

Full Length Research

Adoption of UNESCO Digital Preservation Guidelines for Measuring Preservation Policies of Digital Materials in University Libraries in South East, Nigeria

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Accepted 23 April 2019

This study investigated the Adoption of UNESCO Digital Preservation Guidelines for measuring Preservation Policies of Digital Materials in University Libraries in South East, Nigeria. The study adopted a survey research method. The population was made up of 160 librarians in university libraries in South East, Nigeria. The instrument used for data collection was the questionnaire adapted from the UNESCO Digital Preservation Guidelines. Data were analysed, and simple percentages were used to answer the research questions and chi-square was used to test the hypotheses. The study revealed that 83.2% of the librarians in the university libraries in South-East, Nigeria agreed that they do not have preservation Policies yet for their digital materials based on the UNESCO Digital Preservation Guidelines. Based on the UNESCO Digital Preservation Guidelines, the existing preservation policies do not differ significantly based on the university ownership. The study recommends strongly that university librarians in South- East Nigeria should adopt the UNESCO Digital Preservation Guidelines as their working guide in preserving the digital materials in their libraries.

Keywords: Digital Materials, Digital Preservation, Policies, UNESCO guidelines, Nigeria

Cite This Article As: NWORIE, J.C., NWOSU, O. (2019). Adoption of UNESCO Digital Preservation Guidelines for Measuring Preservation Policies of Digital Materials in University Libraries in South East, Nigeria. *Inter. J. Acad. Lib. Info. Sci.* 7(3): 74-81

INTRODUCTION

Library is a storehouse of knowledge. It is a collection of books and non – book materials organized and housed in a place for use, with one or more persons trained to assist in the use of the collection (Nwaigwe & Onwuama, 2007). The holdings of libraries are the priceless heritage of mankind as they preserve facts, ideas, thoughts, accomplishments and evidences of human development in multifarious areas, ages and directions. The past records constitute a natural resource and are

indispensable to the present and future generations; therefore, any loss to such materials is simply irreplaceable.

Library has continued to evolve over the years from the traditional closed access to the automated, electronic and digital open access libraries. Previously, library used to house mainly printed materials, but, in this era of ever evolving Information and Communication Technologies (ICTs), electronic and digital resources have become the

central concern of librarians who want to adequately satisfy the library users. Libraries are migrating from the traditional setting to digital libraries.

Currently, most libraries are made up of both print and digital collections, services and infrastructure to support lifelong learning, research, scholarly communication as well as preservation and conservation of the recorded knowledge. The digital materials make up the digital libraries.

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) (2003), defined digital materials as resources of human knowledge or expression, whether cultural, educational, scientific and administrative or embracing technical, legal, medical and other kinds of information that are increasingly created digitally, or converted into digital form from existing analogue resources. These digital materials include texts, databases, still and moving images, audio, graphics, software and web pages among a wide and growing range of formats. In agreement with the UNESCO (2003), Iman, Adeyoyin, Jegede, and Adesanya, (2008) defined digital materials as all information resources in machine readable format such as compact discs read only memories (CD-ROMs), diskettes, flash drives, films, microfiche and allied accessories such as computer software and hardware. Digital materials in libraries include websites and databases, chats, emails and correspondences that are generated digitally as well as analogue materials which are converted into digital formats through scanning. Digital materials are frequently ephemeral and require purposeful production, maintenance and management for retention. Moreso, one can say that digital library materials are information resources that exist in digital softwares and are carried by digital hardwares.

These digital materials are the bedrock upon which digital libraries thrive in the provision of information and recorded knowledge which management, lecturers and students of academic institutions need in running the affairs of the institutions. According to Aina (2004), the essence of library resources in the university is to ensure that the right user gets the right information materials at the right time, right format, right place and at the user's convenience. In higher education environment where researches and scholarship are paramount, the use of electronic resources is significant and the utilization of them is very much dependent on the users and purposes (Deng, 2009). Universities in Nigeria cannot thrive without information and libraries are to provide the right information in the right format to the right person that needs it and at the right time. Igbojesi (2003) opined that academic libraries are at the centre of tertiary education by supporting, enhancing and fostering learning as well as manpower development.

Michael (2006) posited that most of the digital library materials are not static due to constant change in digital

and electronic technologies. Tried and tested products are soon replaced by smaller and faster media, sometimes with a life span of five years or less. Due to the sensitive nature of digital materials and the short time in which they are being replaced, reformatted and repackaged, they need to be properly taken care of, well managed and preserved. This is to ensure that the efforts and time used in acquiring, storing, processing, cataloguing, classifying and organizing them are not wasted.

