An Investigation of the Level of Digital Literacy Skills Possessed By Academic Librarians in Nigerian Universities

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Abstract— Libraries of the 21st century are operating in a completely different environment. This is because the 21st century is information-driven and highly digitized. Library patrons appear to have also responded to the changing realities, thus placing new demands on library professionals. To meet up with such demands, library professionals need to acquire digital literacy skills. This is particularly important for academic libraries because of their critical roles in supporting learning. Despite the importance of digital literacy skills in the delivery of libraries services, studies on the subject matters, especially from developing countries are still emerging. The objective of this study was to ascertain the level of digital literacy skills among library professionals from South-South Nigeria. The researchers raised four specific objectives to address this issue. The survey research design was used to conduct the study. The sample size was made up of 100 library professionals of federal university from South-South Nigeria. The questionnaire served as the instrument for data collection. In the analysis of data for the study, descriptive statistics like simple percentages, mean and standard deviation were used.   The result of the study revealed, among others that there is low level of digital literacy skills among the sample studied. The researchers also found that digital literacy skills are essential for the delivery of library services in the 21st century. Also, the result of the study showed that challenges that range from finance, to lack of interest on the part of library professionals limit the acquisition of digital literacy skills. Based on this results, it was recommended, among others that policy makers should take practice steps aimed at encouraging digital literacy skill acquisition among library professionals in Nigeria. Further studies are also recommended to be conducted in other areas for deeper understanding.

Index Terms— digital literacy, library, services delivery, skills, South-South .

I. Introduction

Modern technologies have created new perspectives to both library professionals and researchers in library studies. For library professionals, it has placed a new burden on them as they are confronted news expectation from library users. For library researchers, the expectation is to conduct studies with a focus on the role that modern technologies now play in the delivery of library services. The application of modern technologies has broadened the walls of the library. The introduction to the digital era in libraries, created the need to computerize most of the operations. Anuradha (2017) argues that modern technologies have substantially changed the

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workings of libraries in the information era. This is because in the 21st century library services, libraries are required to make use of new technologies in critical library activities such as acquiring, library materials,   cataloguing the materials acquired, preserving the materials, , diffusing them as well as providing   reference services to users, among others. Anuradha   adds, however, the existence of modern technologies does not completely replace traditional library services, instead, there is now a harmonization of the services to better serve users. That is to say that modern technologies have been completely integrated into library services.

One of the critical issues to consider in the implementation of modern technologies in libraries is the digital skills of library professionals. This is important because skills is one of the essential requirements for the adoption and utilization of new technologies.   Olijo (2018) in making a case   on the importance of skill in the utilization of new technologies notes that despite the fact that progress has been recorded in the area of hardware and software competence, the challenge of low utilization is a limitation in harnessing the potentials of new technologies. Sichel (1997) cited in Olijo (2018) regretted that poor knowledge and low usage of installed systems had been recognized as substantial   determinants predicting the "productivity paradox" regarding poor return on investments from organisational whose focus is on innovations digital technologies.   A study of the digital literary skills of library professionals is particularly important because poor knowledge of digital technologies will likely have a corresponding negative use.

Digital literacy skills describes the possess of knowledge, skills, and behaviour relevant to the use of digital technologies such as tablets, laptops, smartphones, desktop PCs among others. The concept of digital skills is used in reference to the capacity to use and as well   understand contents from digital platforms.

Some scholars (Cartelli, 2010; Martin & Grudziecki, 2006) are of the view that digital literacy skill is can as well be called digital competence. Jisc, (2011) also refers to digital literacy skills as digital   capacities while European commission(2007) calls it   or e-skill. Whatever name it is called, it seeks to explain the intellectual capacity of people vis-à-vis information and communication technologies.   In the views of Emiri's (2015),   digital literacy skills   are beneficial to professionals across disciplines because it assist in carrying out their day-to-day activities. For library professionals, they require such skills to be able to function effectively in the 21st century society. They need such skills to

meet up with work demands. They need digital literacy skills to satisfy the need of their patrons. It is on the basis on this background that this study sought to ascertain the digital literacy skills of library professionals.

