Preservation Parameters And Longevity Of Information Resources In Academic Libraries

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Abstract

The study investigated the preservation parameters and longevity of information resources in Rivers state academic libraries. Four objectives were formulated for the study alongside with four research questions and four null hypotheses respectively. The study adopted correlational research design. The population consist of all the staff (professional, para-professional and non-professional) working in the four academic libraries under study. The total number of the entire staff is 133 but 102(77%) responded to the questionnaire which was used to analyse the data. Questionnaire was used as instrument for data collection. Cronbach Alpha statistical tool was used to determine the reliability co-efficient which yielded the result of Preservation Parameters 0.84 and Longevity of Information Resources 0.71 indicating a high reliability of the instrument. Pearson's Product Moment Correlation (PPMC) was used to answer the research questions and test the hypotheses at 0.05 level of significant. Results revealed that there is positive and weak relationship between the preservation parameters such as digitization, biological agent control, security measures, maintenance culture and longevity of information resources in the academic libraries under study. The researcher therefore recommends among others thatthere should be awareness and application of digitization of information resources in libraries due to its relationship with longevity. Also, there should be recruitment of competent security personnel to man the entrance/exit of the library, the use of digital CCTV for monitoring and staff surveillance in the reading/shelf areas of the library.

Keywords: *Preservation, digitization, biological agent control, security measures, longevity*

1.1 Introduction

Preservation is a means of taking care of library materials to avoid deterioration. There are many enemies of books which may attack or destroy library materials. These include climatic conditions such as humidity, aridity, and ultraviolet rays, biological agents such as book worms, ants, rodents and natural hazards such as fire, flood and war. Preservation also refers to the totality of measures for maintaining the integrity of documents and the information contained in

them. It includes all the managerial and financial considerations, storage and accommodation provisions, staffing level policies, techniques and methods involved in safe guarding documentary materials ((Aina, 2004 &Ogbodo, 2010).

Ebo, Ottong and Bassey (2008) stated that preservation in library parlance is the process of keeping library resources safe and in usable, if not original shape as long as possible. It involves the specific practice taken to prolong the lives of the resources. Being an administrative procedure, preservation also includes all the administrative procedures necessary to safeguard the library collection. Specifically, they are provision of appropriate level of security, environmental control, storage, care and handling of its items and equipment that will retard deterioration of resources, and protection from physical damage.

The European Commission (2004) defines longevity as the ability of a product to maintain its functions over time and the degree to which it is repairable or serviceable before it becomes obsolete. Ricardo (2014) also defines longevity as the ability of an item to perform its required function under stated conditions of preventative or corrective maintenance until a limiting state is achieved. Performing preservation activities such as maintenance culture in the library will help to ensure the information resources achieves its intended lifetime. Therefore, consideration of maintenance is necessary as it is essential to the longevity of the product (information resources). Proper use and maintenance, support and extend its lifetime. The actual lifetime of a product depends not only on the design but also on consumer usage patterns, product maintenance and repair. In this context, longevity is the maximum potential lifetime of information resources before it becomes obsolete or deteriorated for users because it cannot maintain its main functions any longer, it is no longer viable to be repaired

or upgrading (Sampele, 2015).

Information resources on the other hand, are basically resources through which information can be gotten so as to meet the information needs of users. They are channels through which ideas, opinions, or feelings are stored or preserved. Information resources found in libraries can be classified into print, non-print and electronic formats. Print information resources include books, serials, encyclopaedia, dictionaries, handbooks, almanacs, directories, thesis, dissertation etc. Non-print information resources are items such as compact disk, audio-visuals, tapes, slides, microfilm while electronic information resources are computer hard-drive, databases, library software etc. Njeze (2012) is of the view that library materials deteriorate faster when publishers use sub-standard materials and very low-quality materials like newsprint (paper) which changes colour when exposed to either internal or external light, or the glue and thread for sewing the book. This is very rampant in our local publications, so librarians are left with the option of preserving these materials for longevity and future generations.

