Human, conceptual and technical skills as determinants of preservation management in university libraries in Southern Nigeria

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Abstract

Purpose – Preservation is an essential component of library management that requires special skills and competencies. This critical area seems to have been neglected by management of university libraries in Nigeria. This paper aims to examine threats to library information resources and contributions of skills of library personnel to preservation management in university libraries.

Design/methodology/approach – Descriptive survey design was adopted for the study. This facilitated the collection of data from large population of respondents. Questionnaire and focus group discussion were used as data collection instruments.

Findings – Preservation management is one of the core areas of library practice that requires special skills. The study revealed that university libraries in Nigeria are confronted with threats to their information resources. The study found that human, conceptual and technical skills of library personnel significantly determine preservation management in university libraries in Southern Nigeria.

Practical implications – The paper will allow the management of university libraries to appreciate the importance of personnel skills as the key factor for effective preservation management in libraries and accord it the necessary priority.

Originality/value – While literature is replete with different aspects of preservation management in university libraries in Africa, little has been written on personnel skills and preservation management in libraries. The paper presents one of the few empirical studies that focus on the relationship between personnel skills and preservation management in university libraries in Nigeria and Africa.

Keywords Collection management, Information resources management, Library materials, Personnel skills, Preservation management, University libraries – Nigeria

Paper type Research paper

Introduction

University libraries are establish to acquire, process, store, preserve and disseminate information materials of any format to support teaching, learning, research and community service. The information resources – print and non-print – include reference materials, textbooks, journals, conference proceedings, theses and dissertations, maps and atlases, paper based, electronic or digital. However, these materials are susceptible to damage, destruction and deterioration through improper handling, heavy use, poor storage conditions, adverse weather conditions occasion by high temperature and relative humidity,

sunlight, pest infestation, disasters, hyper acidity, media fragility, technology obsolescence and threat to data integrity. Consequently, libraries in the region experience high rate of information resources deterioration. Although this is not peculiar to libraries, the study, however, has libraries as its focus.

Preservation encompasses activities initiated to retard, or stop deterioration of materials, retain the intellectual content of material no longer physically intact or transfer content to a more appropriate format for use (Johnson, 2014). To enhance continuing access and forestall deterioration and if damage, restore damaged information resources in university libraries, adequate measures must be put in place to enhance continuing access. Such measures include formulating a preservation policy, preservation education, digitisation, microfilming, deacidification, pest control, environmental monitoring and control, library security, disaster planning and digital preservation. These will involve allocation and mobilisation of necessary human and material resources.

However, studies on preservation management in libraries in Africa revealed that despite the huge financial resources committed by university libraries to the acquisition of information resources, little measure is put in place to preserve them. Librarians have promoted the use and accessibility to their collections but have not considered sufficiently the preservation implications (Alegbeleye, 1993). Preservation of information resources can only be attained when library personnel understand what constitute threats to their information resources, how the loss of the resources will affect the library services and its image and need to preserve them for long-term access.

Success in preservation management in university libraries depends on possession of enabling skills by the personnel. Paramount among these skills includes human, conceptual and technical skills. Human skills also known as interpersonal skills are the ability to work with understand and motivate other people either as individuals or groups. As preservation of library materials requires teamwork and cooperation of all library personnel, the importance of human skills cannot be underestimated. Conceptual skills encompass the mental ability to coordinate and integrate all organisational's interest and activities; it involves ability to see the organisation as a whole and to understand how a change in any given part can affect the whole organisation. Library personnel need conceptual skills to appreciate how loss of library information resources will negatively affect entire library operation and users' perception. Technical skills include ability to use tools, procedures and techniques of specialised field. Technical skills are required by library personnel to be able to apply techniques, methods and use necessary tools to execute preservation challenges. Possession of these skills will enhance the ability of library personnel to conceive, establish, monitor, supervise and execute preservation programme in their libraries. It is believed that lack of human, conceptual and technical skills of library personnel may affect preservation management in university libraries in Nigeria. Lack of requisite skills by library personnel will therefore constitute a major impediment to preservation of information resources in Africa especially in Nigeria. There seems to be dearth of literature on preservation and conservation of library resources in Africa (Joint International Federation of Library Association and Institutions [IFLA]/ICA Committee on Preservation and Conservation in Africa, 2002, Fatoki, 2007). This study therefore investigated how human, conceptual and technical skills of library personnel in university libraries in Southern Nigeria determined their preservation management programmes.

Literature review
Preservation includes all the managerial and financial considerations, including storage and accommodation provisions, staffing levels, policies, techniques and methods involved in

preserving library, and archive materials and information contained in them (The International Federation of Library Associations and Institutions, 1986). Preservation is an umbrella term for an array of activities; principles, practices and organisations that together help ensure the usability, longevity and accessibility of recorded knowledge. It activities currently defining the realm of preservation of library materials include conservation (general collection repair and special collection), reformatting (microfilming, photocopying and digitisation), selection for preservation, environmental monitoring and control, care and handling of materials, disaster preparedness and recovery, standards relating to materials practice and technique, commercial binding and [preservation education and training (Jordan, 2003).

Literature is replete with loss of valuable resources in libraries to effects of factors like chemical composition of the materials, poor quality of material, environmental factors such as relative humidity and temperature, air quality, light, disasters, attitudinal factors, activities of biological agents, storage conditions and security challenges such as theft and mutilation of library materials (Akussah, 1994; Alegbeleye, 1996; Teper and Atkins, 2003; Jordan, 2003; Bankole and Abioye, 2005; Alegbeleye, 2007).

