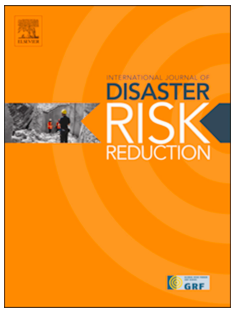

Librarians' perception of disaster preparedness as precursor for effective preservation and conservation of library resources in Nigerian university libraries

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Librarians' Perception of Disaster Preparedness as Precursor for Effective Preservation and Conservation of Library Resources in Nigerian University Libraries

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ABSTRACT

The study examined librarians' perception of disaster preparedness and its effect on effective preservation and conservation of library resources, focusing on university libraries in the Southwest geopolitical zone of Nigeria. The survey research design was adopted. The university libraries that provided the data and institutional setting for the study were randomized using the ballot system after which total enumeration technique was employed to take complete census of the population. The population comprised 327 librarians and library officers drawn across federal and state university libraries in the region. The questionnaire and interview methods were used for data collection. Results affirmed, as postulated, that preservation and conservation of information resources would be more effective if disaster preparedness measures are incorporated into the process. As a result, both approaches were found to be complementary. It was also discovered that the core digital preservation strategies are not being practiced in university libraries in the studied region. Consequently, it was recommended that effort aimed at all forms of preservation strategies should be employed to ensure the longevity and sustainability of all information resources.

Keywords Librarians, Perception, Disaster preparedness, Digital preservation, Print resources, Preservation and conservation, Library resources

1. INTRODUCTION

The role of the library is indispensably instrumental to the promotion of literacy and quality education at all levels. This fact underpins the establishment of libraries in academic institutions to facilitate the speedy realization of the education mandates of their parent bodies. While academic libraries are not only saddled with the responsibility to build strong collections to adequately support these mandates (i.e. learning, teaching and research), it is their prerogative to see to their effective use and care through preservation and conservation-related activities for longevity and sustainability of the resources. The height of susceptibility of information-bearing materials to deterioration and destruction calls for proactive preservation and conservation efforts geared toward minimizing the effects of harsh environmental, biological, technological as well as human factors capable of causing irrecoverable damage to information resources.

Preservation of library resources entails the systematic and planned organization of human resources and activities deployed towards preventing physical and chemical deterioration of library materials (Hasenay & Kritalic, 2010). Preservation activities include environmental measures, preventive cleaning, encapsulation and digital preservation (National Library of Wales, 2018). Conservation on the other hand refers to measures taken to resuscitate deteriorating resources (Popoola, 2003) or the maintenance activities undertaken to prolong the life of information resources by slowing down the process of decay in order to restore or keep them in usable condition. Some conservation activities according to the Northeast Document Conservation Center (2015) include: documentation, treatment, examination, and other preventive care.

When these activities are not in place or well-coordinated, deterioration is not only inevitable but imminent — a phenomenon that could result to serious destruction of library materials. Conscious of this fact, it is therefore incumbent on librarians to prepare for threats or hazards capable of causing catastrophic damage to library resources; whether in the form of deterioration cause by high temperature, humidity and biological factors etc. or disaster in the form of fire, flood/rain storm etc. as the case may be. Given that whatever form of damage that can be associated with libraries and their collections can be refer to as disaster (considering their importance to scholarship), this study theorizes that disaster preparedness approach that captures some elements of preservation and conservation of information-bearing materials would be all-inclusive. The study is therefore proposing that a relationship exists between disaster preparedness and preservation/conservation of library resources as it concerns safety.

Technically speaking, there may be clear distinction between disaster preparedness measures and preservation and conservation activities with respect to risk reduction of library resources. Similarly, these concepts are often treated separately in literature with few exemptions (Shepard, 2018; Ishola, 2017; Robertson, 2015) with many lacking empirical justification. Whereas some studies (e.g. Ilo, Izuagbe, Mole & Ekwueme, 2018; Zaveri, 2015; Khalid & Dol, 2015; Hasenay & Kritalic, 2010; Matthews**,** Smith & Knowles, 2009) have focused on disaster preparedness as a way of safeguarding the library facility and its contents, others (e.g. Adekannbi & Wahab, 2015; Sawant, 2014; Iyishu, Nkanu & Ogar, 2013; Njeze, 2012) have employed preservation and conservation measures to either prevent the physical/chemical deterioration of library resources or resuscitate the already deteriorating ones in order to keep them in usable condition.

Studies that have attempted to examine preservation and conservation of library resources incorporating disaster preparedness measures (which this study suggests encompass a more holistic approach towards safeguarding the library facility and the resources contained therein) are rare in literature. The argument of this paper therefore suggests that irrespective of the

preservation and conservation measures put in place to safeguard library resources without due recourse to the safety of the structure housing them and its environment from disaster like fire and flood, jeopardizes all efforts made. While the study hypothetically suggests that a relationship exists between the two terms, it has also been shown in literature that some equipment and processes designed for disaster preparedness are also applicable for preservation and conservation activities, as presented in section 2.4.