The nature of library resources calls for effective preservation to ensure future access to their information content. The importance of preservation of library resources be they book or non-book cannot be under estimated, librarians should not only lay emphasis on acquisition of information resources but consideration need to be given to the problem of making these information globally available and durable to future generations. Since the academic libraries exist to support the teaching and learning activities through provision of current, up-to-date information, preservation must be given adequate attention(Day, 2007). This study is therefore undertaken to find out how preservation parameters correlate respectively with longevity of information resources in academic libraries in Rivers State. The preservation parameters that are examined in this study include: digitization, biological

agent control, security measures and maintenance culture.

1.2 Statement of Problem

Academic libraries were established primarily to meet the information needs of their parent institutions through the collection and preservation of information resources to support teaching, research and dissemination of knowledge. For the information resources to serve the purpose for which they are collected, they need to be preserved in such a way that their lifespan are prolonged so as to sustain their utilization by the academic communities. In spite of the importance of preservation and longevity of information resources in the library, preliminary observation by the researcher revealed that many information resources such as books, journals, magazines, newspapers, maps, disc and other non-book resources etc are mould – infested, torn, mutilated, broken and faded. Some are damp as a result of poor ventilation, while a lot of others have become brittle and brownish, making it almost impossible for users to pick out whatever information they want. Some of the information resources had either been damaged, stolen or suffer losses. Could it be due to lack of these preservation parameters? It is obvious that there exist some information gaps and there is need for in-depth investigation on the various parameters or methods used in preserving information resources in the academic libraries. It is against this background that the researchers consider it important to conduct a study on the preservation parameters and longevity of information resources in academic libraries.

1.3 Objectives of the Study

The main purpose of this study is to examine the relationship that exists between disaster management/restoration and durability of information resources in polytechnic libraries in the South-South geo-political zone of Nigeria. The specific aims of this study are:

1. To determine the relationship between digitization and longevity of information resources in academic libraries in Rivers State.
2. To find out the relationship between biological agent control and longevity of information resources in academic libraries in Rivers State.
3. To establish the relationship between security measures and longevity of information resources in academic libraries in Rivers State.
4. To determine the link between maintenance culture and longevity of information resources in academic libraries in Rivers State.

1.4 Research Questions

1. What is the relationship between digitization and longevity of information resources in academic libraries in Rivers State?
2. To what level does biological agent control correlates with longevity of information resources in academic libraries in Rivers State?
3. What is the relationship between security measures and longevity of information resources in academic libraries in Rivers State?
4. What is the link between maintenance culture and longevity of information resources in academic libraries in Rivers State?

1.5 Research Hypotheses

The following Null hypotheses were formulated to guide the study and tested at 0.05 of significance level.

1. There is no significant relationship between digitization and longevity of information resources in academic libraries in Rivers State.
2. The relationship between biological agent control and longevity of

information resources in academic libraries in Rivers State is not significant.

3. There is no significant relationship between security measures and longevity of information resources in academic libraries in Rivers State

4. The relationship between maintenance culture do not differ significantly from longevity of information resources in academic libraries in Rivers State.

2.1 Literature Review

Man has been engaged in preservation activities from time. He has dried food items so that they may last longer. In the library parlance, librarians of antiquity have preserved library resources such as the tablets, scrolls, and codex by giving them special treatment that will make them safe and last very long. For instance, the Alexandrian librarian preserved scrolls by rolling them into cylindrical containers. Giant locks have been found on cellar doors where scrolls, codex or early books were kept. Special treatment has also been given to library resources to make them more durable. In all these exercises, no working definition was coined for these activities that prolonged the lifespan of the resources until recently (Ofre, 2010). Alegbeleye (2002) defined preservation as the process of keeping library resources in their original state or in good condition. This, he observed, involves the stabilization of the environment under which the resources are kept by controlling excessive temperature, relative humidity and instituting good housekeeping practices. Preservation could also be seen as the action taken to: prevent, stop, or retard deterioration of all library materials, in all media, prevent theft or loss, where possible improve their condition and as necessary and appropriate, change their format in order to preserve their intellectual content (Columbia University Libraries, 2008).