To attain effective preservation management in university libraries, it is essential that library personnel are acquainted with the preservation problems and have the requisite skills, competencies and knowledge to address them. However, shortage of skilled manpower has been identified as major impediment to preservation management in libraries. Lack of trained manpower was the major problem confronting preservation in academic libraries in Mumbai as very few librarians were acquainted with preservation management skills (Sawant, 2014). To be efficient in carrying out their duties sets of core competencies is expected from graduates from masters' programme in library and information science. These include knowledge of concepts, issues and methods related to the maintenance of collections including preservation and conservation (American Library Association). Senior and middle level library managers must possess some if not all of the following preservation skills: awareness of preservation issues and techniques; building(s) management which include environmental control; storage and shelving; disaster management; collections management; financial planning and monitoring; human resource management; policy and strategy; promotion and marketing; and training (user education; staff training [all levels], induction and Continuing Professional Development [CPD] (Matthews, 2009).

Human, conceptual and technical skills are the critical skills required by library personnel to accomplish preservation goals. Human skills are the ability to work with, understand and provide motivating environment for people, either as individual or as groups. Human skills include the ability to understand, alter, lead and control the behaviour of other individuals and group. It has been suggested that professional librarians should be competent in community relations. This would enable them to demonstrate the value and impact of the library affectively, build support for the library, maintain positive relations and form strategic partnerships (Kwanya et al., 2012). Preservation depends on building relationships with those in position of power, the more the preservation unit is brought to the attention of influential people and the more likely funding will follow. Recognition begins within the institution, and it is crucial to have backing of inside administrators and leaders so that broader network of support can be created (Chaudbary, 2013). Lack of human skills may have negative impact on preservation management. For instance, the bane of preservation in Croatian libraries was attributed to personnel activities being based on individual effort rather than collective responsibility, and it was observed that enthusiasm

and communication between subjects on different levels is scarce (Krtalic and Haseney, 2012).

The ability to think about the impact of long-term access of library resources, its effects on service delivery and users' satisfaction is associated with the conceptual skills of the library personnel. Conceptual skills are important competencies in accomplishing preservation goals. Librarians of the twenty-first century need to be versatile with communication and critical thinking skills committed to preserving the library collection (Lomax, 2003). When the new and experienced librarians think about library services in conceptual and expansive ways, enhanced and new innovative services are likely to flourish (Dermody, 2003). Preservation managers must be quick to anticipate what is next to come and prepare themselves for any preservation eventuality (Abrigo and Abrigo, 2010). The spectre of crumbling paper in our stacks, decayed or decaying microfilm and deteriorating digital materials will require us to cross a new perceptual threshold (Alegbeleye, 2007). Study of preservation management in British libraries revealed inadequacy in conceptual skills about preservation of library resources among librarians this was evident among library personnel as majority still regarded preservation as a specialised activity, normally applicable to special collections and rare or valuable items and not as responsibility of all (Eden *et al.*, 1994).

Technical skills include ability to use tools, procedures and techniques of a specialised field. Technical skills comprise of the skills needed to accomplish service delivery tasks, which include expertise in using equipment and tools. Research librarians should be able to provide best access to the collection physically and virtually through suitable preservation and conservation techniques (Kwanya *et al.*, 2012). Also, preservation management is multi-skills tasks that require the personnel to have wider knowledge to accomplish. Field of preservation is complex, and to be effective, the preservation administrator must have an intimate knowledge of not just one, but of several technologies that have an impact on preservation activities (Smith, 1986). Technical issues and challenges related to digital preservation include a practical implementation of preservation standards and technical knowledge in general which is required to support the digital preservation process within the institutions. It is important to grow the expertise required within an institution and make reliance on consultant a last resort. This apart from assisting the library in the area of cost saving will also enhance in house training of personnel (Hockx–Yu, 2006). The need for collaboration among experts is highly important to achieve desired results. To attain successful digitisation, the institution's technical experts on digital preservation management need to collaborate in making the initial selection (Chaudbary, 2013).

Methodology
The descriptive survey research design was adopted for the study. The population of this study was the academic librarians and library officers in public university libraries in Southern Nigeria. They constituted the senior, middle and line level library personnel in the university libraries studied. Purposive sampling technique was used to select 24 of the 33 university libraries in the southern Nigeria.

Questionnaire and focus group discussion were the instruments used for data collection. However, questionnaire was the major instrument used. The questionnaire comprises two major sections. The first section was dedicated to demographic and preservation management strategies in the university libraries. The second consisted of questions on human, conceptual and technical skills of the library personnel. There were 16, 13 and 27 items in the questionnaire to measure the extent to which the respondents possessed human, conceptual and technical skills, respectively. The skills were rated on a three-point scale of

"To great extent", "To some extent" and "Not at all". The psychometric property of the questionnaire was obtained through pre-testing on 30 personnel of three university libraries in two geo-political zones that are not part of the zones of the study. The reliability of the instrument was tested using Cronbach's alpha and the reliability coefficient was found to be 0.87 for preservation management scale, 0.88 for human skills scale, 0.93 for conceptual skills scale and 0.96 for technical skills scale. The results indicated that the research instrument was highly reliable.

