

CHALLENGES INFLUENCING ADOPTION OF PRESERVATION TECHNIQUES OF DIGITAL RESOURCES BY ACADEMIC STAFF FOR RESEARCH OUTPUT IN FEDERAL UNIVERSITY LIBRARIES IN NORTHERN NIGERIA

By

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Abstract

This study investigated the Challenges Influencing Adoption of Preservation Techniques of Digital Resources by Academic Staff for Research Output in Federal University Libraries in Northern Nigeria. Descriptive survey research was adopted with the target population of 12691 respondents (librarians in ICT unit and lecturers) in federal university libraries in Northern Nigeria. Multi-stage sampling technique was used to select 386 respondents from nine universities. Questionnaire and observation checklist were the data collection instruments used for the study. Out of 456 copies of filled and returned in usable form. Frequency counts, means and standard deviation were used to answer the question posed by the study. The challenges identified were absence of library policy on digital preservation, inadequate funding, inadequate human and material resources for ICT usage and lack of standard operating preservation procedure. There were some technical factors found to militate against adoption and use of the digital information for research output. Those included non-availability of required information, Interactive nature of technology, Device networking and Data management among others. The study recommended that lecturers time, highly technical procedure and competence to search information which have surfaced as challenge confronting lecturers in the adoption of digital research should be address.

Key Words: Challenges, Digital Resources, Academic Staff, Research Output, Library, University, Northern Nigeria.

Introduction

One of the appropriate institutions charged with the responsibility of carrying out research for national development is the university and the end product of research activities in universities is called research output. Research output are product of research that are published/presented legitimately, found worthy for academic purposes and not limited to seminar papers, journal articles, conference proceedings, books, chapters in books, theses, dissertation, and projects. Tertiary institutional based library subscribe to numerous types of research output to facilitate current and anticipated future research activities. The status of research output is promoted by academic libraries as they make accessible, retrievable and storable these subscribed resources for teaching, learning and research.

Research is of great importance to national development of a nation. Research is meant for the purpose of affecting societal development and improvement. It is a way of acquiring functional, dependable and useful information and data about a particular object of research. Ochia and Omofonmwan (2013) while stressing the perceived importance of research, stated that research has an impact that transcends all spheres of human endeavour such as social, economic, political, educational, science and technology.

Research is a purveyor of growth, development and industrialization. The messages and the suggestions made in research output create job opportunities, increased income, increased

production of goods and services, create wealth, improved quality of life, improved transportation and communication system, networking the regions of the world, clustering of people and creating interactions among nations, socially, economically and politically.

Information and Communication Technology (ICT) has come to stay as an indispensable complement and supplement to almost all sorts of human activities be it; social, economic, political and cultural. This is because it has revolutionized daily human activities in its entirety (Salihu, 2021). Accessibility assert Ukachi (2014) and Salihu (2021) is associated with several aspects, such as service availability at any time and from any location, speed of information delivery, availability of user-friendly interfaces and technologies, support from the library, navigation functionalities, IT infrastructure, and authentication processes.

Digital resources use for academic and non-academic purposes is dependent on access and retrieval tools. Access tools according to Udofot (2019) include: catalogues, indexes, bibliographies, guides, abstracts and databases in computerized formats. The philosophy behind preservation of information resources is to prolong the life of useful research information resources. Miller and Rope (2009) stated that preservation include providing suitable storage environment and step handling procedures of information resources.

According to Aliyu, (2014) preservation is the act of maintaining, protecting or keeping something in existence while on the other hand, utilization is the primary method by which asset performance is measured and success determined. (Ibenne, 2006). Utilization is the practical and maximum use of library resources identified and acquired by the user for the purpose of solving problem or achieving goals. Digital information resources according to IGI Global Disseminators of knowledge (2017) is information available in electronic format such as databases, journals, newspapers, theses, conferences, dissertation, technical reports and research papers in digital format.

The adaptation of information and communication technologies (ICT) has revolutionized the conduct of business and has greatly enhanced information accessibility. In particular, most organizations and libraries are now not only able to store large amount of information but also have quick access to it at any given time as the need arise. Preservation is so great to it continuity in order to ensure the function and benefits of the institutional repository. Hussein (2007) asserted that digital preservation is the process and activities which stabilize and protect digital records and publications in forms which are retrievable, readable and useable overtime. Digital preservation assures continued access to information.

