Institutional Repository Activities in Kenneth Dike Library, University of Ibadan, Nigeria

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Research Article

ARTICLE INFORMATION

ABSTRACT

There is a glaring divide between institutional literature and the user community. Institutional Repository (IR) deals with bridging the gap between institutions' ever growing educational and research output, and the users of the materials for teaching/learning, research, decision making and societal advancement. According to literature, the pace of adoption of IR has been slow and quit uneven especially in the developing world with very few universities adopting IR in Nigeria. In the light of the innumerable benefits of institutional repository, Kenneth Dike Library has joined university libraries all over the world in the adoption of institutional repository. The paper examined the institutional repository of Kenneth Dike Library, University of Ibadan (UI) which is a Premier university in Nigeria. The study adopted survey method. Interview instrument was used for the study. The basic information about UI institutional repository development and management procedures were obtained through a face-to-face interview with some of the library's systems staff that are knowledgeable on the university's IR. The study identified the procedural activities in the IR development at Kenneth Dike Library (KDL), which include strategic planning of the project by UI library management, seeking for and obtaining the university management's approval, the adoption of in-house approach to digitization and management of IRs, and the continual digitization processes. Finally the study indicated some problems and solutions in the management of University of Ibadan IR project which could be of help to those institutions that are yet to establish IRs.

Keywords: Institutional Repositories; Digitization; Kenneth Dike Library; University of Ibadan; Nigeria.

I. Introduction

Nigeria has more universities than any country in Sub-Saharan Africa, with a total of 152 universities (NUC, 2018). These universities function as a focal point for academic research in the country, making the volume of research output originating from academic institutions and addressing local problems in Nigeria to be very high. Egwunyenga (2008) has attributed this to the fact that research is made compulsory for both lecturers and students either by job description or by prescribed academic program of study. Despite the increasing scholarly output, the visibility and impact of institutional research in Nigeria is still very low due to scholarly communication, like in other developing countries in Africa is mainly print based which has low visibility (Utulu and Bolarinwa, 2009). This has resulted in limited access to scholarly publications, as the cost of journals subscription is quite high coupled with inadequate funding of university libraries.

The emergence of Open Access Institutional Repository is a way of bridging the gap between institutional scholarly literature and access by the user community. Crow (2002) described institutional repositories as, "digital collections capturing and preserving the intellectual output of a single or multi-university community". That means that Institutional repository has a way of reducing the cost of scholarly publications and increasing the visibility and access of scholarly research output of the institutions by

hosting them in the institution's professional societies, or third-party provider's website. Crow continued that IRs provide a compelling response to two strategic issues facing academic institutions: they provide a central component in reforming scholarly communication by stimulating innovation in a disaggregated publishing structure; and they serve as tangible indicators of an institutions quality, thus increasing its visibility, prestige, and public value. An institutional repository can also be defined by the purpose that it serves, which is the capturing, collection, management and dissemination of the 'intellectual output of a single or multi-university community' (Markey, Rieh, Jean, Kim and Yakel, 2007).

Rieh (2007) reported that: "an IR provides access to those collections that no one would ever know that they exist. Another library staff member sounded even more excited in claiming that an institutional repository allows serendipitous discovery across disciplines that was not possible with print materials. It enables students to get their work around and beyond the boundaries of themselves and their professors. Rosenblum (2008) explained that an IR is a resource or a system that facilitates the capture, storage, preservation, and dissemination of an institution's intellectual outputs in an electronic form. Such outputs vary from one institution to the other, but often capture theses and dissertations, while others capture published papers, unpublished preprints, working papers, conference presentations, datasets, teaching materials, etc. Most institutional repositories include other grey literature which is usually difficult by their nature to access by researchers. IR therefore complements and boosts the library resources and services. Institutional repositories facilitate the development of universities' intellectual property policies; encourage faculty and administration perspective on such issues.