The issue of disaster preparedness and preservation and conservation of information materials are key to the survival of academic libraries and the resources with which they support education. This position notwithstanding, how librarians view these activities and the proposed relationship is a function of perception which varies significantly. Perception is operationalized in this study as librarians' interpretation of sensory information about disaster preparedness as it affect preservation and conservation of information-bearing materials in academic libraries. Perception is usually a function of awareness—the higher the latter, the better the former (Merikle, Smilek & Eastwood, 2001). Perception and awareness of disaster among librarians are essential components of preparedness or lack of it. After the two fire disasters in the two campus libraries of the University of Jos, in Northern Nigeria in 2013 and 2016 respectively, it was reported that the level of disaster awareness among stakeholders and the general extent of emergency preparedness in the campuses were poor (Nwokedi, Panle & Samuel, 2017). It has been reported that librarians in Nigeria placed disaster preparedness activities at the bottom of their priority list (Abareh, 2014; Echezona, Ugwu & Ozioko, 2012).

It is against this background the study sets out to examine librarians' perception of disaster preparedness, its impact on preservation and conservation of information resources in Nigerian academic libraries. Arising from this broad objective, the following research questions are raised to guide the study:

i. What is the relationship between the general perception of librarians about disaster preparedness and effective preservation and conservation of library resources?
ii. How are disaster preparedness measures put in place impact on the effectiveness of preservation and conservation of library resources?

1. LITERATURE REVIEW

2.1 Preservation and conservation practices of print resources in university libraries

Whereas the need for every generation to document events peculiar to it underpin preservation and conservation of information resources practices in libraries, the maintenance culture built around them (print or digital) is significant to their usefulness and life span. Quite a number of studies have been done to examine the perception, extent, relevance, methods and challenges facing preservation and conservation practices in libraries with mixed reactions emerging. It was revealed from a study that seeks to determine the preservation and conservation methods being applied to library materials in university libraries in Southwest Nigeria that dusting, cleaning and proper shelving to allow free flow of air were the major preservation and conservation activities (Osunride & Adetunla, 2016). A comparative analysis of the preservation and conservation practices of selected special and academic libraries in Southwest Nigeria also showed similar results. Besides adequate security measures put in place to curb vandalism and mutilation which ranked highest for academic libraries, the study further revealed that next to

cleaning and dusting are binding and photocopying; highlighted as the most regularly practiced preservation and conservation activities in the studied libraries.

Preventive activities mostly engaged in by libraries towards safeguarding resources in order to ensure that they are not exposed to deterioration include digitization, lamination, photocopying and binding (Ogbodo, 2011). Similarly, Njeze (2012) surveyed the challenges of preservation and conservation in six private university libraries in Southwest Nigeria. The study found that the techniques commonly employed for preserving and conserving library resources include binding, photocopying, cleaning, dusting and proper shelving as specified by 85 per cent respondents who are in the majority. Also, 42 per cent averred that they preserve and conserve their resources through lamination and use of insecticides. Only an insignificant 3 per cent indicated the use of micro-filming and de-acidification measures. The finding of Adekannbi and Wahab (2015) lent further credence to this outcome where it was revealed that the least used preservation and conservation technique for library resources was de-acidification.

From the foregoing, good house-keeping routines techniques like cleaning, dusting, proper shelving, binding and photocopying of library resources are dominant among the measures engaged towards preserving and conserving the materials among libraries in the region. In contrast, the maintenance of an ideal room temperature level through the use of air-conditioners, prevention of direct sunlight on paper-based collections using window blinds, removal of excessive moisture from the stack area using dehumidifiers and control of biological agents using insecticides among others measures are not given their pride of place in the preservation and conservation practices.

2.2 Digital preservation practices in university libraries

The proliferation of information-bearing materials calls for urgent deployment of technology to safeguard electronic resources. The fragility and volatility of digital resources constantly mount pressure on libraries to adopt or engage unique activities commonly referred to as ‘digital preservation’ towards sustaining them. Digital preservation entails the processes involved in the maintenance and accessibility of digital objects on a long-term basis (Velmurugan, 2013). Similar definition that captures accessibility, authenticity and integrity of digital objects has also been provided (Sadiku, Shadare & Musa, 2017). The maintenance activities for digital resources differ significantly from those of prints as a result of their peculiar nature. Thus, digital preservation embraces various activities which help to ensure a continued access to information existing in digital format. As Styblińska (2006) noted, the need to preserve and have access to digital resources is currently increasing and at exponential pace.

Quite a number of techniques have been proposed for the preservation of digital resources—digitized or born digital. These include migration, emulation, refreshing, encapsulation and replication (Gaur & Tripathi, 2012). Whereas it has been reported that there is no agreed-upon ‘best approach’ for all digital resources (Kim, 2018; Tristram, 2002) among available strategies, evidence abound that migration and emulation are better methods (Rosenthal, 2015; Guttenbrunner & Rauber, 2012). However, it has been argued that of the two methods, migration is a preferred relative to emulation; due to the far-reaching economic implications of the latter (Rosenthal, 2015) and its ability to hide technical context (Rieger, Murray, Casad, Alexander, Dietrich, Kovari, Mericle, Muller & Paolillo, 2015). A view earlier shared by Granger (2000).

While some of these methods have been implemented and are still being implemented to safeguard and prolong digital records in the Nigerian academic library environment, the same

situation may not hold sway for others. Gbaje (2011) surveyed the National Library of Nigeria (NLN), the National Archives of Nigeria (NAN) and the National Bureau of Statistics (NBS) to ascertain the extent of digital preservation practices and structures put in place. It was found that migration of data was the most adopted digital preservation strategy with no structures in place. Five years down the line, refreshing, migration and technology preservation were observed as the most utilized digital preservation approaches in special and academic libraries in Southwest Nigeria with a low extent of implementation reported (Osunride & Adetunla, 2016). This position aligned perfectly with a study carried out in the Indian academic context (Sawant, 2014).

