high

The result in Table 3 shows the level of digital literacy skills possessed by librarians in public universities in North-Central, Nigeria. The grand mean x= 3.31, SD = 0.641 on a 4-point Likert-type scale indicates that the level of digital literacy skill of the librarians is very high. This implies that to a very high level, the librarians have the ability to access, locate, search, use, communicate and evaluate information. The result further reveals that the librarians' ability to search had the highest mean of x= 3.35 on a 4-point Likert-type scale while ability to evaluate had the lowest mean of x= 3.24 on a 4-point Likert-type scale.

Hypothesis Five: Indicators of digital literacy skills will not have any influence on service delivery of librarians in public universities in North-Central, Nigeria.

Table 4: Multiple linear regression analysis of digital literacy skills (indicators) and service delivery

Predictors	B	Std. Error	Âeta (â)	T	*P*	R^2	*Adj.* R^2	F
(Constant)	2.203	0.110		20.026	.000	0.437	0.423	30.921
Ability to Access	0.103	0.053	0.193	1.939	.054			
Ability to Locate	0.244	0.051	0.409	4.745	.000			
Ability to Search	-0.113	0.046	-0.197	-2.446	.015			
Ability to Use	-0.054	0.061	0.092	-0.890	.374			
Ability to Communicate	0.079	0.065	0.132	1.228	.221			
Ability to Evaluate	0.110	0.046	0.209	2.381	.018			

Dependent Variable: Service delivery
Predictors: (Constant), Access, Locate, Search, Use, Communicate and Evaluate
DF (F-Statistic) = 6, 245
DF (T-Statistic) = 239

Source: Field Survey Results, 2023

Table 4 indicates the influence of digital literacy skills indicators (Ability to access, ability to locate, ability to search, ability to use, ability to communicate and ability to evaluate). It describes that the 6 indicators of digital literacy skills have a significant influence on service delivery ($Adj.R^2 = 0.423$, $F\ (6, 245) = 30.921$, $p < 0.05$). The result shows that ability to locate ($\hat{a} = 0.409$, $t\ (239) = 4.745$), $p < 0.05$) and ability to evaluate information ($\hat{a} = 0.209$, $t\ (239) = 2.381$), $p < 0.05$) had a positive significant influence on service delivery of librarians. The result also indicates that ability to search ($\hat{a} = -0.197$, $t\ (239) = -2.446$), $p < 0.05$) had a negative significant influence on service delivery of librarians. Furthermore, the result reveals that ability to access ($\hat{a} = 0.193$, $t\ (239) = 1.939$), $p > 0.05$), ability to use ($\hat{a} = 0.092$, $t\ (239) = -0.890$), $p > 0.05$) and ability to communicate ($\hat{a} = 0.132$, $t\ (239) = 1.228$), $p > 0.05$) had no significant influence on service delivery of librarians. The positive coefficient of ability to locate and ability to evaluate indicate that as their values increase, the dependent variable service delivery also tends to increase. The negative coefficient on ability to search suggests that as the value increases, the level of service delivery of librarians tend to decrease.

Discussion of Findings

Research question one sought to find the perception of librarians' service delivery in public universities in North-Central, Nigeria. The result revealed that the librarians strongly agreed to the perceptions held in their service delivery. This implies that the librarians deliver library services with empathy, responsiveness, reliable, tangible and

with assurance. The result of this study confirmed the findings of Martins and Ledimo (2015) who discovered that workers in this government agency appeared to view service delivery innovation favorably within their organization. However, the result of this study contradicts the findings of Egunjobi et al (2022) and Amaechi et al. (2018) who all reported that library service delivery is low.

Research question two sought to know the level of digital literacy skills possessed by librarians in public universities in North-Central, Nigeria. The result indicates that the level of digital literacy skill of the librarians is very high. This implies that to a very high extent, the librarians have the ability to access, locate, search, use, communicate and evaluate information. The result further reveals that the librarians have the ability to search, while ability to evaluate had the lowest. This finding is in line with the studies of Osinulu (2021), the findings revealed that library officials had a high degree of proficiency using digital technologies and were digitally literate. On the other hand, the result of this study did not agree with the findings of Chukwueke and Idris (2023), who found that there is a non-significantly low correlation between the staff members' digital literacy abilities and the services provided by academic libraries in Taraba State, Nigeria

The analysis of the fifth hypothesis testing shows that **t**he influence of digital literacy skills indicators (access, locate, search, use, communicate and evaluate). It describes that the 6 indicators of digital literacy skills have a significant influence on service delivery.

Conclusion

The study analyzed the influence of digital literacy skills indicators on service delivery of librarians in public universities in North-Central Nigeria. The study established that digital literacy skills indicators had a significant influence on service delivery of librarians in public universities in North-Central Nigeria.

Recommendations

The following were recommended:

1. Though, the study showed a high level of service delivery among librarians in public universities in North-Central, Nigeria, nevertheless, there is always room for improved services among librarians.
2. The study showed that digital literacy skills indicators (search, access, use, and communicate, evaluate and synthesize) contributed significantly to service delivery. Hence, this study recommends that librarians should improve on their digital literacy skills especially on how to search, access, use, and communicate information as these are necessary that librarians are not left behind. This could be achieved by giving adequate training and orientation, sensitization, attending seminars and workshop, etc

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