II. STATEMENT OF THE PROBLEM

Despite the changes that have taken in the society in almost all spheres of life as a result of the advancements in technologies, the problem skills has continued to limit the utilization of digital features. Evidently, digital technologies have promising potentials for libraries to improve on their services. However, library professionals need to posses adequate digital literacy skills to enable them deliver on their mandates. This is particular essential because the nature of library services has changed significantly in the 21st century society. Critical issues to consider border on the level of digital literacy which library professionals posses, the level of application of such skills in service delivery, challenges limiting the acquisition of digital literacy skills as well as how to make the acquisition of digital literacy skills easier. These issues consititue a problem which the current study sought to resolve.

Objectives of the Study

The aim of this study was to ascertain the digital literacy skills which academic professional librarians in Nigerian universities possess. The specific objectives were to:

1. investigate the level of digital literacy skills which academic librarians in Nigerian universities possess.
2. examine how digital library skills possessed by academic librarians help in service delivery
3. investigate the challenges academic librarians encounter in the process of acquiring digital literacy skills
4. strategies to enable academic librarians acquire digital literacy skills

Research Questions

This study sought answers to the following questions:

1. What are the levels of digital literacy skills possessed by the academic librarians in university libraries in Nigeria?
2. What is the extent to which digital literacy skills possessed by academic librarians help service delivery in university libraries in Nigeria?
3. What are the challenges academic librarians encounter in the process of acquiring digital literacy skills in university libraries in Nigeria?
4. What are the strategies to enable academic librarians acquire digital literacy skills in university libraries in Nigeria?

III. LITERATURE REVIEW

The library is key to the learning process. Without the library, access to learning resources may be challenging. Lee, Allen, Deborah and Taylor (2017) note that libraries are at the heart of teaching and learning in any institution that is research-based. They add that information is also key in every library. Lee at el further divided libraries into in four broad classifications. These are public libraries, academic libraries, school libraries and finally specialized libraries. According to the researchers, public libraries are mostly sponsored by public funding aimed at serving the general public. The National Library of Nigeria is a good example of public library. On the other hand, academic libraries are situated in academic institutions. Examples of academic libraries include libraries in Universities, polytechnics, among other institutions of learning. School libraries primarily collect and distribute information resources with a specific attention to Kindergarten through 12th grade teaching and learning. Finally, specialized libraries provide support for institutions with a specific focus such as medicine, law, journalism, theology, among others. Among all the categorizations of libraries as explained above, the current study was limited to academic libraries.

Academic libraries are fundamental in the learning process. Youngkin (2014) corroborates that academic libraries are centres through which people learn new things. Academic libraries deliver different services to the their users. The responsibility of academic libraries is to ensure that users have access to resources that will improve their knowledge on a wide range of issues. Through academic libraries, learners get to acquire knowledge that will make them useful members of the society. Therefore, the basic role of academic libraries is to support learning process. They exist to support learners in their academic pursuit. Before changes in technologies, academic libraries fulfilled this mandate through brick and mortal. Scholars (Cheng, 2001; Ludwig and Starr, 2005; Cybulski, 2007) aver that before the advancements in technologies, libraries were regarded as repositories of printed materials. But because of these changes, library professionals also need to adjust through skill acquisition. But with the advancements in technologies, academic libraries also have to respond to the changes. In the 21st century society, academic libraries are expected to integrate digital media platforms into their activities. This is particularly important because library users have also changed their expectations from academic libraries. Users expect academic libraries to deploy digital technologies in delivering services to users. Ale and Omeneke, (2017) corroborate users have newer expectations from libraries as a result of changes in technologies. Connor (2007) carried out a study to and reported that web 2.0 is essential in 21st century libraries.