Sambo, Omeluzor and Usman (2014) sampled 603 certified librarians in Nigerian using a conference to determine their awareness level of preservation strategies. Regrettably, 70 per cent indicated that they have not had any digital preservation training and as a result, they were not equipped with relevant skills to appreciate the exercise. Three years after, the situation has not changed significantly as Sambo, Urhefe and Ejitagha (2017) found that lack of training was second, behind hardware and software obsolesces, on the list of challenges confronting digital preservation programmes in Nigeria. Similar challenges have been observed in the Zimbabwean National Archives context (Sigauke & Nengomasha, 2011). As reported, relevant expertise is core to the implementation and management of digital preservation system (Rinehart, Prud'homme & Huot 2014). The situation tend to be different from the South African context as Masenya and Ngulube (2019) revealed the availability of formal digital preservation programme as 68.2 per cent of the academic libraries surveyed indicated. Furthermore, the study showed that an overwhelming majority of 95.5 per cent of the respondent stated that preservation of digital resources has been undertaken in their various institutions.

2.3. Librarians' perception of disaster preparedness in Nigerian university libraries

Individual assessment and understanding of any subject matter is perception-based. Whether or not the perception would be positive or negative; high or low is a function of other variables. For example, Nigeria is not predisposed to natural disasters. This could affect Nigerians' general perception on disaster—whether natural or man-made. This may not be unconnected to why it has been reported that some librarians pay little or no attention to disaster preparedness, due to the assumption that Nigeria and indeed Africa are not prone to disasters and that library disasters are not widespread in the region (Echezona, Ugwu & Ozioko, 2012).

Disaster preparedness embraces activities, programmes, policies as well as measures which are taken up before (to prevent or mitigate), during (to respond) and after (to recover) from the loss accompanying emergency. The importance of these activities has been long emphasized. For example, the International Federation of Red Cross and Red Crescent (1970) posited that the objectives of disaster preparedness are to increase the efficiency, effectiveness and impact of disaster mitigation, response and recovery mechanisms. Disaster preparedness comprises every action geared towards maintaining a satisfactory level of readiness for a corresponding rapid response to emergency situations. It equally embraces the measures put in place for enhancing life safety in the face of disaster, actions towards the protection of property as well as those meant for restoration and recovery (Sutton & Tierney, 2006).

Considering the value of any information system, no amount of preparedness activities engaged in to safeguard information resources from decay or total lost is sufficient. But it appears disaster preparedness awareness level among librarians in developing economies is the bane of the obvious neglect reported in literature (Idiegbeyan-Ose, Izuagbe, Ifijeh, Ilogho, Iwu-

James & Osinulu, 2018; Ilo et al., 2018; De Silva, 2004). A scenario was reported from the Ghanaian context where Management staff averred that staff members of the library were adequately prepared to effectively prevent or respond to emergencies. In contrast, staff members' opinion from the responses provided indicated otherwise (Ahenkorah-Marfo & Borteye, 2010). This paradox is an indication of low emergency preparedness both at the individual and organizational levels. In a recent study, librarians' perception was identified as one of the challenges confronting effective disaster management in Nigeria (Ilo, Ngwuchukwu, Michael-Onuha & Segun-Adeniran, 2019).

2.4. Preservation activities, disaster preparedness and library resources

The ultimate goal of preservation is to slow down the wear and tear of library information stock thereby prolonging the life-span and ensuring long-term access to the resources. Whereas achieving this goal dependent on factors such as adequate funding (Olatokun, 2010; Ogunmodede & Ebijuwa, 2013), the availability of relevant technology infrastructure and technical expertise are also essential to the success of the entire process. As much as closed circuit cameras are key components of disaster preparedness in libraries (Ilo et al., 2018; Donald, 2012) towards early detection of possible hazards and monitoring emergencies, they are being used to foster preservation activities in order to monitor and deter mutilation, vandalism and outright theft of library resources (Segaetsho & Mnjama, 2012; Akussah & Bentil, 2010).

While Ilo, et al (2018) listed strong anti-virus software, dust extractors, insecticides/pesticides, plastic sheet cover, hard drive and other storage devices among disaster prevention measures, evidence of the use of these items in preservation and conservation activities abound in literature (Adekannbi & Wahab, 2015). Preservation activities (e.g. digital preservation) and some aspects of disaster management (e.g. digital disaster) are intertwined; as some equipment and processes designed to manage disaster could also be helpful in preventing and mitigating the effect of the deterioration of library resources, vice versa.

Good housekeeping practices could be essential both to preservation of information resources and disaster management. It is a good housekeeping principle to strategically position all relevant equipment for effective deployment when the need arises. The proximity of these items (e.g. humidity control cassettes, dryers, dust extractors/vacuum cleaners, fire extinguishers, insecticides/pesticides and mops) to the stack areas play an important role in the speed and efficacy of response the library can offer in the event of emergency (Wong & Green, 2006). The degree of effectiveness of the response process will in turn determines the resuscitation and restoration attention affected library materials will require.