For cultural institutions traditionally entrusted with collecting and preserving cultural heritage, the question has become extremely pressing as to which of these materials should be kept for future generations and how to go about selecting and preserving them. This enormous trove of digital information produced today in practically all areas of human activity and designed to be accessed on computers may well be lost unless specific techniques and policies are developed to preserve it. With the digital preservation policies, goals to be achieved will be set out as well as guidelines for implementing them. With digital preservation policies, librarians would be able to determine which materials need short, medium or long term preservation, creative allocation of funds and staff, strategies for preserving digital materials and agreement and advocacy rights issues would be catered for properly.

According to the UNESCO (2003) digital preservation guidelines, "Specific techniques and preservation policies should be developed to preserve digital materials involving producers of digital information (including software) to include conservation as they design their products. There should be proper guideline policy on collection management (what to select, acquire and store); guideline policy on security of digital materials (backups, use of antivirus); guideline on handling and usage of digital library materials, encapsulation, metadata".

Today in Nigeria, digital and electronic libraries are being set up in various university libraries and co-exist with traditional libraries to provide information services side by side. According to Chukwuma (2004) and Alegbeleye (2008), librarians are managers of libraries and are expected to take proper care of the resources in the libraries including the digital materials under good condition by formulating right preservation policies. Most libraries in Nigeria may run the risk of losing their digital material contents if proper preservation steps are not taken which hinges on right preservation policies. The UNESCO Charter (2003) on the preservation of digital materials is a proper guideline for sound preservation of digital materials in the library. It is based on this backdrop that this study on the adoption of UNESCO digital preservation guidelines for measuring preservation policies of digital materials in university libraries in South-East, Nigeria was conceived.

PROBLEM STATEMENT

Digital materials, unlike the texts of print media, are subject to inadvertent destruction of the physical medium on which they exist and the information that are contained in them. Electronic texts are so easy to edit, manipulate, revise and improve and can lose their assurance of permanence especially if they are not properly locked or cared for. Alegbeleye (2008) called this fragility of the media. Many types of accidental changes may occur. A document may be damaged accidentally or as a result of the nature of the electronic resource.

Moreso, the problem of technological obsolescence is inevitable. Digital media have continued to evolve over the years. The equipment to use them change from time to time thereby creating problems in retrieving the information content. For example, there have been transitions of digital storage devices from 8-inch floppy disks to 5.25-inch floppies, to 3-inch diskettes, to flash drives, CDs, CD-ROMs, VCDs, DVDs, external hard disks among others. These storage devices become obsolete very quickly and today it is very difficult to find one drive for all storage devices. Additionally, there is the problem of inconsistency in the existing preservation policy of many institutions and some university libraries do not have any plan or policies at all. A study by Akande (2010), revealed that many federal university libraries in Nigeria have no preservation policy; and there can be no serious commitment to preservation programme without a policy. Moreso, Atanda (2017) discovered that libraries in Nigeria are faced with the major challenge of lack of policy in the preservation of their digital materials.

Digital libraries are being set up in university libraries in Nigeria today and most of them hoist their information in various websites, servers, hard disks and other storage media. If proper preservation guidance and care are not taken, any disaster can wipe out the entire works and the library will be left with little or nothing. The problem of this study therefore is that university libraries in this digital era may not be able to meet their primary objective of providing the information needs of their users in digital formats if digital preservation policy is not taken seriously. In order to keep digital materials in the library accessible and usable, there is need for university librarians to apply the preservation guidelines as stated by UNESCO (2003).

OBJECTIVES OF THE STUDY

Specifically, the study assessed:

1. the university libraries in South East, Nigeria that have Preservation Policies.
2. the existing preservation policies for digital

materials in university libraries in South-East, Nigeria based on UNESCO (2003) Digital Preservation guidelines.

RESEARCH QUESTIONS

1. What is the percentage of university libraries in South East, Nigeria that have preservation policies?
2. What are the existing preservation policies for digital materials in the university libraries in South-East, Nigeria based on UNESCO (2003) Digital Preservation Guidelines?

NULL HYPOTHESIS

The preservation policies existing for digital materials in the university libraries in South-East, Nigeria based on UNESCO Digital Preservation Guidelines do not differ significantly based on the University ownership.

REVIEW OF RELATED LITERATURE

Digital materials in the library are collected, managed and disseminated for scholarship so as to assist and provide useful information for the communities or institutions that established it. Collecting the digital materials is the first step in building a digital library, and this can be done in different ways. How digital materials are collected may affect the quality as well as the ability to preserve them. It is important to know how digital materials in the library are collected, and how quality is ensured; this is imperative because different levels of preservation efforts will be dependent on both the initial quality of the content and its format.

