Trends in the Preservation of Theses and Dissertations in Nigerian University Libraries: Review of Digitization Projects

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Abstract

The purpose of the paper is to explore various digitization projects of theses and dissertations in Nigerian university libraries. Various write-up on digitization projects in Nigerian university libraries were reviewed. Mobile phone was used to inquire on softwares used and accessibility to digitized resources. The digitization projects include: creation of database for African theses and Dissertations (DATAD); Electronic Theses and Dissertations (ETDs); digitization of abstracts to theses and dissertations; establishment of institutional Digital Repository (IDR); digitization of local information resources and retrospective conversion projects. Problems of digitization projects in the Nigerian university libraries include: unreliable facilities, erratic power supply, funding, unskilled manpower, and digital divide. The paper recommends the use of curtains on windows and doors and security method to reduce threats from direct sunlight and theft was well as fire out break on the hardcopies. Other recommendations include: submission of both hard and softcopies of their research works; adequate funding; adequate stand-by generating plant and timely training programme on ICT for all categories of library personnel in Nigerian universities

Key words: Preservation, Digitization, Nigerian universities, Libraries, ICT.

Introduction

Libraries have passed through several ages (pre-industrial, industrial and information era) not only to acquire, process, store and disseminate information to users on request but also to preserve information resources to meet the information needs of both the present and future generation of users. Therefore, libraries are charged with the responsibility of acquiring materials as well preserving them for generation of users that are to come for their usage in future (Madu and Adeniran, 2005). This shows that preservation of information resources is one of the major roles played by libraries all over the world with a view to improve the quality of service offered to mankind. It is in view of this fact that Aguolu and Aguolu (2002:35-36) rightly asserted that:

> Whatever the status of library development in any society, the fundamental roles of libraries fall into six categories; knowledge conservation; information; education; research; culture and entertainment.... Preservation of library materials was a dominant philosophy of librarianship.

Theses and dissertations (T&D) connote different meanings to different people based on their perception. Thus, Chuma (2005/2006) maintain that these research works are "all unpublished materials produced by students as a condition for the award of academic certificate, diplomas and degree in institutions of higher learning". Theses and dissertations are research works produced by postgraduate students for the award of Ph.D and Master's degrees respectively. Theses and dissertations contain findings and recommendations which are supposed to be implemented for national development. In the Nigerian context, these research works are used to earn higher degrees as well as winning the award but not for national development in true sense.

Concept of Preservation and Traditional Method of Preserving Library Collection

While preservation is concerned with adequate care and maintenance of library and archival materials for the safe survival (Prytherch, 1990), conservation is concerned with the physical treatment of individual items after some damages have occurred (Odogwu, 2007). The concept of preservation can also be regarded as "a wide variety of interrelated activities designed to prolong the usable life of books, archives, manuscripts and artifacts" (Alegbeleye, 2009). These activities include binding, laminating, shelving, proper storage and handling of materials, photocopying, fumigation, microfilm, security measures, etc and are regarded as the traditional method of preserving information materials in libraries.

This preservation activities can further be grouped as storage and handling; physical method, hygiene method, reprographic method, security method and environmental control method. As for storage and handling method, files and phonograph record plates are kept in cabinet while books are shelved upright according to their class marks. Physical method involves such activities like binding, lamination and mending pages, hygiene method involving maintaining clean library environment as well as library collection. This can be achieved through fumigation of library and its collections. Fumigation is the spraying of chemical e.g DDT on books and the entire library. Reprography method is to reproduce the original document in multiple copies through photocopying, reprinting, microfilming etc. Environmental control method is the maintaining of environmental factors for survival of library materials e.g temperature and humidity should be regulated while air-conditioners are used keep library materials in good condition. Security measure include staff at the entrance and exit of library and the installation of security/fire control devices

Odogwu (2007), as cited in Alegbeleye (1997) provide a model for assessing possible preservation and conservation of libraries materials in three levels, namely: minimum or small programme, middle programme and optimal or full scale programme levels. Minimum level is the measures taken to improve physical handling of materials whenever circulated among users. This involves shelving, cleaning library and book collection, photocopying and minor repairs. Middle programme has to do with environmental control-temperature, humidity, provision of air conditioners as they help to filter dirt, dust, smoke, etc. Optimal or full scale programme covers both the minimal and middle levels. It includes substitution or reformation such as microfilming, photocopying, de-acidification, lamination, book binding and digitization. De-acidifications involve removal of acid in book or paper. Book binding is the putting together disintegrated papers or books.