Technically speaking from the digital preservation context, it has been observed that during migration, authenticity of a digital record could be compromised, functionality and data could be lost (Dressler, 2010), since the process involves the relocation or copying of data from outdated or endangered file formats by means of technology to one that is modern or prevailing (Venkadesan, 2010). This method portends significant hazards to libraries and the collections with which they support scholarship. Therefore, if technological incompetence or non-deployment of relevant technology infrastructure occasion the loss of library data, disaster has occurred. It therefore follows that adequate preparedness measures put in place to ensure digital preservation could go a long way to prevent digital disaster. On the other hand, poor disaster preparedness measures could facilitate the destruction of important computer hardware hosting the programmes for accessing digital resources. As a result, the study hypothesizes that:

H1: ***There is no significant mean (X) difference between librarians' perception of preservation and conservation activities and disaster preparedness measures on information resource***

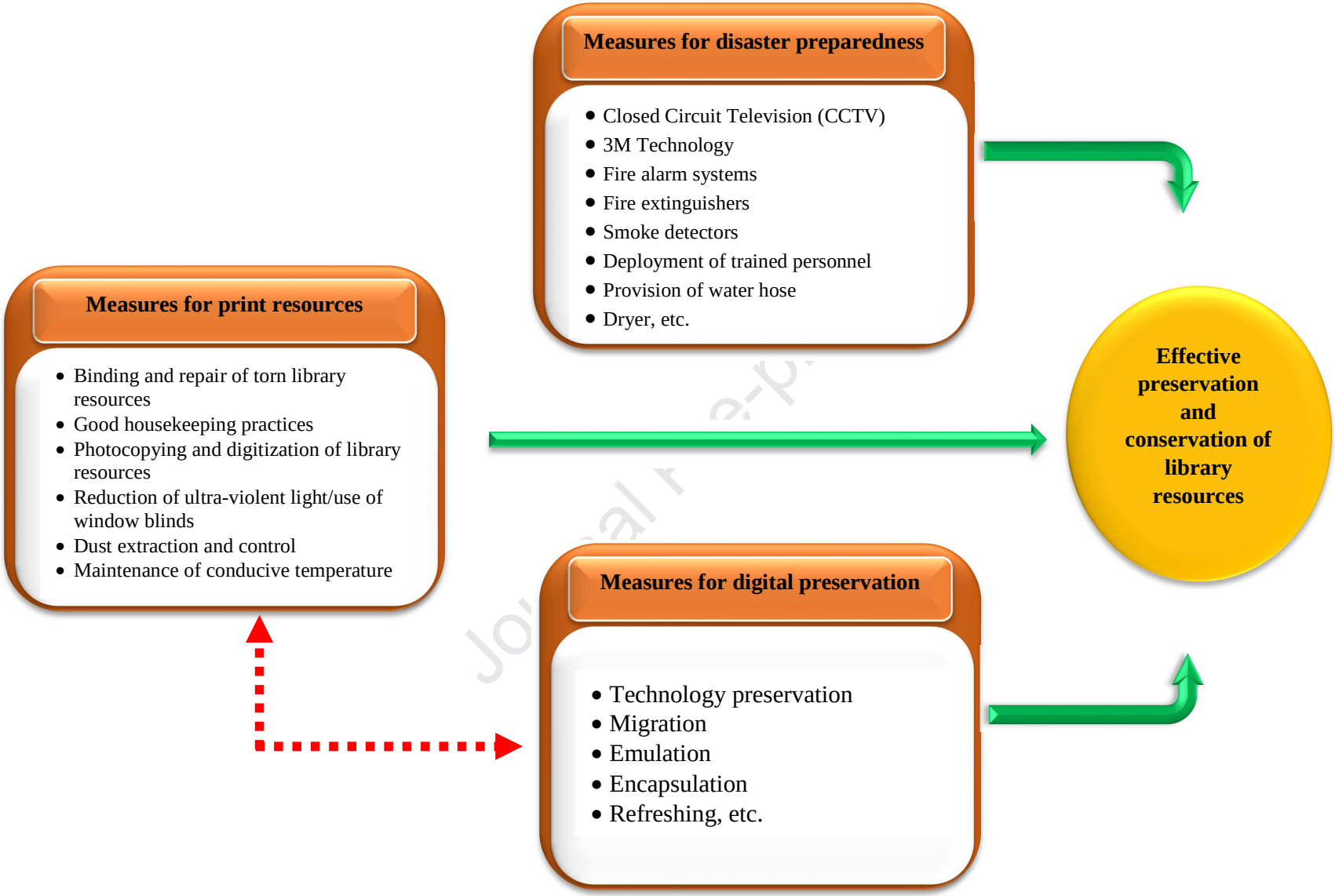

Fig. 1: Schema diagram for librarians' perception of disaster preparedness, preservation and conservation of library resources

It has earlier been established in the study that any damage to library resources is a disaster considering its effect on scholarship. As a result, employing disaster preparedness approach was theorized as a broader and more effective means of safeguarding library collections from all forms of hazards and emergencies. This implies that librarians' view of disaster preparedness is a factor of the effectiveness of preservation and conservation methods employ to safeguard library resources. Figure 1 illustrates the role of each activity to effective preservation and conservation of library resources. The items listed as measures of the variables are based on extant literature which also guided the development of the measurement scale for data collection.