Developing preservation policies in the library ought to be the first step toward guaranteeing preservation actions. UNESCO (2003), buttressed that policies should be formed on what should be preserved in the library. There are so many digital materials being generated daily. It is expected of the library to adopt certain policies that will guide the standard for procurement, organization and preservation of their digital contents. Though the selection principle may vary between countries and different libraries, but the main criteria for deciding what digital materials to keep would be their significance and lasting cultural, scientific, evidential or other value. Meanwhile, the UNESCO (2003) Digital Preservation Guidelines has this to say concerning formulation of preservation policies:

“A large part of the vast amounts of information produced in the world is born digital, and comes in a wide variety of formats: text, database, audio, film, image. For

cultural institutions traditionally entrusted with collecting and preserving cultural heritage, the question has become extremely pressing as to which of these materials should be kept for future generations, and how to go about selecting and preserving them. This enormous trove of digital information produced today in practically all areas of human activity and designed to be accessed on computers may well be lost unless specific techniques and policies are developed to conserve it. Preserving valuable scientific information, research data, media output, digital art, to name but a few areas, poses new problems. If such material is to be accessed in its original form, technical equipment – original or compatible hardware and software - must be maintained alongside the digital files that make up the data concerned. In many cases, the multimedia components of websites, including Internet links, represents additional difficulty in terms of copyright and geography, sometimes making it difficult to determine which country a website belongs to. UNESCO has been examining these issues with a view to defining a standard to guide governments' preservation endeavours in the digital age. The General Conference adopted Resolution 34 at its 31st session, drawing attention to the ever growing digital heritage in the world and the need for an international campaign to safeguard endangered digital memory. The General Conference also invited the Director-General to prepare a discussion paper for the 2001 Spring session of the Executive Board containing elements of a draft charter on the preservation of born-digital documents, as well as to encourage the governmental and nongovernmental organizations and international, national and private institutions to ensure that preservation of the digital heritage be given high priority at the national policy level."

Imperatively, UNESCO outlined that Preservation policies in the library should be able to cover the following: (1) guidelines on collection Management (selection of content during the acquisition of digital materials, what to store etc), (2) guidelines on security of digital materials such as disaster preparedness, back ups, use of anti virus, (3) guidelines on handling and usage and, (4) guidelines on the use of metadata and long term preservation techniques.

Effective preservation begins with libraries having well stated collection policy. According to Yuani Li and Meghan (2011), no matter how digital materials are deposited in the library, the quality of the deposited content should be examined before digital preservation actions are considered. The quality of the deposited content can directly affect the success of digital preservation efforts. If the quality of the content cannot be assured, then, significant problems may arise. These problems may include format obsolescence, poor quality or unreadable images or scans, insufficient metadata to manage and preserve the materials etc. for this reason, it is so important to have mechanisms in place to ensure

the quality of digital materials submitted.

According to Ngulube (2005), preservation policies for information resources are indispensable tools for organizations that are committed to facilitating the survival of information materials in their custody. Policies are very important to facilitate the survival of digital materials in university libraries. Policies help to set out goals to be achieved as well as guidelines for implementing them. Policies also facilitate creative allocation of funds and staff, strategies for preserving digital materials and decisions about what digital materials required short, medium, or long term preservation, and what digital material to select, agreement and advocacy rights issues are all taken care of in the policy guidelines. It is in line with this statement of policy formulation that Tiwari (2008) cautioned, that the rapid growth of digital materials should challenge the library in what it tries to collect, how it carries out its collecting role, and when and how it permits users to access its collections. Akande (2010), further asserts that there can be no serious commitment to preservation programme without a policy which will guide effort at solving identified preservation problems.

Similarly, Gbaje and Mohammed (2013) carried out a study titled "*Digital Preservation Policy in National Information Centres in Nigeria*", the aim of the study was to examine availability, coverage of digital preservation policy and the structure put in place by the national information centres in Nigeria to preserve digital information. Three research questions guided the study. Qualitative method of case study approach was adopted using semi structured questionnaire and interview. Data were obtained from Eighteen (18) staff, five staff each in the three selected national information centres who were involved in digitization/digital preservation units and one top management staff member from the rank of assistant director of each of the selected three national information centres. From the findings of the study, it was discovered that national bureau and national library of Nigeria have digital preservation policies. The study showed that the area of coverage of the available policies is not adequate enough to ensure the long term preservation of digital information. Regrettably, lack of institutional support from the national information centre was one of the challenges in the implementation of the digital preservation policy. From the study, it could be concluded that though majority of the national information centres in Nigeria have digital preservation policy, they are yet to implement it because of lack of institutional support from the government authorities. The study therefore recommended that National digital preservation policy that will chart a road map for effective digital preservation activities be approved and implemented by the national information centre.