Preservation of digital materials has gained significant prominence because of the roles it plays in combating theft, mutilation and distortion of information sources on one hand, and on the other support the creation of digital contents that are valuable to research output. This has continued to grow exponentially because it has a distinguished set of processes; activities and management of information resources which over time ensures long-term accessibility and help to relatively change the short life-cycle of physical resources and retains its original letterings.

Another dimension reiterates the different formats in which these materials exist, particularly with the inception and adoption of information and communication technologies to enhance service delivery by libraries. Preservation techniques is a set of activities aim at prolonging the life span of document or object, and the relationship between preservation techniques and access is to ensure that enable user to have access for both current and future generation. Digital resources acquired by university libraries are characterised to save space, and support the creation and maintenance of repositories, and joining consortium.

Research Question

- i. What are the challenges influencing the adoption of preservation techniques by academic staff for research output in Federal University libraries in Northern Nigeria?

Objectives of the Study

The main objective of this study is to examine the challenges influencing the adoption of preservation techniques of digital resources by academic staff for research output in Federal University libraries in Northern Nigeria. The following specific objective which is to:

- i. Find out the challenges influencing the adoption of preservation techniques by academic staff for research output in Federal University libraries in Northern Nigeria.

Empirical Literature

Shameenda (2011) investigated preservation and conservation of library materials, techniques and practices in the University of Zambia Library and its two branches. Five research questions guided the study. The study highlighted preservation and conservation issues which included managerial and financial considerations including storage and accommodation, staffing levels, policies, techniques and practices in preserving and conserving library materials and the information contained in them in order to ensure long term access to them. Survey research method was adopted for the study and the population of study were 35 library staff, 6 bindery staff and 11 faculty academic staff total 52. Questionnaire, observation lists, interview and documentary sources were used as instrument for data collection. Purposive sampling was used for this study. The research findings revealed that although the University of Zambia libraries were involved in the long-term preservation of library materials, they did not provide a well-planned preservation and conservation care because preservation was given least priority and conservation programmes were addressed in varying degrees in the libraries.

The study further identified lack of preservation and conservation planning, policies and weak commitment from the University of Zambia management on funding of libraries at the University of Zambia. Also inadequate programmes and limited preservation and conservation education and training among librarians were the other forms of obstacles to effective preservation and conservation of library materials in the university libraries. Further results showed the lack of awareness concerning preventive preservation measures, poor handling and use of library materials.

Nnadozie (2017) investigated the accessibility of e-resources and online information services provided at Michael Okpara University of Agriculture, Umudike (MOUAAU) and National Root Crop Research Institute (NRCRI), Umudike libraries in Abia State, Nigeria. Six research questions and two null hypotheses guided the study. The research design used was descriptive survey method while useful data were elicited through a customized research instrument entitled. "Questionnaire on Availability and Accessibility of e-Resources and e-Services in Academic and Special libraries."

The finding showed that while availability of e-resources was sporadic, accessibility and frequency of use of online information services were abysmally low. Several factors were identified as impeding accessibility of e-platforms in the libraries surveyed such as inadequate ICT facilities, slow bandwidth, poor funding and high cost of Internet subscription. In a research work conducted by Dada (2016) to assess the preservation of information resources in Federal College of Education (FCE), Zaria, found that preservation of information resources in the College Library is affected by lack of suitable or adequate equipment and lack of knowledge of preservation technique application on the part of the college librarians.

Bagudu and Sadiq (2013) conducted a study to determine the perception of students toward digital library services in the International Islamic University of Malaysia. Survey research method was

used and five research questions guided the study. A sample of 164 postgraduate students from the Faculty of Engineering were selected through random sampling questionnaire was used to collect data. The finding revealed lack of student orientation, training on how to use computer appliances, obsolete hardware and software, technical support and difficulty in digitising past question papers .Based on the findings, the following four recommendations therefore made.

The university management should strive to make an effort to upgrade the digital library system to be more user friendly so that it will be easier to use by students. The institution can also organize a kind of training workshop at least once in a semester. For the postgraduate students in order to enable them effectively utilize and benefit from this new library technology. The library should put more step forward in the digitization of up to date past question papers because they serve as guides for students on how to go about confronting their end of semester examinations. The library management should provide a feedback stock which will serve as a means for users' responses on the performance of each digital item or content and the level of satisfaction derived.

Jimada (2015) investigated preservation of digital information resources in federal university libraries in north western states of Nigeria. To achieve the objective of the study, four research questions were constructed. A qualitative research methodology was used; purposive sampling was used for the study, the instrument used for data collection was the structured questionnaire and interview.