Scholars (Barnhart & Pierce, 2012; Kaske, 2004; Lowry, 2005) are of the view that the global acceptance of digital technologies places a demand on academic libraries to adjust so as to remain relevant. In the view of Youngkin (2014), acknowledges the important role of academic librarians' capacity to make use of digital technologies in their daily activities.

Ogochukwu (2015) conducted a study to find out the digital literacy skills of library professionals. The researcher answered six research questions and tested one hypothesis. The researcher also made use of descriptive survey research design to conduct the study. The researcher examined library professionals from selected universities in Edo State, Nigeria. The researcher reported that the digital literacy skills of library professionals include social networking, use of PDAs, electronic mailing, Internet surfing and mobile phones. The ways through which library professionals acquire digital

literacy skills were found to be through friends and colleagues, self-trials, formal learning processes and IT programmes. Overall, the researcher reported low level of digital literacy skills among the sample studied.

Watts and Ibegbulem (2006) conducted a study to ascertain the obstacles to the utilization of electronic resources and found that such challenges include insufficient ICT infrastructure and lack of online access. Others are lack of digital skills on the part of users, among others. Oduwole & Sowole (2006) in a study reported that the problems include inadequate digital skills among library professionals as well as library patrons.

Methodology

To execute a widely acceptable research, adopting an appropriate research method is important for the realization of the accurate results and it makes the research more meaningful. This section comprises the research design that was used, methods of data collection and the sampling techniques.

Research design

The research design employed for this study was the descriptive survey design. The research design is used because the researcher is interested in collecting original data for describing a population too large to observe directly.

Area of the Study

The area of the study was South-South geopolitical zone of Nigeria. The South-South Nigeria is made up of six states namely: Akwa Ibom State, Bayelsa State, Cross Rivers State, Delta State, Edo State and Rivers State. There are university libraries belonging to the federal, state and private organizations. The South-South zone is bounded by Imo state, Anambra state, Abia state in the East and Ondo, in the west and Benue state in the north. There are 29 institutions of higher learning in the zone made up as follows: Six federal universities, seven state universities, two federal polytechnics, four state polytechnics, three federal colleges of education and seven state colleges of education. (Federal Ministry of Education Handbook, 2014). However, the study was carried out in federal university libraries of south-south Nigeria. The choice of the south-south zone is based on the fact that culturally, it is widely believed in South-South that learning is characterized by group discussions for cross fertilization of ideas to enhance learning. The researcher also observed that the libraries are losing clientele; students may come in the library to study, to socialize, to use the newly installed café designed to lure them in, but they are not using library materials as they did even ten years ago.

Population of the study

The population of the study was made up of all the one hundred (100) professional academic librarians. Kari and Yusuf (2019) and a preliminary visit to the universities under study showed that Federal University Otuoke, Bayelsa State established in 2011 had 11 professional librarians. Federal University of Petroleum Resources Effuru, Delta State also established in 2011 had a total of 11 professional librarians; University of Benin, Edo state established in 1970 had 14 professional librarians. Furthermore, University of Calabar, Cross River State being a second generation university had 15 professional librarians; University of Port Harcourt on the other hand established in 1976 had 22 professional librarians. Lastly, University of Uyo, Akwa Ibom State established in 1988 had 27 professional librarians. (See table 3.I for the spread of the librarians in the six federal universities).

The rationale for choosing the federal university libraries is because they are better funded and have purpose built libraries. They have better opportunities of deploying digital technologies for students than state university libraries that are usually poorly funded.

Table 1 Population of the study

SN	Federal University	Year of Establishment	Generation	Academic Librarians
1	Federal University Otuoke, Bayelsa State	2011	Fourth Generation	11
2	Federal University of Petroleum Resources Effuru, Delta State	2011	Fourth Generation	11
3	University of Benin, Edo State	1970	Second Generation	14
4	University of Calabar, Cross Rivers State	1975	Second Generation	15
5	University of Port Harcourt, Rivers State	1976	Second Generation	22

| 6 | University of Uyo, Akwa Ibom State | 1988 | Second Generation | 27 |
| | Total | | | 100 |

Sources: Kari and Yusuf (2019), Emails, university websites and personal visits

Sampling technique and sample size

For the purpose of this study, total enumeration technique was adopted as the sampling procedure. This is because small number of the population of academic librarians are involved, which 100 as at the year 2019. According to Egbule and Okobia (2001) the entire population would have to be studied when the population is not large to achieve a desirable level of precision.