Despite the efforts of librarians to conserve information materials through the traditional method, certain threats negate such effort; these include chemical agents, human factor, biological attack, inadequate storage facilities, natural disasters (Aguolu and Aguolu, 2002; Aina, 2004 and Muhammad, 2006). These are threats to paper-based materials in libraries.

Threats to Paper-Based Materials

Threats otherwise known as agents of damage or deterioration to library materials in general and the paper based materials in particular are of great concern to library managers and subordinate staff. This is because they have adverse effects on information accessibility and use by patrons. For example, important information is lost whenever certain pages of books are mutilated. Echezona (2010) was of the view that the problems of deterioration are mainly human and environmental hence humidity within the range of 40%-55% is ideal for library material. At this juncture, it is important to briefly highlight some of the threats to paper based library materials.

Human Factors: Man has being the greatest enemy to library materials through various acts. Users are found of not only illegally removing books out from library but also mutilate some pages, while others use writing materials to trace writings/drawings. There is also negligence on the part of library staff on the need for physical care of materials (Harvey, 1992).

Biological Agents: Rodents, insects, fungi and bacterial do cause a lot of damages and deterioration to paper-based resources in libraries. Generally speaking, rats, birds, insects, bookworm, booklice, fungi and bacterial destroy a good number of library collections (Aina, 2004). One cannot run away from the fact that users are found of bringing in food items to library which serve as attractant to pests.

Chemical Agents: Long-term effect of chemicals substances on book arises for the fact that wood contains pulp and this pulp contains chemical substances called "lignin". It is this substance that acts on paper; turning paper into yellowish; while the quality of paper depreciates (Aguolu and Aguolu, 2002).

Environmental Factors: High temperature and relative humidity resulting from high sunlight and moisture accelerates the activities of microbial organisms i.e. deterioration of paper. Environmental air pollution, dust and gaseous products from factories also accelerate deterioration of paper (Muhammad, 2006). No wonder that while planning for the establishment of libraries, considerations were not given to proximity of libraries to industries, sloppy areas as well as planning for shelter belt.

Natural Factors: such as fire outbreak, earthquake, flood and wind disaster destroy library materials (Aina, 2004). This could be as a result of indifference attitude of library staff and users as well as ineffective security measures/fire alarm in some libraries.

Poor storage facilities: These also deteriorate books through decay. Some libraries still use wood shelves with poor air condition facilities.

Digitization of Theses and Dissertations

Arising from the above mentioned threats to paper-based materials and with the advancement in ICT, libraries have resorted to the preservation of paper-based materials using electronic method called digitization, and thus it is a more recent development of preservation (Aina, 2004). According to Igbeka (2008), digitization "involves taking traditional paper-based library materials and converting them to electronic form, where they can be stored and manipulated by a computer". Digitization is the conversion of traditional printed/paper based materials into electronic form where information are stored and manipulated by a computer.

Digitization of theses and dissertations become necessary owing to the fact that university libraries' budget are on the decline; not regular and inadequate as there is no adequate fund to procure preservation equipment as to paper-based material. Threats to theses and dissertations and ineffective methods of preserving them call for their digitization. Digitization of theses and dissertations in Nigerian university libraries is an effort towards building digital libraries that contains no conventional printed information resources. African university libraries are currently working towards building digital libraries through creation of databases for electronic theses and dissertations through the Association of African Universities (AAU) (Mutula and Ojedokun, 2008). This means that the essence of preserving library materials through digitization is not only to prolong the life span but also to guarantee their accessibility.