Copies of the questionnaire were administered to cover all academic librarians and library officers working in the selected university libraries. Out of the 622 copies of questionnaire administered, 387 (62 per cent) were returned, two of which were invalid, while 385 (61.7 per cent) were analysed for the study.

Descriptive statistics such as mean ($\bar{x}$), standard deviation (SD) and variance were used to analysed data on strategies and personnel skills, while inferential statistical tools such as Pearson's product moment correlation coefficient, multiple regression analysis of variance (ANOVA) at 0.05 level of significance was adopted to determine relationship of personnel skills and preservation management. This implies that any of the skills with 0.05 level of significant can predict or determine preservation management of library personnel.

Three sessions of focus group discussion were held with library personnel in one university library from each of the three geo-political zones in the southern Nigeria to complement the questionnaire.

Results

Distribution of the respondents based on years of work experience indicated that majority 151 (39.2 per cent) had 11-20 years of work experience. This was closely followed by those with 1-10 years' experience (138) (35.8 per cent). Respondents with an experience of 31 years and above constituted the lowest number of respondents (24) (6.2 per cent). This shows that majority of the respondents had enough years of experiences that are required to understand what constitute threats to library information resources and preservation requirements.

Data on the education qualification of the respondents showed that majority of the respondents, (253) (65.7 per cent) had a master's degree in library studies (MLS). It was also revealed that respondents with Diploma certificate (33) (8.6 per cent) and PhD (12) (3.1 per cent) constituted the least number of respondents. These qualifications, however, are not conclusive indication of possession of requisite knowledge, competences and skills that are required for preservation management, as they may be deep-rooted in preservation which is in specialist experience.

Respondents were asked whether they have a well-planned preservation programme under the supervision of preservation librarian. Majority of the respondents (375) (97.4 per cent) agreed that the libraries have no well-coordinated preservation programme.

Fifteen items were listed as possible threats which can impede access to library information resources in university libraries. Theft and mutilation (353) (91.7 per cent), destruction by biological agents (271) (70.4 per cent) and degradation by improper handling and unauthorised access (243) (63.9 per cent) were the major threats to library resources (Table 2).

Respondents were asked to indicate strategies put in place for preservation of information resources in their libraries. Out of 17 preservation strategies listed: periodic fumigation of library, bindery programme, library security programme and condition survey/stock assessment programme constituted the highest preservation practices available in university libraries in Southern Nigeria. Mass deacidification, microfilming and

S/N	Libraries	No. administered	No. returned	(%)
1	Adekunle Ajasin University Library, Akungba Akoko	11	4	57.1
2	Ambrose Alli University Library, Ekpoma	20	15	75
3	Delta State University Library, Abraka	28	26	92
4	Donald Ekong Library, University of Port Harcourt	30	20	66.7
5	Ekiti State University University Library, Ado Ekiti	14	13	92.9
6	Enugu State University of Science & Tehnology Library, Enugu	18	16	88.9
7	Fatiu Akesode Library, Lagos State University, Lagos	21	15	71.4
8	Hezekiah Oluwasanmi Library, Obafemi Awolowo University	31	19	61.3
9	John Harris Library, University of Benin, Benin	43	27	62.7
10	Kenneth Dike Library, University of Ibadan, Ibadan	43	22	52
11	Micheal Opara University of Agriculture Library, Umudike	14	8	57
12	Nimbe Adedipe Library, University of Agriculture, Abeokuta	32	20	62.2
13	Nnamdi Azikiwe Library, University of Nigeria, Nsukka	56	26	52
14	Nyon Essien Library, University of Uyo	30	22	73
15	Olusegun Oke Library, Ladoke Akintola University of Technology, Ogbomoso	16	8	50
16	Prof Festus Aghagho Nwankwo Library, Nnamdi Azikiwe University, Awka	19	9	47.4
17	Rivers State University of Science and Technology Library	16	11	68.8
18	University Library, Abia State University, Uturu	20	9	45
19	University Library, Evans Enwerem University, Owerri	23	7	30.4
20	University Library, Federal University of Technology, Akure	21	20	95
21	University Library, Federal University of Technology, Owerri	36	15	41.7
22	University Library, Olabisi Onabanjo University Ago Iwoye	24	15	62.2
23	University of Calabar Library, University of Calabar, Calabar	28	16	57
24	University of Lagos Library, University of Lagos	30	23	76.7
	Total	622	387	62.2

Table 1. Questionnaire administered, completed, and returned by respondents across university libraries in the Southern Nigeria (387)

fundraising in support of preservation programme were the least preservation practices adopted by university libraries (Table 3).

Data were collected and analysed on the human skills of library personnel and preservation management. Sixteen (16) indices of human skills were listed and examined as presented in Table 3. The majority of respondents possessed the skill to work with others to keep things on schedule and meet deadline and the skill to allow appropriate freedom of actions toward the accomplishment of preservation goals with the highest mean score ($\bar{x}$) = 2.43 and standard deviation (SD) = 0.62. Ranking next were those who possessed the ability to coach, train and ensure the support of others to get preservation job done ($\bar{x}$ = 2.35, SD = 0.61); ability to communicate what to be accomplished and why it needs to be done on preservation issue and get others to make useful suggestions on preservation programme and make use of their ideas had mean score ($\bar{x}$ = 2.08, SD = 0.96). The lowest number of the respondents skills possessed the skills to lobby and convince the management and other stakeholders to embrace and support preservation programme ($\bar{x}$ = 1.42, SD = 0.50), knowing how to increase efficiency of others on preservation by understanding their motives and needs of each team mates and know how to delegate a project on preservation