Longevity is a long duration of someone or something. Longevity commonly considers the resistance of a print to damage from exposure to light, water, and other environmental factors encountered during use and storage. For example, if a print is folded sharply, then the resistance of the image to cracking and flaking off the paper must be considered. Longevity and durability can be used interchangeably. It is the property of resisting deterioration by use, that is, the handling to which paper may be subjected, the hazards incident to heavy use of books in libraries, or the ability of sandpaper to hold together until the user finishes his work. Every product has a lifespan including information resources. Method of usage can affect the lifespan of a product. For information resources that are in a heavy traffic, definitely, it will reduce the lifespan of that book. For that particular book to be durable or last long, the librarian has to come up with a modality on how to safeguard the book in order to increase the lifespan at the same time make it accessible to users. Such modalities are the preservation parameters; which are digitization, biological agent control, security measures and maintenance culture.

The term 'digitization' has been described by scholars and writers alike in different ways. In other words, the term means many things to many experts. However, Fabunmi (2009) has observed that digitization is the art of converting the contents of a document from hard copy into machine readable formats. Mutula(2004) has noted that digitization makes information resources available electronically. Hedstrom (1997) in Osedo (2013) observed that preservationists within the library and archival community have been instrumental in developing an array of tools and methodologies to reduce the decay of traditional materials and to restore books and documents that have deteriorated to such an extent that their longevity and usability are threatened. Ojedokun (2000) remarked that the

effect of digitization in Nigerian academic libraries brought improvement in the services they provide. Perhaps digitization reduces the cost of access to information and introduced variety to information users. Digitization has made knowledge to become very accessible due to the free open access to information resources made available online, other benefits are: no physical limit for storing, can be access via the internet, available accessed, create saving space, preservation of old texts/manuscripts, any number of times digital files can be duplicated with exactness, many can access a digital file at the same time, integrated online resources sharing etc. Digital preservation has so many advantages but it is worthy to note that there are some factors that hinder it. Kanyengo (2006), identified some specificity of preservation issue in academic libraries of Nigeria: information Policies, infrastructures, financial constraint, technical knowledge etc.

Biological agents of deterioration are very deadly to the information resources in the library. Unomah (1985) in Ofre (2010) observed that these agents such as termites, cockroaches, rats, mice attack on papers pose one of the most difficult problems of preservation. These agents are responsible for 20% damage to information resources in the library. This is because once they have established themselves in a building, it is virtually impossible to stamp them out. For this reason, the library has to embark on a drastic war against these agents of destruction if they want the resources to be useable and last long. Biological agent control is therefore necessary in order to reduce its damage. Biological agent control is the process of eliminating or putting down all micro-organisms and macro-organisms which deteriorate library materials. This is necessary because if the agents are not controlled with time the resources in the library would be totally destroyed by them and it will affect the longevity and accessibility of the information

resources as well as service delivery of the library staff (Bankole, 2010). Absence of proper ventilation, darkness, high temperature and relative humidity encourage their spread. In controlling these biological agents, the use of pesticides like (DDT; Pyrethrum; Para dichloro benzene etc.), creation of chemical barrier around the building using crude creosote in kerosene, wooden structures are to be coated with creoste oil and solignum. Constant vigil against termite infestation is to be maintained. Care should be taken that books and other documents on the shelves are not directly sprayed upon. Problem of rodents can be controlled by trapping, stomach poisoning (zinc phosphide and arsenic oxide) and sealing of gaps, cracks, and entry points. Markings on the documents by pencil or pen by users and using the book as a pillow for protecting their heads during monsoon also contributes to the deterioration process of documents. It is a very difficult and delicate issue. This can be prevented by educating the users and displaying notices explaining the importance of books at prominent places in the library. Consequently, Chattopadhyay (2007) stressed that air-conditioning system is the best possible solution because the air-conditioned area can maintain a uniform level of temperature and humidity (if the air-conditioning plant run for twenty-four hours of a day).This environment reduces the possibility of growth of any kind of biological agent. But this arrangement is very costly.