Data collection instrument

Data for this study was collected using questionnaire. A set of the questionnaire titled "Investigation of the Level of Digital Literacy Skills Possessed by Academic Librarians in Nigerian Universities" (ILDLSPALNU) was designed to collect relevant data. The questionnaire was divided into two sections, A and B

The questionnaire instrument contained five clusters labeled A,B,C,D,E, designed to answer the five research questions . Cluster A contains 21 items to answer the question on the level of competence in digital literacy skills of academic librarians in Nigerian libraries. Cluster B contains 21 items to answer the question on the level of use of digital literacy skills by academic librarians in Nigerian universities. Cluster C contains 23 items to answer question on how digital literacy skills possessed by academic librarians help in service delivery. Cluster D contains 5 items to answer questions on the challenges academic librarians encounter in the process of acquiring digital literacy skills in Nigerian universities. Cluster E contains 5 items to answer questions on the strategies to enable academic librarians acquire digital literacy skills in Nigerian universities. The response options were a four-point rating scale of SA, to SD and VHE to VLE.

Validity and Reliability of Data Collection Instrument

Validity is the measurement describing to what extent an instrument examines what it is supposed to examine (Krale, 1997). To ensure the face validity of the research instrument, the questionnaire was submitted to a psychologist and an expert in library and information science who read through, corrected and determined its appropriateness. The corrections and editing gave room for necessary amendment in the questionnaire prior to pre-test administration. Then 30 copies of the questionnaire were distributed to target audience who were not part of the study, afterwards, reliability test was done. Cronbach's alpha was used to determine the reliability of the scale in the questionnaire which gave: 0.853 for Digital Library Skills.

Data Collection Procedure

The researchers personally administered the questionnaire to ensure accuracy and transparency in distribution and that the target population actually filled the questionnaire. Likewise, the duration of the distribution of the questionnaire was ten working days because of the geographical distance among the universities and the largeness of the population.

Methods of Data Analysis

The analysis of data was done using the Statistical Package for the Social Sciences (SPSS) for the descriptive statistics of frequency count, percentage, mean and standard deviation. It should be noted that hence this was a four point scale, the benchmark for the likert scale items was 2.5. On the other hand, the real limit of number was used to arrive at a decision on items that measured extent. This was decided as follows:

4.0-3.0 : VHL = Very Highly Level,

2. 5- 2.9 HL = Highly Level,

2.4-1.5 LL = Low Level,

Below 1.5 VLL = Very Low Level

IV. RESULTS

This study examined the level of digital literacy skills of academic librarians in Nigeria Universities. This section presents the results of findings, data analysis and interpretations of the study. The results are discussed in various aspects using the research questions in interpreting the data of each variable in accordance with the responses gathered by the researchers. The data were analyzed using frequency count, percentage, mean and standard deviation. A total of one hundred (100) copies of questionnaire were distributed but ninety five (95) copies were retrieved making 88.23% response rate. The sample was 57% male and 43% female.