No.	Threat to information resources in university libraries	True Frequency	(%)	Not true Frequency	(%)
1	Deterioration of library materials by temperature and relative humidity	26	6.8	359	93.2
2	Destruction of library materials by biological agents cockroach, rats, rodents, etc.	271	70.4	114	29.6
3	Degradation of library materials by heavy use	207	53.8	178	46.2
4	Destruction of library materials by flooding	26	6.8	359	93.2
5	Theft and mutilation of library materials	353	91.7	31	8.3
6	Deterioration of collections through improper handling	243	63.1	142	36.9
7	Degradation as a result of photocopying	223	57.9	162	42.1
8	Destruction by microorganism such as mould and mildew	84	21.8	301	78.2
9	Deterioration by ultraviolet radiation	15	3.9	370	96.1
10	Destruction by fire outbreak	211	54.8	174	45.2
11	Loss of data as a result of technology obsolescence (digital resources	31	8.1	354	91.9
12	Unauthorised access to information on computer (hacking)	243	63.1	142	36.9
13	Destruction of library materials as a result of war and arson	26	6.8	359	93.2
14	Loss of valuable data as a result of system crash	147	38.2	238	61.8
15	Deterioration of books as a result of paper acidity	114	29.6	271	70.4

Table 2.
Threats to library information resources

No.	Preservation practices/methods and techniques	Available Frequency	(%)	Not available Frequency	(%)
1	Digitisation of print materials	71	18.4	314	86.6
2	Mass deacidification	41	10.6	344	89.4
3	Microfilming	41	10.6	344	89.4
4	Environmental monitoring and control	–	–	385	100.2
5	Periodic fumigation of library	316	82.1	69	17.9
6	Bindery programme	238	61.8	147	38.2
7	Disaster planning	41	10.6	344	89.4
8	Integrated pest management (IPM)	112	29.1	273	70.9
9	Staff training on preservation and conservation	–	–	385	100
10	Restoration programme	82	21.3	303	78.7
11	Library security programme	199	51.7	186	48.3
12	Brittle book preservation	82	21.3	303	78.7
13	Preservation education for library users	160	41.6	225	58.4
14	Digital preservation (migration, emulation, replication, refreshing)	121	31.4	264	68.6
15	Library insurance	–	–	385	100
16	Condition survey/stock assessment	199	51.7	186	48.3
17	Fundraising for preservation programme	41	10.6	344	89.4

Table 3.
Preservation strategies in university libraries in Southern Nigeria

management to help people develop their skills and expertise and hold them responsible for results ($\bar{x} = 1.00$, SD = 0.00) (Table 4).

Conceptual skills constituted a critical factor to success of preservation management in any library. Table 5 presents the conceptual skills of respondents. The best conceptual skill possessed by respondents was the ability to know that the best way to promote and market library services is to preserve the information resource so that they can be accessed as long as they are needed which had the highest mean score and standard

No.	Human skills	To great extent (%)	To some extent (%)	Not at all (%)	Mean	STD
1	I know how to express appreciation and compliments and provide other rewards for good works on preservation	27 (7.0)	163 (42.3)	195 (50.8)	1.56	0.622
2	I can provide guidance on the accomplishment of preservation goals	–	194 (50.4)	191 (9)	1.504	0.500
3	I can coach, train and ensure the support of others to get the preservation job done	163 (42.3)	194 (50.4)	28 (7.3)	2.35	0.611
4	I know how to get others to make suggestions and use those ideas for the attainment of preservation goals	–	358 (93)	27 (7.0)	1.93	0.225
5	I can communicate what needs to be accomplished and why it needs to be done on preservation issues	195 (50.6)	27 (7.0)	163 (42.3)	2.08	0.96
6	I can lobby and convince the management and other stakeholders to embrace and support preservation programme	–	163 (42.3)	222 (57.3)	1.42	0.50
7	I can work with others to keep things on schedule and meet deadlines	195 (50.6)	163 (42.3)	27 (7.0)	2.43	0.62
8	I can apply control to important details on preservation	195 (50.6)	27 (7.0)	163 (42.3)	2.08	0.96
9	I can get others to make useful suggestion on preservation programme and make use of the ideas	195 (50.6)	163 (42.3)	27 (7.0)	2.43	0.62
10	I possess the ability to allow appropriate freedom of actions toward the accomplishment of preservation goals	195 (50.6)	163 (42.3)	27 (7.0)	2.43	0.62
11	I can motivate other staff to perform preservation assignments	–	385 (100)	–	2.00	0.000
12	I can promote team spirit by encouraging people to work together, and appreciate their individual talents and abilities	–	222 (57.3)	163 (42.3)	1.57	0.49
13	I know how to impartially consider the opinions and needs of people when resolving a conflict and work hard to solve it	163 (42.3)		222 (57.3)	1.9	0.99
14	I know how to increase the efficiency of workers on preservation by understanding the motives and needs of each team mate	–	163 (42.3)	222 (57.7.)	1.42	0.50
15	I know how to delegate a project on preservation management to help people develop their skills and expertise and hold them responsible for results	–	–	385 (100)	1.00	0.000
16	I can set short and long range goals on preservation and involve all members in the goal getting process and then organise a clear plan to react to them		358 (95)	27 (7)	1.93	0.26