Besides the general disaster preparedness measures for either preventing disaster occurrence or responding adequately or at least, mitigating its impact and recovering with minimal consequences, the schema diagram further indicates that each library resource (print or electronic) requires unique measures for achieving effective preservation and conservation outcome. The diagram suggests that until a well-coordinated all-inclusive disaster preparedness approach is employed, the overall maintenance and sustainability of print and digital resources remains a mirage.

1. METHODOLOGY

3.1 Procedure

The link between librarians' perception of disaster preparedness and effective preservation and conservation of library resources is what the study seeks to establish, using selected federal and state university libraries in the Southwest geopolitical zone of Nigeria. Since the problem under study is correlational and descriptive in nature, the descriptive research design was adopted to situate the study. Samples (university libraries) were thereafter randomized using the balloting system after which total enumeration sampling procedure was employed to take complete count of the population. The study is designed to answer two research questions using criterion mean of 2.50 for decision and one hypothesis formulated and tested at 0.05 level of significance.

3.2 Population/participants

In a typical Nigerian federal or state university library, three categories of personnel exist namely: the Professional Librarians, some of who are at the management cadres who also double as academic staff. The Library Officers, otherwise known as quasi or para-professionals, belong to the middle level manpower in the library and the non-professional library staff (Aboyade, 2013). The nature of data to be elicited requires professional competence hence; professional librarians and library officers were selected to provide the data for the research analysis. These library personnel are drawn from 14 universities (i.e. 7 each of federal and state) across the 6 states in the southwest geopolitical region. A breakdown of the population is presented in Table 1.

Table 1: Distribution of respondents by libraries

			Library Personnel		
	Institutions		Professional	Para-Professional	Total
SN	Responding Libraries	Location	N	N	N
1.	Adekunle Ajasi University	Akungba, Ondo State	6	6	12
2.	Ekiti State University	Ado-Ekiiti, Ekiti State	16	9	25
3.	Federal University, Oye-Ekiti	Oye-Ekiti, Etiki State	5	5	10
4.	Federal University of Agriculture	Abeokuta, Ogun State	23	8	31
5.	Federal University of Technology	Akure, Ondo State	11	8	19
6.	Lagos State University	Ojo, Lagos State	17	6	23
7.	National Open University of Nigeria	Lagos State Centre	14	7	21
8.	Obafemi Awolowo University	Ile-Ife, Osun State	18	14	32
9.	Olabisi Onabanjo University	Ago-Iwoye, Ogun State	11	14	25
10.	Ondo State University of Science and Technology	Okitipupa, Ondo State	3	4	7
11.	Osun State University	Osogbo, Osun State	7	4	11
12.	University of Ibadan,	Ibadan, Oyo State	22	43	65
13.	University of Lagos	Akoka, Lagos State	20	12	32
14.	Tai Solarin University of Education	Ijebu-Ode, Ogun State	9	5	14
	Total		**182**	**145**	**327**

Field survey 2018

3.3 Instrumentation

Questionnaire and interview methods were the instruments adopted for data collection. The questionnaire was grouped into 3 sections A-C: Section A deals with the bio-data of the respondents and it contains 7 items. Section B elicits information on librarians' perception of disaster preparedness. It has 7 items and section C focuses on preservation and conservation activities carried out in libraries towards the safeguarding of library resources. It consists of 19 items. 76.1% of the 327 copies of the questionnaire distributed were duly completed and returned for analysis. The questionnaire was measured on a 4-point scoring scale of Strongly Agree = 4, Agree = 3, Disagree = 2 and Strongly Disagree = 1. The choice of this scoring pattern stems from the need to ascertain the extent to which respondents agree and or disagree with items measuring the variables. The study sets out to examine. In an attempt to validate the responses provided in the questionnaire, the University Librarians of all the responding libraries were interviewed. This was achieved with the aid of a structured interview schedule which comprised10 open-ended questions. Areas covered are librarians' perception of disaster preparedness in academic libraries, methods of digital preservation as well as preservation and conservation activities carried out in the libraries.

3.4 Constructs' reliability coefficient

To determine the internal consistency, the questionnaire was trial-tested on 17 librarians of Nnamdi Azikiwe Library, University of Nigeria Nsukka. The choice of the library stems from

the fact that it is not part of the academic libraries under study. The Cronbach Alpha method was used to determine the internal consistency of the items in the instrument with the following: librarians' perception of disaster preparedness = 0.84; preservation and conservation activities = 0.83 with an overall consistency level of 0.97.

2. RESULTS

Research Question 1: What is the relationship between the general perception of librarians about disaster preparedness and effective preservation and conservation of library resources?

Table 2: Mean and standard deviation scores of librarians' perception of disaster preparedness and effective preservation and conservation of library resources

SN	Items	Institution by ownership							
		Federal		State		Overall X			
		X	SD	X	SD	X	SD	r	d
1	Disaster preparedness is a necessary requirement for effective preservation and conservation of library resources	3.63	.69	3.70	.58	3.65	.65	1st	A
2	Disaster preparedness is too broad a task for university libraries alone to undertake	3.52	.73	3.69	.55	3.58	.68	2nd	A
3	Disaster preparedness is expensive and does not worth the stress	3.43	.79	3.54	.72	3.47	.77	3rd	A
4	Disaster rarely occurs in libraries	3.34	.91	3.46	.77	3.38	.86	4th	A
5	Due to pressure from other library activities, disaster preparedness is a less important task in the library	2.78	.97	1.99	.88	2.05	.93	5th	D
6	Disaster preparedness is of secondary importance	1.72	.92	1.57	.88	1.67	.90	6th	D
7	Disaster can hardly destroy library resources even when it does occurs	1.63	.79	1.53	.76	1.60	.78	7th	D
	Weighted Mean					**2.77**			