The digitization helps in building virtual collection (Muhammad, 2006). Digitization of information resources particularly paper-based materials helps in prolonging their lifespan, creation of database; networking among participating libraries globally as well as easy accessibility to digitized resources through On-line Public Access Catalogue OPAC (Igbeka, 2008).

The traditional library materials that are digitized include printed records such as abstracts to theses and dissertations (Ndor, 2004); (Bozimo, 2005/2006); catalogue records (Igbeka, 2005); theses and dissertations (Katsina, 2006); books and papers (Igbeka, 2008); publications and theses (Ezeani and Ezema, 2009; Mohammed, 2009). The equipment used in digitizing information resources generally includes computers, scanners, digital cameras, UPS, Printers etc. (Ndor, 2004) and (Igbeka, 2008).

Based on the writer's perception and understanding, projects are regarded as essays or research works produced by undergraduate students for the award of first degree, diploma or certificate courses; theses are research works produced by postgraduate students for the award of higher degree certificate, masters and doctorate degrees.

Exploration of Digitization Projects of Theses and Dissertations in Nigerian University Libraries

Various projects in the digitization of theses and dissertations in Nigerian universities have been reported. These projects are hereby explored:-

Creation of Database of African Theses and Dissertations (DATAD) – University of Jos

A project known as "Database of African Theses and Dissertations" DATAD was established in University of Jos library after being registered with Association of African Universities (AAU) in Ghana. The project aimed at digitizing the university theses and dissertations, involves scanning of abstracts to theses and dissertations "with the use of Omi page to perform optical character recognition to and later saved in Ms Word". The abstract is edited. The University of Jos library has so far converted 1,500 theses and dissertations abstracts (through digitization) and additional 300 records are undergoing digitization. The records of abstracts are sent to Ghana through postage or by electronic attachment to AAU headquarters, while the entire records are copied on CDs (Ndor, 2004).

Procite 5.0 software was used for the project. Access to the digitized theses and dissertations is automatic for the participating institutions after looking for headquarters IP number. Non participating institutions can register through http:// www and then access the database http://www.aau.org/daatad/ database (Ndor,2004).

Electronic Theses and Dissertations (ETDs), Bayero University Kano Library

ETDs are theses and dissertations that were originally in print format but later converted to electronic format through scanning. The ETDs are of two (2) types: The first form of ETDs is those

developed by students and are made to submit the electronic version of their research works for onward submission to University or Postgraduate School Board. The other form of ETDs consists of electronic file by the university library or ICT that scan pages of a printed thesis or dissertation. This form of ETDs include previously – submitted in printed format which have to be entirely converted to electronic format. Either of these two (2) types of ETDs being adopted by university, it is moving towards the digital library era (Katsina, 2006). Software used is freely available from National Digital Library for Theses and Dissertations (NDLTD). The project is networked and interconnected and so there is easy accessibility to ETDs (Katsina,2006).

Digitization of Abstracts to Theses and Dissertations, Ahmadu Bello University, Zaria

The digitization of postgraduate theses and dissertations in Kashim Ibrahim Library, Ahmadu Bello University, Zaria commenced in August, 2004 which was handled by a non-professional and two senior professional staff is a model provided from the digitization of theses and dissertations at the University of Jos and Obafemi Awolowo University, Ife. It is only the abstracts of theses and dissertations that are digitized, while postgraduate students are requested to submit hard copies as well as diskette of their works (Bozimo, 2005/2006). It can therefore be concluded that abstracts of theses and dissertations serve as the mirror of the entire Master/Ph.D works.

Establishment of Institutional Digital Repository (IDR), Ahmadu Bello University, Zaria

This is a project that is concerned with not only generation, acquisition, processing, storage but also preservation of / and accessibility to records of information resources (books, manuscripts, theses and dissertations) in an electronic environment particularly in a digital format. A typical example of IDR is the establishment of a departmental repository (Department of Library and Information Science, A.B.U, Zaria) were records on theses and dissertations submitted by students as well as curriculum vitae are preserved. In the same vein, Kashim Ibrahim Library of A.B.U, Zaria has also established a repository for the theses and dissertations submitted for higher degrees of the university. It should be noted however that over 3,000 records have not only been digitized but also entered in the database (Mohammed, 2009).