Table 4.
Human skills of library personnel

deviation ($\bar{x}$ = 2.68, SD = 0.47). This was followed by ability to feel that library information resources are treasure that worth preserving ($\bar{x}$ = 2.36, SD = 0.94); feeling that effective interlibrary cooperation depends on effective preservation management and always thinking that some courses in their university may fail accreditation exercise

No.	Conceptual skills	To great extent (%)	To some extent (%)	Not at all (%)	Mean $\overline{X}$	STD
1	I always see and perceived preservation of library resources as an important library function	49(12.7)	261(67.8)	75(19.5)	1.932	0.564
2	I always feel that without adequate preservation of library resources access to research output of the university will be at risk	–	124(32.3)	261(67.8)	1.322	0.47
3	I know that the best way to promote and market library services is to preserve the resources so that they can be accessed as long as they are needed	261(67.8)	24(32.2)	–	2.68	0.47
4	I always anticipate threats to library resources and find means of preventing their occurrence		355(87.3)	49(12.7)	1.87	0.333
5	I feel that my job and other staff of the library is under threat if the information resources are not preserved	75(19.5)	49(12.7)	261(67.8)	1.52	0.801
6	I always think that existence of any university depends on the library and preservation of its resources	–	261(67.8)	12(32.2)	1.68	0.468
7	I feel that effective inter library cooperation depends on effective preservation management	75(19.5)	261(67.8)	49(12.7)	2.07	0.564
8	I always feel that some library information resources are important to the existence of the university and no amount spent on their preservation worth their value	75(19.5)	49(12.7)	261(67.8)	1.52	0.801
9	I always think of how some information media with short lifespan with valuable contents should be preserved for long-term access	75(19.5)	261(67.8)	49(12.7)	2.07	0.564
10	I always think that some courses in my university may fail accreditation exercise if some materials in the library that are fundamental to their accreditation are lost	75(19.5)	261(67.8)	49(12.7)	2.07	0.564
11	I always feel that investment on library information resources is so enormous that their loss will be too much to bear for the university.	–	385(100)	–	2.000	0.000
12	I always think that posterity will not forgive us if we denied coming generation access to the materials in the library		12(32.2)	261(67.8)	1.322	0.467
13	I always feel that library information resources are treasure that worth preserving	261(67.9)	–	124(32.2)	2.36	0.935

Table 5.
Conceptual skills of library personnel in university libraries

if some materials in the library that are fundamental to their accreditation are lost ($\overline{x}$ = 2.07, SD = 0.55). The poorest conceptual skills that possessed by respondents are always thinking that without adequate preservation of library information resources, access to research output of the university will be at risk and always thinking that posterity will

not forgive us if we denied the coming generation access to the important materials in the library ($\bar{x}$ = 1.322, SD = 0.47).

Technical skills of library personnel on preservation management were examined. The best among the technical skills of respondents was their conversant with the degree of temperature and relative humidity required for library materials and how to control it with mean score and standard deviation ($\bar{x}$ = 2.70, SD = 0.458). This is followed by ability to understand the cataloguing and record keeping requirements of materials for preservation and competency in assessing and selecting vendors for the supply of preservation equipment with mean score of ($\bar{x}$ = 0.403, SD = 0.917), and ($\bar{x}$ = 2.40, SD = 0.916) respectively. The poor technical skills of library personnel include ability to understand the chemical components of various library materials and what can cause their deterioration; and ability to organise workflow on conservation with mean score and standard deviation ($\bar{x}$ = 1.298, SD = 0.548) each (Table 6).

The relative contribution of each of the independent variables was analysed. The result of data analysis as revealed in Table 7 shows the relative contributions of each independent variables, the standard regression weight (B), the standard error of estimate (SEB), the t-ratio and the level at which t-ratio is significant. The table further indicated that only the independent variables whose B-value has significant t-value could predict the dependent variable. From the table, two out of the three variables (technical skills and conceptual skills) had B-value with significant t-value; hence, the two skills predict preservation management. However, out of all the predictors (human, conceptual and technical skills), technical skills (β = 0.346, t = 6.057; $p < 0.05$) had the highest relative contribution to preservation management followed by conceptual skills (β = −0.163, t = 2.927, $p < 0.05$) and human skills (β = 0.053, t = −1.882; $p > 0.05$). This implies that technical skills are the highest predictor of preservation management. The result shows that while technical and conceptual skills of library personnel were the essential skills require for effective preservation management in university libraries, technical skills are the most critical determinants of preservation management for library personnel.

Correlation analysis between human skills of library personnel and preservation management in university libraries was calculated. Table 8 reveals that the correlation coefficient between human skills of library personnel and preservation management is significant (r = 0.151, $p < 0.05$). As $p < 0.05$, it implies that there is a significant relationship between human skills of library personnel and preservation management in university libraries in southern Nigeria.

The significance relationship between conceptual skills of library personnel and preservation management was analysed. The result as presented in Table 9 reveals that the correlation coefficient between conceptual skills of library personnel and preservation of information resources is significant (r = 0.259, $p < 0.05$). As $p < 0.05$, it implies that there is significant relationship between conceptual skills of library personnel and preservation in university libraries in southern Nigeria.