Security refers to a process designed to protect something or somebody against danger. It is an act of preventing crime, whereas in the case of library resources; it prevents un-authorized removal or loss of materials, usually as a result of intruders' or interference of thieves'. According to Ogbodo (2004), security measures are all measures taken to guarantee the safety of books, staff and other materials in the Library. On the preventive measures to crime in the library,

Chadwick, (1998) in Musa (2017) suggested various methods among which are the use of a panic button system, additional staff recruitment; lighting, dummy surveillance cameras, inventories of library property and the use of electronic detection system to protect library materials from theft. Ogbodo (2004) also contributed on security and preservation of library materials, he suggested that solution to theft and mutilation cases to include staff surveillance in the stack areas to catch security breakers red handed; and the use of electronic security system (CCTV), and two-way mirrors. Relevantly, Adewuyi and Adekanye (2011) suggested security measures that should be put in place in Nigeria academic libraries to include: Building of library with concrete, Protecting windows with wire gauze, The use of porter at entrance and exit doors of the library, Employing security personnel, Stable electronic detector machine, Regular monitoring and patrol in the readers service hall, Written policies as regards punishment for offenders, Warning students during freshmen orientation talk, Using post bills to warn students etc.

Osunrinde and Agbetuyi (2018) stated that maintenance of library materials has become a global phenomenon which academic libraries must take cognizance of if their mission of providing support in teaching, learning and research would be met continually. Maintenance of library holdings is also necessitated due to the fact that these materials are subjected to use by clientele for providing their information needs and as such, they undergo wear and tear in the process. Therefore, to sustain continued use and access or durability to these library resources, their maintenance is inevitable. Hornby (2015) described maintenance as the act of keeping something in good condition by checking or repairing it regularly. It is also the work that is necessary to keep something in good condition. Similarly, Onyemenam

(2014) sees maintenance as the combination of any action carried out to retain an item or restore it to an acceptable condition. It is the ability of people which have become their way of life to constantly maintain in their highest efficiency all they value most in life so that they could be of greatest use to them. Maintenance culture is an attitude which is sadly lacking in Nigeria, whether in the home, office, school or library. Maintenance culture in this context are the activities put in place to facilitate preservation of information resources in the library in order for it to be durable and accessible. In addition, Sekiete (2004) and Alegbeleye (2002) in their various studies have outlined that the following good housekeeping practices should be used in preserving document from deterioration in libraries: Cleaning the library and book stock, Proper shelving and careful removal of documents, Careful use of books/document during reading, Photocopying, Minor repairs which do not need special tools or expensive materials etc.

There are a lot of challenges facing institutions in issues of preservation which are inadequate funding to carry out preservation activities in library yearly, no preservation policy in the libraries, lack of infrastructure facilities for preservation of resources, harsh/high environment condition and lack of professional staff in the academic libraries which has affected the information resources and service delivery to users drastically (Oghenetega & Ebele, 2014).

3.1 Research Method

The study adopted correlational research design. The study area was four academic libraries in Rivers state (Rivers State University, c, Captain Elechi Amadi Polytechnic and Ken Sarawiwa Polytechnic). The population consists of all the staff (professional, paraprofessional and non-professional) working in the four academic libraries under study. The total number of the

entire staff is 133 but 102(77%) responded to the questionnaire which was used to analyse the data. Questionnaire was used as instrument for data collection. Cronbach Alpha statistical tool was used to determine the reliability co-efficient which yielded the result of Preservation Parameters 0.84 and Longevity of Information Resources 0.71 indicating a high reliability of the instrument. Pearson's Product Moment Correlation (PPMC) was used to answer the research questions and test the hypotheses at 0.05 level of significant.

4.1 Data Analysis

Table 1: Response Rate based on Institution

Variable	Category	N	%
Institution	Rivers State University, Port Harcourt, Rivers State	39	38.3
	Ignatius Ajuru University of Education, Rumuolumeni, Rivers State	23	22.5
	Captain Elechi Amadi Polytechnic, Rumuola, Rivers State	13	12.7
	Ken Sarowiwa Polytechnic, Bori, Rivers State	27	26.5

Table 1 shows the institutional distribution of the respondents. It shows that the highest respondents, 38.3% were from Rivers State University. This was followed by 22.5% who are from Ignatius Ajuru University of Education. While Ken Sarowiwa Polytechnic had 26.5% and Captain Elechni Amadi Polytechnic had the lowest of 12.7% respectively.