X = Mean; SD = Standard Deviation; r = Ranking; d = Decision, A = Agree, D = Disagree

Table 2 shows the mean and standard deviation scores of the respondents on librarians' perception of disaster preparedness for effective preservation and conservation of library resources in university libraries. Judging by the criterion mean of 2.50, respondents are in agreement with items 1 — 4 and disagree with items 5 — 7 respectively as they concern librarians' perception of disaster preparedness. Table further reveals that, "Disaster preparedness is a necessary requirement for effective preservation and conservation of library resources" (X = 3.65) ranked highest among the items measuring librarians' perception in the distribution. This is followed by "Disaster preparedness is too broad a task for university libraries to take alone (X =3.58); Disaster preparedness is expensive and does not worth the stress (X = 3.47) and Disaster rarely occurs in libraries (X = 3.38). Ranked least in the distribution in terms of extent of disagreement is "Disaster can hardly destroy library resources even when it dose occurs" (X = 1.60). The low mean value of respondents' disagreement to this item suggested otherwise.

Research Question 2: How are disaster preparedness measures put in place impact on the effectiveness of preservation and conservation of library resources?

Table 3: Mean and standard deviation scores for disaster preparedness measures and preservation and conservation of library resources

	Items	Institution by ownership							
		Federal		State		Overall X			
		X	SD	X	SD	X	SD	r	d
Cluster A:	**Measures for preservation and conservation of print resources**								
1	Good housekeeping practices	3.49	.51	3.67	.56	3.56	.54	1st	A
2	Binding and repair of torn library print resources	3.40	.66	3.59	.58	3.47	.64	2nd	A
3	Photocopying and digitization of library resources	3.38	.63	3.49	.90	3.42	.74	3rd	A
4	Reduction of ultra-violent lights	3.42	.58	3.37	.95	3.40	.73	4th	A
5	Fumigation using insecticides and rodenticides	3.33	.69	3.53	.57	3.40	.66	4th	A
6	Dust extraction (vacuum) and control	3.31	.55	3.53	.68	3.39	.61	5th	A
7	Maintenance of conducive temperature	3.33	.65	3.42	.78	3.39	.70	5th	A
	Weighted Mean					**3.43**			
Cluster B:	**Disaster preparedness measures**								
8	Provision of fire extinguishers	3.30	.60	3.47	.66	3.37	.63	6th	A
9	Deployment of trained personnel	3.40	.68	3.29	.84	3.36	.74	7th	A
10	Provision of water hose	3.31	.79	3.10	.89	3.24	.83	8th	A
11	Installation of fire alarm system	3.23	.74	3.21	.85	3.22	.78	9th	A
12	Installation of smoke detectors	3.18	.82	3.21	.88	3.19	.84	10th	A
13	Deployment of CCTV	3.08	.85	3.22	.89	3.13	.86	11th	A
14	Use of 3M technology	3.08	.71	3.18	.84	3.12	.76	12th	A
	Weighted Mean					**3.23**			
Cluster C:	**Digital preservation activities**								
15	Uploading research outputs on institutional repository	3.13	.81	3.07	.93	3.11	.85	13th	A
16	Provision for data back-up	3.16	.75	2.90	1.02	3.07	.86	14th	A
17	Building firewalls	3.07	.91	2.94	1.00	3.03	.94	15th	A
18	Migration	3.00	.84	2.74	1.00	2.91	.91	16th	A
19	Emulation	2.88	.83	2.75	.89	2.83	.85	17th	A
	Weighted Mean					**2.99**			

X = Mean; SD = Standard Deviation; r = Ranking; d = Decision, A = Agree

To ascertain the extent of safety preparedness put in place to secure the library facility and the collections it contains, possible activities through which this objective can be realized were grouped into clusters and analyzed. The choice of this arrangement stem from the need to present the weighted mean independently so as to determine (at a glance) activities with highest response. Ranking of responses is presented in a descending magnitude according to mean values. Since analysis shows that all mean values exceeded the criterion mean of 2.50, participants' responses to each item tended towards agreement than disagreement. Table 3 seeks to unveil disaster preparedness activities geared towards effective preservation and conservation of library resources. For clarity, items are grouped into 3 sections and ranked correspondingly. Evidently, the Table has several interpretations in relation to the determination of disaster

preparedness activities aimed at effective preservation and conservation of library resources. First, the analysis reveals that the libraries are more concerned with preservation and conservation activities of print resources than disaster preparedness and digital preservation activities as Cluster A suggests. Leading the pack in the cluster distribution is "Good housekeeping practices" (X = 3.56) while "Maintenance of conducive temperature" rated last (X = 3.39).