Data analysis revealed that the correlation coefficient between technical skills of library personnel and preservation management in university libraries is significant (r = 0.359, $p < 0.05$). As $p < 0.05$, it implies that there is significant relationship between technical skills of library personnel and effective preservation management programmes in university libraries in southern Nigeria (Table 10).

Result of data analysis on the joint prediction of human, conceptual and technical skills to preservation management of library personnel in university libraries revealed that the three skills jointly predict preservation management of library personnel. The composite effects of personnel skills yielded a coefficient of multiple regression, R = 0.387, multiple R = 0.150 and

Table 6.
Technical skills of
library personnel

No.	Technical skills	To great extent (%)	To some extent (%)	Not at all (%)	Mean $\bar{x}$	SD
1	I can design and implement a preservation programme	50 (13)	270 (70.1)	65 (16.9)	1.96	0.546
2	I understand the chemical components of various library materials and what can cause their deterioration	–	115 (29.7)	270 (70.1)	1.298	0.458
3	I am conversant with the degree of temperature and relative humidity required for library materials and how to control them	270 (70.1)	115 (29.9)	–	2.70	0.458
4	I possess necessary conservation methods and techniques	–	335 (87)	50 (13)	1.87	0.336
5	I am aware of different types of disaster that can happen in the library and how to prevent and combat them	65 (16.9)	50 (13)	270 (70.1)	1.468	0.767
6	I know how to select library materials for conservation	–	270 (70.1)	155 (29)	1.701	0.458
7	I possess the necessary skills in environmental monitoring and control	65 (16.9)	270 (70.1)	50 (13)	2.04	0.456
8	I can supervise deacidification programme	50 (13)	270 (70.1)	50 (13)	2.039	0.546
9	I can conduct condition surveys/stock assessment	–	385 (100)	–	2.000	0.000
10	I can raise a disaster team and train the member in disaster preparedness, response and recovery	–	115 (29.9)	270 (70.1)	1.298	0.548
11	I know the types of pests and biological agents that can attack library materials and various methods and techniques to prevent and eliminate them	–	270 (70.1)	115 (29.9)	2.40	0.916
12	I can organise workflow on preservation management	–	270 (70.1)	115 (29.9)	1.701	0.458
13	I am skillful in assessing and selecting vendors for the supply of preservation equipment	65 (16.9)	270 (70.1)	50 (13)	2.039	0.546
14	I can conduct preservation education and training for library staff and users	–	270 (70.1)	115 (29.9)	1.701	0.458
15	I can successfully organise outreach programmes such as workshop and seminar of preservation programme	65 (16.9)	270 (70.1)	50 (13)	2.039	0.546
16	I can design a security system to combat theft and mutilation of library materials	65 (16.9)	50 (13)	270 (70.1)	1.67	0.767
17	I can create and maintain digital repository	50 (13)	270 (70.1)	65 (16.9)	2.04	0.546
18	I have knowledge of emergency suppliers	65 (16.9)	270 (70.1)	50 (13)	2.039	0.546
19	I can integrate preservation training into general staff training	65 (16.9)	50 (13)	270 (70.1)	1.467	0.767
20	I can prepare annual reports on preservation programme	50 (13)	270 (70.1)	65 (16.9)	2.04	0.546
21	I understand how to evaluate and select contractors/external services/suppliers	65 (16.9)	270 (70.1)	50 (13)	2.04	0.546
22	I have expertise in costing routine work and special projects (e.g. binding, conservation, microfilming, etc)	–	385 (100)	–	2.000	0.000
24	I am conversant with building and collection insurance	–	270 (70.1)	115 (29.9)	2.403	0.917
25	I understand the cataloguing and record keeping requirements for preservation	50 (13)	270 (70.1)	65 (16.9)	2.04	0.546
26	I can successfully organise fundraising for preservation programme	–	115 (29.7)	270 (70.1)	1.298	0.458
27	I have knowledge of print and electronic sources, organisations and individuals (local, regional, national and international) relating to preservation	–	380 (100)	–	2.000	0.000
28	I can prepare preservation budget	50 (13)	270 (70.1)	65 (16.9)	2.04	0.546

multiple R^2 (adjusted) = 0.153. The result further suggests that all the three factors (human, conceptual and technical skills) jointly contributed (15.3 per cent of the total variance) to preservation management. The table also reveals a significant F-ratio of 22.364, which implies that R^2 is not due to chance. In summary, the three skills are critical to attainment of preservation management by library personnel.

Content analysis was used to analyse data from focus group discussions. Responding to questions on the availability of a planned preservation programme coordinated by preservation unit, participants submitted that their libraries had no preservation programme under a preservation unit. Also, on the threats to library information materials, discussants agreed that theft and mutilation of library materials (73 per cent) constituted the highest threats to library collections. This was followed by damage through heavy use and photocopying (71 per cent); destruction by mishandling (67 per cent); destruction by pest (63 per cent); and severe effect of temperature, relative humidity and sunlight (56 per cent).