The responses from the respondents who are staff of the digitization unit were analysed descriptively using tables. The result of the findings showed that the most popular information resources generated and preserved are theses dissertation, preprint and post print journals. External hard drives, CD-ROM/DVD and computer hard disk are the common storage media used for preservation in the libraries studied. It was also discovered that migration and use of standard are the popular strategies used for preservation.

The study discovered that the major challenges in preservation of digital information resources include; lack of infrastructure, technological obsolescence, poor maintenance culture, inadequate power supply and inadequate fund. The study concludes that even though some form of preservation is carried out on digital information resources in libraries studied but yet not effectively and efficiently done. In view of this a number of recommendations were made including providing different types of digital information resources such as record inventions, technical report, use of mirror server, use of strategies such as emulation, refreshment, constant upgrades of hardware and software.

Methodology

Descriptive survey design was used and population consisted of 12,691 respondents with a breakdown of 161 librarians in ICT unit and 12,530 lecturers in 22 Federal Universities in Northern Nigeria. Multi-stage sampling technique was used to select nine (9) universities, using stratified sampling technique while proportionate stratified sampling was used to select 377 lecturers and 79 ICT librarians.

Thus, Otaha (2015) view multi-stage sampling as sampling that consisted of processes, stages, and sampling techniques to arrive at reasonable and appropriate sample size. The researchers used two sets of questionnaires to collect quantitative data and response rate showed 321 lecturers and 65 librarians in ICT unit in nine Federal Universities in Northern Nigeria. Mean and standard deviation and of course descriptive statistics was used to analyses data.

Findings:

Challenges influencing the adoption of preservation techniques by academic staff for research output in federal university libraries in Northern Nigeria.

Respondents were assessed to ascertain what constituted challenges that influence the adoption of preservation technique that can ensure use of digital resources by academic staff for research output. The results are tabulated in Table 1 for librarians in ICT unit while that of the academic staff result is tabulated in Table 2.

Results

Table 1: Distributions of the challenges influencing librarians in ICT unit from adoption of preservation technique in the selected Federal University Libraries

S/N	Challenges influencing the adoption of preservation techniques	SA 4	A 3	D 2	SD 1	Mean	Std. Dev.	Dec
1	Absence of library policy on digital preservation	25	19	17	4	3.0	0.95	Affirmed
2	Poor security and confidentiality controls	12	27	17	9	2.6	0.94	Affirmed
3	Lack of records retention and disposal policies	9	22	20	14	2.4	0.98	Disaffirmed
4	Absence of migration strategies for records	13	28	15	9	2.7	0.95	Affirmed
5	Understand the function requirement for records preservation	13	34	14	4	2.9	0.81	Affirmed
6	Competences and skills required to manage information delivery system	17	27	13	8	2.8	0.97	Affirmed
7	Accurately documented policies	13	33	15	4	2.8	0.81	Affirmed
8	Lack of standard operating preservation Procedure	18	27	16	4	2.9	0.88	Affirmed
Weighted Mean						2.8	0.61	

(Decision mean = 2.50)

The challenges facing the adoption of preservation technique for digital materials in the selected federal university libraries can be classified into basically two categories which are administrative and human resources. At the administrative dimension are lack of effective policies for the adoption. Foremost among the challenges in this perspective is the absence of library policy on digital preservation.

In the table, 25(38.5%) and 19(29.2%) of the Librarians strongly agreed and agreed respectively with this limitation or challenge. Closely associated with this lack of accurately documented policies for adopting the preservation techniques. In the table 13(20.0%) and 33(50.8%) of the librarians strongly agreed and agreed with this opinion. The mean score is 2.8 (item 6 of the table). Coupled with these is the absence of migration strategies for records which 13(20.0%) and 28(43.1%) of the librarians strongly agreed and agreed respectively is militating against the adoption of preservation techniques for digital materials in the selected university libraries.

This findings is consistent with the findings of Rahman and Muhammad (2012) who posited that access to digital objects requires keeping older technology available for use. They further stated that this will help future generations to view digital objects in their native format with their original

layout and functionality adding that creating hardware or software museum is prohibitive in cost, space and technical support requirement.

Also rated as part of the administrative challenges is poor security and confidentiality controls with a mean score of 2.6 in the table. The lack of records retention and disposal policies suggested as a challenge to the adoption in the table was not perceived to be a major one by the librarians as the mean score was 2.4. The findings here are consistent with the findings of Bagudu and Sadiq (2013) who stated that the need to provide information content and system is usually a function of professional staff more especially when it comes to digital library services as they are designed for library clientele.