METHODOLOGY

The design adopted for this study was descriptive survey design. According to Akuezilo and Agu (2007), descriptive survey describes and interprets what is; it seeks to find out the conditions or relationships that exists, opinions that are held, processes that are going on, effects that are evident, or trends that are developing. According to Gall, Gall and Borg (2007), a survey is a method of data collection using questionnaire or interviews to collect data from a sample that has been selected to represent a population to which the findings of the data analysis can be generalized. The survey design enables the researcher to explore the current status of a phenomenon and does not involve manipulation of variables. It was suitable for this study because it involved the use of questionnaire to collect data from a well defined population on existing practices.

The population of the study was made up of 160 librarians in the 10 university libraries in South East, Nigeria. The 10 university libraries in the zone are University of Nigeria Nsukka (UNN) Library, NnamdiAzikiwe University Awka (NAU) Library, Federal University of Technology Owerri (FUTO) Library, Michael Okpara University of Agriculture Umudike (MOUUAU) Library, Federal University Ndufu - Alike (FUNAI) Library, Enugu State University of Science and Technology (ESUST) Library, Anambra State University Uli (ANSU) Library, Imo State University Owerri (IMSU) Library, Abia State University Uturu (ABSU) Library, and Ebonyi State University Abakiliki (EBSU) Library. All the population of the study was used and for this, no sample was drawn for the study. Data were collected through a structured questionnaire. The questionnaire was adapted from the UNESCO (2003) Guidelines for Digital Preservation in line with the objectives of the study. In order to determine the reliability of the instrument for data collection, a pre-test was conducted using Kuder-Richardson formula 20. The reliability coefficient of .91 was obtained, which was of high reliability. Data collected were analyzed using the descriptive and inferential statistics. Specifically, the research questions were presented in tables and answered with the use of percentages, while chi-square was used to test the hypotheses at 0.05 level of significance.

DATA ANALYSIS AND INTERPRETATION OF RESULTS

Research Question 1: What is the percentage of university libraries in South East, Nigeria that have preservation policies?

Data needed to provide answer to this research question were collected and presented in Table 1

The result in Table 1 reveals that 83.2 percent of the university librarians in South East Nigeria agreed that they do not have preservation policies for their digital materials. The university libraries that have preservation policies as indicated by the respondents are very few (16.8%). This shows that the greater percentage of the university librarians in South East Nigeria agreed that they do not have preservation policies yet for the digital materials in their libraries.

Research Question 2: What are the existing preservation policies for digital materials in the university libraries in South-East, Nigeria based on UNESCO (2003) Digital Preservation Guidelines?

The result in Table 2 reveals the percentages of various preservation policies of digital materials being practiced in the university libraries in South East, Nigeria. The data show that the range of 85 to 92 percent of the university librarians in South-East, Nigeria attested that preservation policies of digital materials based on the UNESCO Digital Preservation Guidelines do not exist in their libraries.

Null Hypothesis 1

The preservation policies existing for digital materials in the university libraries in South-East, Nigeria based on UNESCO Digital Preservation Guidelines do not differ significantly based on the University ownership.

In Table 3, it can be observed that at 0.05 significant level and 4df, the calculated χ^2 7.42 is less than the critical χ^2 14.86. Therefore, the first null hypothesis is accepted. Then the preservation policies existing for digital materials in the university libraries in South-East Nigeria based on UNESCO Digital Preservation Guidelines do not differ significantly based on the University ownership.

DISCUSSION OF FINDINGS

Preservation of digital materials is guided by policy framework. Fortunately, there is in place the UNESCO digital preservation guideline that stipulates how digital materials should be preserved. It is the policy that states what the preservation programme is to do and how it will achieve it especially in this world of complexities and information explosion.

This study revealed that 16.8% of the librarians indicated that they have preservation policies of digital materials in their libraries. These preservation policies cover guidelines on security of library materials like use of antiviruses and backups etc (15.0%), guidelines on collection management (11.5%), handling and usage

Table 1. Responses on University Libraries in South East Nigeria that have Preservation Policies

S/N	Preservation Policies	Yes (Percentage/%)	No (Percentage/%)	Total (Percentage/%)
1	Percentage of University Libraries in SE Nigeria that have Preservation policies	19 (16.8)	94 (83.2)	113 (100)

Table 2: Responses on Existing Preservation Policies in University Libraries in South East Nigeria based on UNESCO (2003) Digital Preservation Guidelines.