Research Question 1: What is the relationship between digitization and longevity of information resources in academic libraries in Rivers State?
$H0_1$: There is no significant relationship between digitization and longevity of information resources in academic libraries in Rivers State.

Table 2: Summary of Pearson Product Moment Correlation on the relationship between digitization and longevity of information resources in academic libraries in Rivers State

Correlations

		Digitization	Longevity
Digitization	Pearson Correlation	1	.332[**]
	Sig. (2-tailed)		.000
	N	102	102
Longevity	Pearson Correlation	332[**]	1
	Sig. (2-tailed)	.000	
	N	102	102

**. Correlation is significant at the 0.05 level (2-tailed).

The result from table 2 shows that there is positive and moderately strong(r=.332)relationship between digitization and longevity of information resources in academic libraries in Rivers State. It further shows that there is significant relationship between digitization and longevity of information resources in academic libraries in Rivers State (p=0.000). The null hypothesis one is rejected at 0.05 level of significance.

Research Question 2: To what level does biological agent control correlates with longevity of information resources in academic libraries in Rivers State?

H0$_2$: There is no significant relationship between biological agents control and longevity of information resources in academic libraries in Rivers State.

Table 3: Summary of Pearson Product Moment Correlation on the relationship between biological agents control and longevity of information resources in academic libraries in Rivers State

Correlations

		BiologicalAgent Control	Longevity
BiologicalAgentControl	Pearson Correlation	1	.139
	Sig. (2-tailed)		.054
	N	102	102
Longevity	Pearson Correlation	.139	1
	Sig. (2-tailed)	.054	
	N	102	102

The result from table 3 shows that there is positive and weak(r=.139)relationship between biological agent control and longevity of information resources in academic libraries in Rivers State. It further shows that there is no significant relationship between biological agent control and longevity of information resources in academic libraries in Rivers State (p=0.054). The null hypothesis two is retained at 0.05 level of significance.

Research Question 3:What is the relationship between security measures and longevity of information resources in academic libraries in Rivers State?

H0$_3$:There is no significant relationship between security measures and longevity of information resources in academic libraries in Rivers State.

Table 4: Summary of Pearson Product Moment Correlation on the relationship between security measures and longevity of information   resources in academic libraries in Rivers State

Correlations

		Securitymeasures	longevity
Securitymeasures	Pearson Correlation	1	.232*
	Sig. (2-tailed)		.019
	N	102	102
Longevity	Pearson Correlation	.232*	1
	Sig. (2-tailed)	.019	
	N	102	102

*. Correlation is significant at the 0.05 level (2-tailed).

The result from table 4 shows that there is a positive (r=.232)relationship between security measures and longevity of information resources in academic libraries in Rivers State. It further shows that there is no significant relationship between security measures and longevity of information resources in academic libraries in Rivers State (p=0.019). The null hypothesis three is retained at 0.05 level of significance.

Research Question 4: What is the link between maintenance culture and longevity of information resources in academic libraries in Rivers State?

H0_4: There is no significant relationship between maintenance culture and longevity of information resources in academic libraries in Rivers State.

Table 5: Summary of Pearson Product Moment Correlation on the relationship between maintenance culture and longevity of information resources in academic libraries in Rivers State

Correlations

		Maintenanceculture	Longevity
Maintenanceculture	Pearson Correlation	1	.503**
	Sig. (2-tailed)		.000
	N	102	102
Longevity	Pearson Correlation	.503**	1
	Sig. (2-tailed)	.000	
	N	102	102

**. Correlation is significant at the 0.01 level (2-tailed).

The result from table 5 shows that there is a positive and strong (r=.503)relationship between maintenance culture and longevity of information resources in academic libraries in Rivers State. It further shows that there is significant relationship between maintenance culture and longevity of information resources in academic libraries in Rivers State (p=0.000). The null hypothesis four is therefore rejected at 0.05 level of significance.