Cluster B shows evidence of practice of disaster preparedness activities in the studied libraries. Taking the pride of place in the cluster distribution is "Provision of fire extinguishers" (X = 3.37) while "Use of 3M technology" to check pilfering tendencies ranked last. Cluster C indicates that the activity that is the least employed in relation to effective preservation and conservation of library resources is digital preservation. "Uploading of research outputs on institutional repository" (X = 3.11) which is not a core digital preservation activity ranked highest while "Migration" (X = 2.91) and "Emulation" (X = 2.83) which are principal digital preservation strategies, ranked least in the cluster. Based on the criterion mean of 2.50 for taking decision, Table 3 shows that there is strong agreement among respondents on disaster preparedness activities for effective preservation and conservation of library resources in all the libraries studied. This conclusion is based on the weighted mean values of all items that exceeds the criterion mean.

4.1 Testing of hypothesis

H1: There is no significant mean (**X)** difference between librarians' perception of preservation and conservation activities and disaster preparedness measures on information resources.

Table 4: The t-test analysis of librarians' perception of preservation activities and disaster preparedness measures

SN	Institution	X	SD	N	DF	t- test	P-Value	Sig.	Rmk
1.	Federal	2.86	.57	158					
2.	State	2.78	.76	91	247	1.519	.130	P>0.05	NS

Significant at p>0.05;
NS = Not Significant

The t-test analysis presented in Table 4 showed the t-value of 1.519 at p>0.05 level indicating insignificance relationship. Therefore, the null hypothesis whish state that "There is no significant mean (X) difference between librarians' perception of preservation and conservation activities and disaster preparedness measures on information resources" is supported. This is an indication that there is no difference in librarians' perception between disaster preparedness measures and preservation and conservation activities relative to information resources safety. In other words, both methods have significant effect on the overall well-being of library collections.

3. DISCUSSION OF FINDINGS

With respect to research question one, the study found a strong affirmative agreement among respondents on the impact of disaster preparedness measures on effective preservation and conservation of library resources. This shows that effective preservation and conservation of

information resources can be achieved if a library incorporate disaster preparedness measures towards ensuring the safety and well-being of the resources. The importance of disaster preparedness was further buttressed from another standpoint when respondents strongly disagreed that disaster preparedness is of secondary importance. This outcome lent support to the role of disaster preparedness measures in the efficacy of preservation and conservation of information resources. The study further revealed that it is a perception among librarians with strong consensus that disaster preparedness is beyond the precinct of the library to undertake alone due to financial, technical and other considerations.

A strong agreement level was also reached among librarians that disaster rarely occurs in libraries like in other organizations. From digital disaster perspective, Zaveri's (2015) noted that over 50 per cent librarians are less than 20 percent sure that digital disaster is possible in libraries as against the 7.61 per cent librarians who are 60 per cent probabilistic about disaster occurrence in libraries. However, recent events in Africa are beginning to change the narrative as many libraries in the region have experienced the destruction of library structures and the resources they contain due to disaster (Abareh, 2014). The tested hypothesis partly lent credence to research question one, when it was shown that librarians (whether from federal or state university libraries) do not differ on the impact of disaster preparedness measures and those of preservation and conservation on the effectiveness of information resources — both are essential.

Librarians do believe that libraries need to be disaster-conscious in order to give preservation and conservation the right attention they deserved in libraries. This position may be informed by the perception that disaster preparedness is an expensive undertaking to embark on. Drawing inference from Table 2, librarians' disposition towards disaster preparedness vis-à-vis preservation of information resources appear unfavorable. The responses elicited from one of the University Librarians (UL) interviewed indicated that "even if our level of disaster preparedness is low, we strongly believe in disaster preparedness culture". Another UL who appear more practical noted that "it is not enough to be disaster-conscious, actual preparedness begins with the procurement of relevant disaster equipment and adequate training of personnel."

Ishola (2017) reported that some of the problems of preservation and disaster management in academic libraries are due to lack of staff training on preservation, this, according to the study was responsible for the low perception of librarians on preservation and conservation of library collections. Earlier, Abareh (2014) reported that poor perception of the importance of disaster preparedness among librarians is the bane of the various damage done to library buildings and resources during emergency occurrences. The author blamed this phenomenon on the non-inclusion of disaster management in many library school curricula in Nigeria — a course meant to groom and prepare young librarians with adequate knowledge on emergency management. Kolawole, Ogunbiyi, Orioguandi and Ogbuiyi (2015) in their study submitted that lack of interest is the bane of the inefficiency in disaster preparedness activities which in turn, negatively affect preservation of library resources in most university libraries in Nigeria.

On another hand, the result of this study corroborated that of Echezona, Ugwu and Ozioko (2012) who noted that it has been an age long thinking of librarians that the chances of disaster occurrence in libraries are rare. If this claim is anything to by, it can then be concluded that librarians in Nigeria are yet to learn any lesson from the two fire disasters gutted the University of Jos two campus libraries' whole collection in 2013 and 2016 respectively (Nwokedi, Panle & Samuel, 2017). This position contradicted Matthews et al (2009) who reiterated in their study that libraries which have had previous experiences of disaster are more

likely to embrace disaster preparedness activities more proactively than those that never experienced disaster. Irrespective of the effectiveness of preservation and conservation measures put in place to safeguard information resources without adequate prevention mechanisms against fire, flood, virus attack etc., preservation activities becomes a mirage when emergency occur.

Findings emanating from research question 2 showed that the prevailing preservation and conservation practices among university libraries in Southwest Nigeria are tilted more towards print resources than their electronic counterparts. In other words, university libraries in the region surveyed are more concerned with preservation of print resources than they are for digital preservation and disaster preparedness. The positions of all the ULs interviewed lent strong evidence to this finding when they all responded that photocopying, binding, good housekeeping practices etc. are the preservation and conservation activities being practiced in their respective libraries. The plausible reason for this result is that preservation and conservation of print resources are far more economical to undertake than it is for digital resources.