	Unstandardised coefficients		Standardised coefficients		
	B	Std. error	Beta	t	Sig.
(Constant)	11.354	3.386		3.353	0.001
Human skills	−0.159	0.084	−0.111	−1.882	0.061
Conceptual skills	0.340	0.116	0.163	2.927	0.004
Technical skills	0.318	0.053	0.346	6.057	0.000

Table 7.
Relative contributions of human, conceptual and technical skills to effective preservation of information resources by university libraries

Variable	N	$\bar{x}$	S D	df	r	P	Remark
Human skills	385	35.6338	9.30101	382	0.151	0.052 < 0.05	*Significant
Effective Preservation of information resources	385	31.4571	13.27136				

Notes: N = 385; $p < 0.05$ (2-tailed test)

Table 8.
Relationship between human skills of library personnel and preservation of information resources in university libraries in Southern NIGERIA

Variable	N	$\bar{x}$	S D	df	r	P	Remark
Conceptual skills	385	32.145	6.375	382	0.259	0.052 < 0.05	*Significant
Preservation management	385	3171	13.27136				

Note: $P < .05$ (2-tailed test)

Table 9.
Relationship between conceptual skills of library personnel and preservation of information resources in university libraries in Southern NIGERIA

Participants in the focus group discussion also agreed that fire and flood (50 per cent) also posed another threats to library collections. The least threats to library collection according to the discussant are the technology obsolescence (47 per cent) and attack of records on computer systems (30 per cent).

Questions were posed on the skills and competencies of discussants on preservation management. Majority (80 per cent) acquired their skills through course work as part of their degree programme. Also, 90 per cent of discussants did not have practical experience but theoretical knowledge of preservation and conservation of library material. This was attributed to lack of laboratories in their library schools. It was also revealed that majority of the respondents (75 per cent) have not attended preservation training as part of their in-service training since they were employed.

Discussion of findings

There are several findings derived from the analysis of data from questionnaire and focus group discussions that are critical in this study.

The study revealed that there was no consciously planned preservation management programme in university libraries in the Southern Nigeria. The effectiveness of any preservation programme can only be measured when there are people that are given the responsibility and give feedback on their activities. As libraries are lacking in this critical area, and *ad hoc* arrangement is adopted for preservation of information resources, it is expected that such arrangement cannot yield the desired results.

The study established that the information resources of the university libraries studied were under threat of theft and mutilation, destruction by biological agents, mishandling and

Table 10.
Relationship between technical skills of library personnel and preservation of information resources in university libraries in Southern Nigeria.

Variable	N	$\bar{x}$	S D	df	r	P	Remark
Technical skills	385	46.6182	14.45133	382	0.359	$0.052 < 0.05$	Significant
Preservation management	385	31.4571	13.27136				

Notes: N = 385, $p < 0.05$ (2-tailed test)

Table 11.
Regression analysis of the three independent variables on preservation of information resources in university libraries

Multiple R 0.387
Multiple R^2 0.150
Adjusted R^2 0.153
Standard error 12.285

ANOVA

Model	Sum of squares	df	Mean square	F	Sig.
Regression	10126.627	3	3375.542	22.364	0.000
Residual	57506.916	381	150.937		
Total	67633.543	384			

Note: *Significant at 0.05 alpha level

damage as a result of incessant photocopying of the materials. However, some strategies were adopted by university libraries, the most popular being fumigation. Others include bindery programme, library security programme and condition survey and stock assessment. However, environmental monitoring and control, library insurance and staff training on preservation and conservation of library information resources were not practised at all in the university studied. Inference to be drawn from this finding is that some key practices like environmental monitoring and control, staff training on preservation and conservation, library insurance and microfilming were absent with grave implication for preservation management in the university libraries. It is expected that libraries in tropical regions with challenges of unstable and severe weather conditions, high level of temperature and relative humidity are supposed to put in place, a functional environmental monitoring and control programme so as to minimise the effect of temperature and relative humidity on library materials. Also, staff training should have been accorded priority, as it is the bedrock of any preservation endeavour.

The findings also revealed that fumigation of library was the popular pest control practice by university libraries studied. Though fumigation may be the best practice in some circumstances, it has been established that fumigation alone cannot address problems of pest infestation. Apart from the fact that some chemicals are harmful to human and material in the library, fumigation can also be a source of other preservation challenges. The practice is also not conforming with the Integrated Pest Management recommended for libraries by the IFLA and which makes fumigation a last resort. According to Parker (1986) (IFLA), no one approach to pest prevention and control will suffice; instead, a combination of techniques is usually required to maximise the effectiveness of any pest control programme. The adoption of fumigation by library personnel may be associated with the lack of training and awareness about the integrated pest management practice in libraries.

The lack of disaster planning in the university libraries studied may be associated with library personnel conceptual skills which affect their perception and attitude about disaster. When disaster is not anticipated, there will be no need to put disaster prevention and mitigation measures in place; hence, there will be not disaster planning.

The contributions of three skills (human, conceptual and technical) to preservation management in libraries were examined. The inference that can be drawn from the contributions of these skills to preservation management is that the combined skills (human, conceptual and technical) were imperative to effective preservation management in university libraries. In any organisation, the three skills are essential for achieving organisation goal by personnel at all levels (Bryson, 1999, Yalokwu, 1999). Human skills will assist library personnel to work together and harness human resources in form of coordination, collaboration, motivation, encouragement and persuasion to accomplish preservation goals. Conceptual skills will serve as prism to view preservation as an integral library function to be accorded the necessary attention and priority. Technical skills on the other hand will assist the library personnel in the areas of planning, supervision and execution of preservation projects.