On the human resources dimension, there were the problems of competences and skills required to manage information delivery system along with understanding the functional requirement for records preservation and lack of standard operating preservation procedures. In the table these three challenges were scored 2.8 and 2.9 each for the last two by the librarians. In the overall, the librarians agreed that there were major challenges to the adoption of preservation technique for digital materials in the selected Federal University Libraries with a mean score of 2.8 and a standard deviation of 0.61.

Table 2: Distributions of the challenges confronting lecturers to adoption of digital materials used for research output in the selected Federal University Libraries

S/N	Challenges militating against the adoption of digital materials	SA	A	D	SD	Mean	Std. Dev.	Decision
1	Waste of time	13	86	109	113	2.0	0.89	Disaffirmed
2	Highly technical	36	90	146	49	2.4	0.87	Disaffirmed
3	Inadequate ICT facilities	101	168	44	8	3.1	0.73	Affirmed
4	Financial constrain	91	160	63	7	3.0	0.75	Affirmed
5	Inability to select search items	48	88	149	36	2.5	0.88	Affirmed
6	Not knowing how to use search engines	61	77	99	84	2.4	1.07	Disaffirmed
7	Non subscription by institution	99	148	50	24	3.0	0.87	Affirmed
8	Poor network connectivity	130	149	26	16	3.2	0.80	Affirmed
9	Unstable power supply	135	151	31	4	3.3	0.69	Affirmed
10	Lack of good computer accessories	49	165	81	26	2.7	0.81	Affirmed
Weighted mean						2.8	0.49	

(Decision mean = 2.50)

One of the foremost challenges to the use of digital materials in the libraries rated by the lecturers as indicated in item 9 of the table is the problem of unstable power supply. In the table, 135(42.1%) and 151(47.0%) of the Lecturers strongly agreed and agreed with this challenge militating against the use of digital materials in the University libraries.

Only 31(9.7% and 4(1.2%) of the lecturers disagreed and strongly disagreed with this opinion. With a mean score of 3.3 for the item, it could be seen as a consensus among the lecturers. Other challenges to the use of digital materials in the selected federal university libraries revolved around issues of inadequate material resources due to lack of finances and human resources.

At the level of materials resources, 101(31.5%) and 168(52.3%) of the lecturers strongly agreed and agreed with the suggestion that the ICT facilities in the universities' libraries were inadequate. Associated to this inadequacy is the problem of financial constrain which 91(28.3%) and

160(49.8%) of the lecturers strongly agreed and agreed respectively was militating against effective provision of ICT facilities in the university libraries.

This lack of adequate finance is reflected in item 7 of the table where 130(40.5%) and 149(46.4%) of the lecturers strongly agreed and agreed respectively that the Universities do not subscribed to digital materials and in item 8 where 130(40.5%) and 149(46.4%) of the lecturers strongly agreed and agreed respectively that poor network connectivity is one of the major challenges to the use of digital materials in the selected universities. Closely associated with these problems is the lack of good computer systems and necessary accessories ranked with a mean of 2.7 by the lecturers as a challenge to the use of digital materials in the libraries.

At the level of human resources, the lecturers agreed with a mean of 2.5 that there were problems of inability to select search items by users. But they did not agree that the procedures were highly technical (mean =2.4) or that it waste time (mean=2.0) or that users have problems of not knowing how to use search engines to locate their needed information in the Net. In the overall assessment, the lecturers were of the view with a mean of 2.8 for the table that there were major challenges to the use of digital materials in the selected university libraries within the study area.

Conclusion

The study revealed that absence of library policy on digital preservation and unstable power supply was the major challenges militating the adoption of preservation techniques by the academic staff for their research output. The findings here agree with the findings of Nnadozie (2017) who posited that if an organisation lacks stable power, adequate network connectivity, adequate ICT facilities, adequate finance, or using its finance efficiently and effectively, it will fail to meet its objectives and Shameenda (2011) who stated that, for library to discharge its responsibilities satisfactorily, it should be funded adequately.

Recommendation

- i. Technical factors already utilized by the federal university libraries in Northern Nigerian to promote access and use of digital resources should be sustained to address the possibility of lack of records retention and disposal.
- ii. It is recommended that lecturers time, highly technical procedure and competence to search information which have surfaced as challenge confronting lecturers in the adoption of digital research should be address;

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