As Zaveri (2015) reported, a common denominator exists between print and digital preservation of library resources. The author noted that water and fire are both destructive to print, digital as well as library hard/software infrastructures. Prior findings have shown that good and appropriate housekeeping practices like: dusting, cleaning and proper shelving to allow free flow of air (Osunride & Adetunla, 2016); binding, photocopying and a well-coordinated shelving approach (Adekannbi and Wahab, 2015; Njeze, 2012) can help minimize chemical, biological and other environmental effect on library collection. Consistently, these are the most practiced preservation and conservation activities in university libraries in Nigeria as the current study affirmed.

It was also observed that the provision of fire extinguishers and deployment of trained personnel took the lead among the list of disaster preparedness activities in university libraries in Southwest Nigeria. This finding underscores the inadequate emphasis university libraries in Nigeria place on technological aspect of disaster preparedness. These results support that of Khalid and Dol (2015) who submitted that academic libraries are more prepared for fire disaster than other forms of disasters. Similar claim was reported by Ahenkorah–Marfo and Borteye (2010) in Ghana. Strengthening this claim further is the interview responses by some of the ULs who affirmed that fire extinguishers are the commonest disaster preparedness tool in their libraries.

In terms of digital preservation measures, the major approach common to all the university libraries studied is “uploading research outputs on Institutional Repository” and the “provision for data back-up”. Sadly, the core digital preservation strategies such as migration (the relocation of data from outdated or endangered file version to one that is modern) and emulation (the recreation of the environment in which the data is rendered in its original form), etc. are downplayed. Decˇman and Vintar (2013) supported this result in part when they noted that uploading institutional/organizational research output into repositories is a short-term solution for the preservation of digital records. This finding contradicted that of Adekanmbi and Wahab (2015) who found that migration was mostly used as digital preservation strategy among academic libraries in Southwest Nigeria with a mean score of 1.50 which was the highest among the long-term digital preservation strategies examined but relatively low in comparison to the print strategies employed. Some of the ULs interviewed lent credibility to this claim when they answered that data backup, installation of powerful anti-virus and firewalls, migration of data etc. are the digital preservation techniques in use in their libraries.

The result of Zaveri (2015) also strengthened the result of this paper as the author observed that the measure commonly used to preserve digital contents among Indian libraries is manual backup. This conclusion was reached when 87.3 per cent of the responding libraries ranked the activity highest. Similar submission had earlier been made by Dimattia (2001). This outcome is partly in tandem with that of Sydney (2002) who reported that website backup was among the several technological innovations that saved her library after the September 11 disaster.

4. RESEARCH CONTRIBUTIONS

Disaster preparedness and preservation and conservation of information resources are two distinct concepts studied independently in librarianship and archival studies. Where they are both mentioned, their composite effect to library collections and the facility housing them is empirically downplayed. Whereas the study showed that the effectiveness of preservation activities is largely dependent on the efficacy of disaster preparedness measures, both activities thus run complementarily. Accordingly, the study has extended the frontiers of preservation and conservation beyond the conventional limit of deterioration of library resources to disaster management. A major research importance of this study (besides making significance addition to existing body of knowledge) is its ability to incorporate both concepts with a view to gaining broader perspective of the phenomenon. Since the focus of this study differs empirically from prior studies, its pioneering effect in ascertaining greater depth of the overall well-being of information resources and the facility housing them from disaster preparedness standpoint is remarkable.

5. RECOMMENDATIONS

Arising from the findings of this study, the following recommendations are made:

i. University libraries should embrace all-inclusive disaster preparedness approach towards the preservation and conservation of library resources. Limiting the concept to deterioration due to environmental, biological and other factors does not ensure a holistic approach for caring for library information resources and the facility housing them.

ii. Librarians should have a change of perception towards disaster preparedness. It is pointless to wait for an occurrence before taking proactive steps as this may lead to irrecoverable loss. Efforts should be made to keep library collections in good and usable conditions to sustain the continued promotion of scholarship and user satisfaction.

iii. Print and digital resources are complementary, as a result, all approaches relevant to safeguarding them should be employed at all times. Because the future of information resources rest more on digital resources than it is for print version, proactive effort should be made to ensure effective digital preservation practices in libraries.

iv. Relevant disaster equipment such as fire extinguishers, smoke detectors, fire alarm systems, fire tractors, dryers, dehumidifiers, etc. should be procured and deployed to ensure effective prevention and response in the event of emergencies.

6. CONCLUSION

Two research questions and one hypothesis guided the broad objective of this research to examine the role of librarians' perception of disaster preparedness and its impact on effective preservation and conservation of library resources in university libraries in Southwest Nigeria. Having lent empirical justification for the independent contribution of preservation and disaster preparedness practices to the overall security and longevity of information resources, the composite effect of the application of both methods has been shown to guarantee the safety of the library facility as well as the comfort of patrons patronizing it. This suggest that adopting this broader approach to examine this phenomenon, empirically indicates that preservation activities and disaster preparedness measures are both correlated and complementary and when adequately and proactively harnessed, factors that facilitate the deterioration of library materials or portend significant danger to the library facility are minimized significantly.

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