The department of Library and Information science and University library funded the IDR project respectively. The IDR project of the two organs used **D space** software and the digitized resources can be accessed through their respective web pages and the university website

Digitization of local information resources, University of Nigeria, Nsukka

The ICT centre of the above university started a digitization project in 2008 with its main objective of digitizing local information resources (undergraduate research projects, postgraduate theses and dissertations) that are generated over years. The project also aimed at digitizing publications authored by the university staff. The university library staff took part in the project, while technical staff are recruited to handle jobs such as scanning of documents, book-marking, etc (Ezeani and Ezema, 2009). The project was funded by the university library while **D space** software was used. Access to digitized theses and dissertations is through institution's website **unn.edu.ng**. The major challenges were those of unreliable facilities and erratic power supply

Retrospective Conversion Project in Kenneth Dike Library, University of Ibadan

Kenneth Dike Library, University of Ibadan, the library in premier university in Nigeria was not left out in the retrospective conversion of information resources. More so that the Kenneth Dike Library is the largest in tropical Africa with 500,000 volumes and 6,000 serial publications, it has largest collection in Africa and resources materials. The university took up a decision in 1994 to convert post 1974 records (LC records) to machine-readable data. The project involves converting data from the existing automated system in the university library to a new system using LC-MARC either on CD-ROM or diskettes. The conversion of the existing records in Kenneth Dike Library involves a number of steps, which include:-

(a) Stock-taken of post 1974 – 1991 collection
(b) Shelf-reading was done to ensure that books on shelves were not torn, mutilated and well-circulated.
(c) As for books not physically found on shelves were assumed to be lost and as such their cards were withdrawn.

The project comprises of a number of workers including a cataloguer, some library assistants' and casual workers. A small committee was set – up in order to ensure speedy work. Two (2) consultant firms were employed which also employed their own workers (Igbeka, 2005). One of the major challenges at that time was that the target of converting 100 books per day was not met.

Problems of the Digitization Projects of Theses and Dissertations

These problems include the difficulties encountered in the cause of digitizing theses / dissertations as well as those of digital information. The constraints are:

1.   It was discovered that a good number of students' diskettes that were sent to the library could not be opened. Efforts were frequently made to effect typographical and linguistic errors (Bozimo, 2005/2006). The inability of diskettes to open could be due to the nature of the system or system specification used and the fragile nature of the diskets; computer and its accessories.

2.   In terms of managerial problems of the digitization, unreliable facilities and erratic power supply were the two (2) major managerial problems as per the digitization initiative in University of Nigeria, Nsukka (Ezeani and Ezema, 2009).

3.   Retrospective conversion and of-course preservation through digitization require a great deal of money to purchase equipment (computer, scanner, digital camera, etc). Nigerian University libraries are experiencing inadequate funding and decline in ICT budgets as it has adverse effect on the activities of library (Ezeh, 2007; Amkpa and Abba, 2009). It is one of the most important factors that inhibit ICT implementation in Nigeria in particular and Africa in general (Madu and Adeniran, 2005). The decline in funding universities' ICT/digitization project can be referred to as Education budgetary factor (Mutula, 2008). Most Nigerian university libraries are still providing traditional form of librarianship.

4.   Unskilled-manpower:- Some university libraries lack skilled manpower in the area of ICT as some available resources in computerized libraries need variety of skills to operate them. The librarians and Information professionals have low level of ICT skills to access computers and internet facilities (Onwudinjo, 2008; Ampka and Abba, 2009). Nigerian library schools provide inadequate IT training for their students and this is responsible for products' inability to face challenges of the modern librarianship.

5.   Erratic power supply is one of the major problems as computerization and of-course digitization of library resources cannot be effectively carried out with the epileptic power supply. Where the university has generating plant, the constant changes from NEPA to generating plant or vice versa lead to loss of data, systems errors (Bozimo, 2005). It is not surprising to discover typographical errors from the print-out copies.