5.1 Discussion of Findings

From the results above, it shows that there is a positive relationship between the dependent and independents variables. For digitization and longevity of information resources, the result shows that there is a significant relationship which is in agreement with the findings of Lesk (2005) who observed that, the primary and usually the most obvious advantage of digitization is that it enables greater access to collections of all types. The findings of Abdulsalami, et al (2015) also agree with this hypothesis. Their study revealed that digitization could be used as means to enhance access by making available information to present and future users of the library. It was also established that digitization of library resources is highly relevant for the durability of the resources.

The findings for biological agent control and longevity shows that there is a positive but weak relationship and no significant relationship. This implies that there is a negligible relationship between biological agent control and longevity of information resources. The study of Mohammad (2006) is not in agreement with the result of this hypothesis, he discovered that if unwelcome biological agents like fungi, cockroaches and rats are eliminated, a major threat to library collections would have been controlled, thereby the information resources will become available and durable to users. Furthermore, this hypothesis does not agree with the study of Bankole (2008) which established that modification and good housekeeping controls micro-organisms that causes deterioration. This makes information resources to stay good and useful. From the foregoing, the researchers may conclude that the reason why the result is so may be that the respondents are ignorant of this preservation parameters/methods and how it can enhance longevity in their library.

The result from hypothesis three state that is no significant relationship between security measures and longevity of information resources which is not in harmony with the findings of Ayoung, et al (2014) who found out in a study that written security policies, theft, book non-return, mutilation, mis-shelving and impersonation are problems of security in the library. Furthermore, the result disagrees with the findings of Urhiewhu, et al (2018). They studied security measures adopted and found out that stamping of specific pages, using security personnel and porters at the entrance door of the libraries for checking in and checking out users of the library were used mostly to checkmate the information resources in the library. In the researcher's opinion, the result is so because the libraries under study may not have been engaging in security measures.

Finally, the result from the last hypothesis shows that there is a positive and strong relationship between maintenance culture and longevity. This result is in agreement with an earlier finding of Makwae and Ogoti (2018) which established that cleaning and dusting of library materials helps to elongate the lifespan of the resources. What this implies is that when libraries adopt the maintenance culture of cleaning and dusting, it will enhance the longevity of the library resources. However, Osunrinde and Agbetuyi (2018) study revealed that lack of constant training and retraining for staff on preservation, no preservation policies,

inadequate funding, lack of functional library equipment for preservation and conservation among others can affect the maintenance culture of library resources thereby reducing the lifespan of the resources. Also, Oghenetega and Ebele (2014) found out that lack of professional staff in libraries have affected the services rendering to users drastically. These services include: shelving activities daily, cleaning and dusting daily, photocopying materials etc which are all maintenance culture.

Conclusion and Recommendations

The study on preservation parameters and longevity of information resources has proven that there is a positive relationship between the variables. The study also adds to existing literature on preservation. Based on the findings from this study, the following recommendations are made:

1. There should be more awareness on digitization of information resources in academic libraries. Library staff should be train and retrain on how to use modern ICTs, acquire the necessary skills and knowledge to ensure that library resources remain accessible and long lasting to present and future generation.
2. To rid away or minimize the growth of biological agents in the library, the researchers recommend that regular and periodic fumigation be adopted and that edible materials should be prevented from entering the library, rodents should be trapped or poisoned, sealed all openings in the library that can attracts their entry, educating the users and staff on the danger of these agents to the resources. Also, provision of functional air-conditioner to regulate the temperature and humidity of the storage area.
3. There should be recruitment of competent security personnel to man the entrances/exit of the library; there should be staff surveillance in the reading/shelf areas, taking of regular inventories of library properties. Installation of electronic security system which is the direction of modern libraries.
4. Maintenance practices such as cleaning and dusting, shelf-reading should be done on a daily basis, Careful removal of documents from shelves, binding of torn books weeding of books from the shelve when necessary are also recommended by the researchers.

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