Presentation of results
Table 1: The level of competence in the following digital literacy skills

S/N	Level of competence in the following digital literacy skills	VHL	HL	LL	VLL
1	Installing printer scanner and computer systems			1.5	
2	Computer programming skills			1.6	

S/N	Skill				
3	Emailing skills			2.0	
4	Microsoft offices		2.5		
5	Instant Messaging technology (IM) skills				1.0
6	Troubleshooting technology			2.1	
7	Database management skills			2.0	
8	Integrated Library System (ILS) skills				1.2
9	Information Resource Preservation Knowledge		2.5		
10	Digitization software maintenance skills			2.3	
11	Digital Archiving Skills				1.0
12	File management/operating system navigation skills	3.0			
13	CD ROM/DVD search skills				1.0
14	Creating online instructional materials skills				1.2
15	Web design skills				1.0
16	Computer security skill			2.0	
17	Blogging skills			2.2	
18	Network management skills			2.3	
19	Creating and updating institutional OPAC skills				1.0
20	Assistive adaptive technology skills				1.2
21	Wiki technology skills				1.3

The essence of the table above was to ascertain the extent of skills which library professionals within the study area posses. The result of the study showed that most of the respondents reported between very low and low extent of skills. The only digital skill which the respondents reported high file management/operating system navigation skills. This goes that show that there is general low skills level possessed by the sample studied.

Table 2: The digital library skills possessed by academic librarians and service delivery

S/N	How digital library skills possessed by academic librarians help in service delivery	Mean	SD	Decision
1	Photocopying services	2.6	.67	Agree
2	Current Awareness Services	3.0	.55	Agree
3	Loan Services	2.8	.67	Agree
4	Bindery Services	2.6	.64	Agree
5	Online Information Search services	2.5	.67	Agree
6	User Education services	2.7	.44	Agree
7	Compilation of Bibliographies services	2.8	.87	Agree
8	Literature Searching services	2.5	.88	Agree
9	Audio/Visual Services	2.7	.67	Agree
10	Translation and Interpreting services	2.5	.84	Agree
11	Faculty/Departmental Consultancy services	2.6	.68	Agree
12	Laptop Checkout Centre services	2.8	.77	Agree
13	Technology Question Centre services	2.6	.99	Agree
14	Directional services	2.6	.67	Agree
15	Circulation Question Services	2.7	.82	Agree

16	Inter-library Loan Checkouts	2.6	.91	Agree
17	Smart Phone Usage and services	2.9	.67	Agree
18	Working Group Services	2.9	.67	Agree
19	Free Wi-Fi for Personal Computer Usage	3.0	.66	Agree
20	Corners for Personal/Private Study	2.7	.56	Agree
21	Video-Conferencing Services	2.2	.66	Rejected
22	Audio-Conferencing Services	2.4	.88	Rejected
23	Music and art studio Centre	2.1	.99	Rejected

In table two above, the researcher examined how knowledge of digital literacy skills are applied in the delivery of library services. A total of twenty-three items were presented in the table and out of this number, eighteen items had mean scores of 2.5 and above. Three items had mean scores of below 2.5. These are video-conferencing services, audio-conferencing services and music and art studio centre. Therefore, the three items were rejected.

Table 3: Challenges academic librarians encounter in the process of acquiring digital literacy skills

S/N	challenges academic librarians encounter in the process of acquiring digital literacy skills	Mean	SD	Decision
1	No support/incentives from administrators	3.2	.67	Agreed
2	Lack of interest on my part	3.3	.78	Agreed
3	Administrators resistance to the introduction of technology	2.9	.87	Agreed
4	Lack of technological infrastructures	3.2	.78	Agreed
5	Digital literacy skills training is expensive	3.1	.99	Agreed

In the table above, the researcher sought to ascertain the challenges that limit the skill acquisition related to digital literacy. The result of the study showed that all the items presented were accepted as limitations to the acquisition of skills related to digital literacy. This is because all the items had mean scores of 2.5 and above.

Table 4: Strategies to enable academic librarians acquire digital literacy skills in Nigerian universities

S/N	strategies to enable academic librarians acquire digital literacy skills in university libraries in Nigeria	Mean	SD	Decision
1	Support/incentives from administrators	3.1	.89	Agreed
2	Librarians should develop interest in digital literacy skills	3.1	.99	Agreed
3	Administrators should not resist the introduction of technologies	3.0	.78	Agreed
4	Library administrators should deploy digital technologies in the libraries to facilitate learning by doing	2.9	.67	Agreed
5	Digital literacy skills training is should be subsidized	2.7	.78	Agreed

In table four above, the researcher examined strategies to enable academic librarians acquire digital literacy skills in university libraries in Nigeria. It was found that all the five items that were present had mean scores of 2.5 and above. This means that all the items were accepted as strategies to enable academic librarians acquire digital literacy skills in university libraries in Nigeria.