6.   Another problem is the problem of digital preservation and Alegbeleye (2009) stressed that the difficulties in the preservation of digital information lies on the lifespan of the physical media where information is stored. The storage media can easily be fragile or broken and may have limited lifespan. Another threat to digital information lies on the fact that new devices, processes and software now replace the product and method used in recording, storing and retrieving digital information. The replacement of new devices with the old one due to the exceeding of lifetime renders the old devices useless or out of use. The integrity of records overtime has to do with the alteration of records in digital form. How are we sure that the digital records have not been altered? (Alegbeleye, 2009).

7.   Digital Divide: There is the problem of inequitable access to ICTs in the provision and utilization of library / information services. Digital divide can therefore be viewed in terms of the gap existing between people (whether world-wide, regional, national, community or institutional level) in terms of access to and use of technologies resulting from social, economic, content, education budgetary factors, etc (Mutula, 2008). Ahiauzu (2008) cited Ani, Esin and Edem (2005) that "there exists availability and utilization of ICTs in federal universities than their state counterparts"; this according to Fotoki (2007) is attributed to accessibility to international funding sources through grants. No wonder that while some university libraries in Nigeria are at faster rate of ICT implementation and development, others are still at the stage of either under-development or still providing traditional mode of library services.

8.   Problem of Digitization in Kenneth Dike Library, University of Ibadan

Among the problems encountered in conversion exercise by Kenneth Dike Library, University of Ibadan includes faulty system as some PCs were slow and inadequate. There was constant breakdown of the system. There was the problem of the retrieval of records being downloaded. The data entry clerks

could not meet up with the number of data expected to be entered on daily basis, though erratic power supply is a nation-wide problem. The problem of erratic power supply in Kenneth Dike Library (as at that time) lies not only on inability of the university library to own generator in case of NEPA failure but also the bureaucracy. The participants in the exercise complained of erratic power supply and were frustrated about the situation (Igbeka, 2005).

Conclusion

Based on the review of digitization projects and associated problems in Nigerian university libraries enumerated.

Researchers can now ascertain the areas that have already been studied in the post-graduate research thereby making extension of knowledge from where the former researcher stops. One can now access postgraduate researches on-line through the Association of African Universities (AAU) web site thereby minimizing duplication of researches.   The abstract to individual Postgraduate work usually contains the essential parts: introduction, methodology, data analysis, discussion, findings and recommendation. Abstract provide background information without necessarily reading through the entire Postgraduate works. The establishment of IDR is one aspect of building a digital library whereby local information resources are available in electronic form. The retrospective conversion exercise in Kenneth Dike Library which involves converting data from automated system to LC-MARC on CD-ROM is more or less like transferring the old wine to a new bottle.

Recommendations

Despite efforts made by Nigerian University Libraries to digitized theses and dissertations through various projects, the enumerated problems above slow down the projects. Having realized and identified the problems, the following recommendations are made:

1. In order to reduce the threat to hard copy theses and dissertations, curtains should be made available on windows and doors to avoid direct penetration of sunlight and entrance of pollutants such as smoke, dust and gaseous products from industries. Security method is the provision for safety of library collection using adequate burglary proofs on windows. There should be security men at the entrance and exit of library to monitor users coming and going out of library. Security alarm should be installed to detect fire outbreak and illegal removal of books out of library. (ELIS Vol.7 1972; Aina 2004; Madu and Adeniran 2005; Odogwu 2007).
2. Students should be made to submit both hard and softcopies with the electronic version preferably CDs;
3. Management of Nigerian Universities should provide adequate stand-by generating plants and make available to each University Library, in order to solve the problem of power failure.
4. While the current 10% university library budget be regular, they should source for external funding in the form of donations, foundation; assistance can be solicited from philanthropists, etc.
5. Management of Nigerian universities should organize timely ICT training programmes for all categories of library personnel.

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