S/N	Preservation Policies	Yes (Percentage/%)	No (Percentage/%)	Total (Percentage/%)
2	Guidelines on Collection management (selection, acquisition & storage)	13 (11.5)	100 (88.5)	113 (100)
3	Guidelines on the security of digital library materials (backups, use of anti virusesetc)	17 (15.0)	96 (85.0)	113 (100)
4	Guidelines on handling and usage of digital library materials	12 (10.6)	101 (89.4)	113 (100)
5	Encapsulation and/ metadata	9 (8.0)	104 (92.0)	113 (100)

Table 3: Chi Square on preservation policies existing for Digital Materials in the university libraries based on UNESCO Digital Preservation Guidelines based on the University ownership

S/N	Federal	State	Total	Cal. χ^2	df	Crit. χ^2	Remark
6	3	10	13	0.023			
7	5	12	17	0.23			
8	4	8	12	0.527			
9	3	6	9	0.384			
10	9	10	19	6.253			
Total	24	46	70	7.42	4	14.86	NS

(10.6%) and encapsulation/Metadata (8.0%). From the findings therefore, it could still be noted that the preservation policy guidelines present at the university libraries in South East Nigeria are still at the elementary stage. Moreso, 83.2% of the university librarians in the South East Nigeria confirmed that they do not have digital preservation policies. This shows that librarians in the state and federal university libraries in South East, Nigeria do not have action plan on preservation of their digital materials. There is no policy document to provide clear, long term direction as well as regularly reviewed guidance.

Nevertheless, the finding from this study showed that preservation policies of digital materials in university

libraries in South-East, Nigeria based on the UNESCO Digital Preservation Guidelines is ineffectual; this is in consonance with Sambo, Omeluzor and Usman (2014), who found out that digital preservation in Nigeria among other challenges lack standard and policy. Gbaje (2013) also discovered that lack of institutional support from the national information centre is a major challenge in the implementation of digital preservation policy in Nigeria. Furthermore, Atanda (2017) discovered that lack of strategy/policy is one of the major challenges of digital preservation in Nigerian universities. Meanwhile, Yuan Li and Meghan (2011) discovered that, in academic libraries in the United States of America, 51.5% of the respondents indicated that their Institutional Repositories

which is an aspect of digital libraries have preservation policies.

Another finding from this study showed that there was no significant difference in the preservation policies of digital materials adopted by librarians in the state and federal university libraries in South East Nigeria and the UNESCO digital preservation guidelines.

SUMMARY OF MAJOR FINDINGS

From the results of the analysis, the following findings were made:

1. Greater percentage (83.2%) of the university libraries in South East, Nigeria do not have preservation policies for the digital materials in their libraries.
2. There were no preservation policy guidelines yet existing for the preservation of digital materials in university libraries in South-East, Nigeria based on the UNESCO Digital Preservation Guidelines.
3. There was no significant difference in the preservation policies of digital materials adopted by librarians in the state and federal university libraries in South-East, Nigeria and the UNESCO Digital Preservation Guidelines

CONCLUSIONS

Based on the findings of this study, the following conclusion is drawn:

That based on the UNESCO (2003) Digital Preservation Guidelines, librarians in university libraries in South-East, Nigeria do not yet have preservation policy guidelines for their digital materials. The standard preservation policies of digital materials in the university libraries are indispensable tools for the survival of digital materials in the library, thus the provision of UNESCO Digital Preservation Guideline. Policies help to set out goals to be achieved as well as guidelines for implementing them. Policies also facilitate creative allocation of funds and staff, strategies for preserving digital materials, what digital materials require short, medium or long term preservation and decisions on what to select, agreements and advocacy rights.

From the findings, it has been established that 83.2 percent of the librarians in university libraries in South-East, Nigeria confirmed that they do not have existing preservation policies for their digital materials.

RECOMMENDATION

Based on the findings of this study, the following recommendations are made:

Librarians in university libraries in South-East, Nigeria should formulate preservation policy guidelines for their digital materials based on the UNESCO (2003) Digital Preservation Guidelines, to enable them have a proper road map on what to preserve, and how to preserve them. What issues, actions and materials that should be given priority for attention etc should be decided and stipulated in the policy plans.

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