V. DISCUSSION OF FINDINGS

In this study, we examined the level of digital literacy skills of professional librarians. In doing so, we were guided

by four objectives and answered four research questions. The resultof the study revealed low level of digital literacy skills which academic librarians in Nigerian universities possessed. We also found that eighteen ways through which digital library skills possessed by academic librarians help in service delivery. In addition, we found five challenges academic librarians encounter in the process of acquiring digital literacy skills and five strategies to enable academic librarians acquire digital literacy skills.

The low level of digital literacy skills is a negative outcome because it suggests that library professionals studied are yet to fully prepare themselves for the task of delivering library services in the 21st century society. This is particularly is because in the current information era, libraries have changed from brick and mortal to ICT-based. Scholars (Cheng, 2001; Ludwig and Starr, 2005; Cybulski, 2007) are in agreement that there is a change in library services in terms of scope and ways of rendering services to users. What this means is that professional librarians also have to change their approach. The first step to doing so is through skill acquisition. It is however, regrettable that professional librarians in less developed countries like Nigeria are still not ready yet to rise to the occasion and meet up with the changing trending.

It was also found that digital literacy skills could be useful in the delivery of library services to patrons. That is to so that acquisition of digital literacy skills was found to be beneficial in the delivery of library services in the 21st century. This result was found to be consistent with that of Ogochukwu (2015) who reported that digital literacy skills have the potential to assist librarians to deliver quality services to their patrons. This is particularly essential because even patrons have changed their expectations from libraries. Ale and Omeneke (2017) are of the view that library users have changed their expectations as well as tastes. As such, the only way libraries can measure up is to go digital.

It this study, it was also found that some factors limit libraries from acquiring digital skills. These factors range from lack of support/incentives from administrators, lack of interest on the part of librarians, administrators resistance to the introduction of technology, lack of technological infrastructures and the high cost of digital literacy skills training. This result implies that some obstacles stand in the way of acquisition of digital literacy skills. This result makes a strong case for the need to address these areas so that professional librarians can acquire digital literacy skill. This result is consist with that of Watts and Ibegbulem (2006) and Oduwole & Sowole (2006) who reported that acquisition of digital literacy skill is limited by a number of factors.

Finally, the result of this study showed that the strategies to enable academic librarians acquire digital literacy skills in university libraries in Nigeria include; support/incentives from administrators; librarians should develop interest in digital literacy skills; administrators should not resist the introduction of technologies; library administrators should deploy digital technologies in the libraries to facilitate learning by doing and digital literacy skills training is should be subsidized. This result implies that policy and administration intervention are needed to make libraries ready to respond to the 21st century need.

VI. CONCLUSION/RECOMMENDATION

Based on the results of this study, the researcher concludes that as at the time of this study, there exists low level of digital literacy skills among professional librarians in South-South Nigeria. The researcher also concludes that professional librarians face numerous challenges that limit them from acquiring digital literacy. This study has made practical and scholarly contributions. Practically, the study has provided evidence on the current level of digital literacy skills among professional librarians. This information could be beneficial to policy makers in suggesting ways of improving digital literacy skills among professional librarians. In practical terms, the study makes contribution that may help improve library practice in South-South Nigeria. The study makes the following recommendations:

1. There is the need for library administrators to provide support/incentives that will encourage the acquisition of digital literacy skills.
2. It is also recommended that librarians should scale up their interest in digital literacy skills.
3. Policy makers should come up with policies and programmes that support digital literacy skill acquisition.
4. Further studies should be conducted in other parts of the country for better understanding.

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