However, what can be deduced from the responses to questions on the level of human skills of library personnel in university libraries is that the levels of human skills of the library personnel were low. Also, findings from relationship between the human skills of university libraries personnel and preservation management revealed that there was significant relationship between the human skills of the library personnel and preservation management in university libraries in Southern Nigeria. This corroborates the positions of scholars that interpersonal skill is paramount to the success of any managers in dealing with internal and external environment that are necessary for the success of organisation

(Enyia, 2002; Whetten and Cameron, 2011). The inadequacy in human skills of library personnel confirms the report of study of relationship of University librarians and other principal officers of universities in Nigeria which revealed how poor human skills of university librarians, the Vice Chancellors and University Bursars caused poor allocation of funds for the development of university libraries (Enyia, 2002).

The findings from the analysis of data on the conceptual skills of library personnel in the university libraries studied revealed that the conceptual skills of the library personnel on preservation of information resources across the Southern Nigeria were inadequate; this is because the highest level of responses to indicators on conceptual skills skewed to some extent which indicated that their conceptual skills are not sufficient for effective preservation management. Also, inference to be drawn from the analysis of data on relationship between conceptual skills of library personnel is significantly related to the success of preservation of information resources in university libraries. Inadequate conceptual skills of library personnel may be attributed to reasons why library professionals pay little attention to preservation of library materials (Muno-Sola, 1987, Joint IFLA/ICA Committee on Preservation and Conservation in Africa, 2002). Consequently, there is need for capacity building through in-service training for library personnel to hone their skills.

Managers with conceptual skills will be able to see organisation as a whole, understand the relationships among various subunits and visualise how the organisation fits into its broad environment (Robbins *et al.*, 1989). The implication of this is that when library personnel are able to think about the gravity of loss of library information resources and its implication on the library services and how it will affect users' perception of library services, adequate measures will be put in place to prevent the loss of their resources.

Analysis of data from the submissions of respondents on their technical skills revealed that, except being conversant with the degree of temperature and relative humidity required for library information resources and how to control them that was very high, other technical skills of the library personnel can be rated to be generally inadequate. Further analysis of data on the technical skills of library personnel revealed that technical skills were significantly related to preservation management in university libraries in Southern Nigeria. This shows that it is only when the library personnel possess the necessary technical expertise that preservation of information resources can be attained. Library personnel's job is to incorporate the principle and practices of preservation to his colleagues and to apply them to all aspects of the library's operations. He/she needs to know the basics of how and why paper and other materials deteriorate, the impact of various handling and storage practices and the implications of exposure of library materials to various environmental conditions (Smith, 1986). The need for capacity building for information professionals in technical skills was recommended by American Institute for Conservation of Historic and Artistic Works (2003), Anafulu (1996), Alegbeleye (2007) and Fatoki (2007).

The deficiency in technical skills of respondents is in tandem with findings of experts in preservation of library materials that lack of technical skills and competencies of information professionals is negatively affecting implementation of preservation projects in libraries and archives in Africa and the need for capacity building for information professionals in this area (Alegbeleye, 1991; Fatoki's, 2007; Ngulube, 2010).

The result of data analysis on relative prediction of each skill (human, conceptual and technical) to preservation management revealed that technical skills of library personnel had the highest relative contribution to preservation management in university libraries than other skills. Library personnel are expected to possess the requisite technical skills to be able to supervise the preservation programme. His/her job is to interpret the principles and practices of preservation to his colleagues and to apply them to all aspects of library's

operation. He needs to know the basics of how and why paper and other materials deteriorate the impact of various handling and storage practices, and implication of exposure of library materials to various environmental conditions (Smith, 1986).

Findings from the study indicated that though the three skills are critical to preservation management in university in Nigeria, library personnel are inadequately equipped with the skills. To address the situation, there is need for CDP to bridge this gap.

Result of the focus group discussion revealed that discussants did not have practical experience but theoretical knowledge of preservation and conservation of library material; hence, there is need for library personnel to undergo practical training. The result also corroborated some of the findings from quantitative data especially in the area of non-availability of staff training on preservation and conservation of library information resources, personnel depend on the skills acquired through course work as part of their degree programme.

Conclusion

University libraries in southern Nigeria are confronted with threats to their information resources which may impede access to them and negatively affect service delivery. It was discovered that though not adequate, personnel in university libraries in southern Nigeria adopted some measures and strategies to preserve their information resources. Furthermore, the study has confirmed that human, conceptual and technical skills were critical to effective preservation management in the university libraries southern Nigeria. This will enhance the library personnel ability to conceive, establish, monitor, supervise and effectively execute preservation management in their libraries. Unfortunately, some of these skills were found lacking in the personnel of libraries studied, thereby creating room for the need for capacity building for the library personnel to attain effective and efficient preservation management in the libraries.

Recommendations

Based on the findings of this study, the following recommendations are imperative for preservation management in university libraries in southern Nigeria:

- University libraries are confronted with threats to information resources in their custody; hence, there is a need for consciously planned preservation programme under a preservation unit.

- Preservation practices such as library security, integrated pest management, environmental monitoring and control and library insurance should be accorded priority in the preservation programme of the university libraries more so that they are in tropical environment.

- Management of university libraries in southern Nigeria should embark on capacity building through CPD for their personnel to hone their human, conceptual and technical skills on preservation management.

- Libraries and Information Science schools responsible for the training of library personnel should emphasise practical-oriented training in human, conceptual and technical skills as related to preservation and conservation in their curricula.

- Libraries should also seek support from grant awarding institutions like Mellon Foundation to support local training for their personnel.

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