Lynch (2003) described a university-based IR as: a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organisational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organisation. Furthermore, Westell (2006) on his part said, "The institutional repository can provide excellent examples of initiatives that speak directly to research and scholarship. It can as well provide a rich set of data to illustrate the breadth and depth of research being carried out at the institution." Hence, Institutional repositories can greatly facilitate enhanced access to traditional scholarly content by empowering faculty to effectively use the new dissemination capabilities offered by the network.

Considering the enormous benefits of IR, institutions all over the world are embracing IR as a means of disseminating and preserving their intellectual output. OpenDOAR (2014) reported that at present, there are more than 3,370 open access institutional repositories listed in the directory of OA journals, DOAJ (www.doaj.org) maintained at the Lund University. The proportion of the repositories by continents is as follows: Europe – 1194 (46.1%); North America –527 (20.3%); Asia – 454 (17.5%); South America – 231 (8.9%); Africa – 95 (3.7%); Australia – 59 (2.3%); Caribbean – 15 (0.6%). As can be seen, Africa is lagging behind in the establishment of IRs.

II. Nigerian Universities and Institutional Repository

The OpenDOAR, (2014) reported a dismay record of adoption of IRs in Nigeria. Out of 95 open access institutional repositories in Africa, Nigeria has only 8 (7.9%) while South Africa has 28 (31.5%). The universities that are at various levels in their IR projects in Nigeria are: Ahmadu Bello University; Covenant University, Ota; Federal University of Technology, Akure; University of Ibadan, University of Jos; and University of Nigeria, Nsukka.

Recognising the significance of a new mode of access to data, academic libraries in Nigeria have taken the responsibility to automate their system. Funding organizations such as the Federal Ministry of Education in Nigeria has introduced the Virtual Library Project, which draws assets collectively electronically, connecting all the instructional libraries in Nigeria together, with the center at the National Universities Commission (Federal Ministry of Education 2000). The libraries that participated emerged as access factors to the universal information resources.

The international workshop held at Ahmadu Bello University Zaria in 2008, on open access repositories, in which Nigerian universities and research libraries were admonished to organise their scholarly output into institutional repositories with an intention to make their research works available both nationally and internationally through open access. This is in view of the numerous advantages open access offers. For instance, open access resources have carried out vital roles in scholar communities, particularly faculty members, who for their instructions had depended on information in library and information science; they have now extremely benefitted from open access resources. As readers, they used it as information source without the limitation of time, budget, and it does not require a journey to the library. Publishing in form of electronic, open access resources are predisposed to be quicker and accessibility is much less complicated than conventional materials; its users tend to get updated information covering broad subject areas, of course, including the focal area of Library and Information Science. Findings show that some of the faculty members used open access resources as teaching medium for conducting their lectures. It has been noted that the most frequently used journals are OAJ: 'Free Fulltext', 'D-Lib Magazine', and 'DOAJ (Directory of OAJ)' (40.3%, 15.9%, and 15.3%, respectively) (Tonta, 2008).

Bozimo (2008) and Okojie (2008) supported the call for open access through institutional repositories. Okojie opined that the paradigm would possibly make Nigerian researchers and librarians, gain advantage, leapfrog and become part of the global network of researchers. This is in consideration that whether through a consortium or through exclusive subscription, academic libraries acquire

and disseminate electronic portals and databases. The Consortium of Nigerian University Libraries (NULIB) has subscribed to EBSCOhost. The internet portals include Access to Global Online Research in Agriculture (AGORA), Health Internetwork Access to Research Initiatives (HINARI), Online Access to Research in the Environment (OARE), Database of African Theses and Dissertation (DATAD), and many offline databases such as MEDLINE. These are worldwide information sources which may be accessed through academic library gateways.

In Nigerian academic establishments, a leading position in digitising and supplying universal access has been demonstrated by University of Jos library. The National Universities Commission (2007) advocated that academic libraries must offer access to both print and digital resources in order to serve their clients better, to boast the visibility of their institutions, and as a measure of prestige. Anunobi and Okoye (2011) stated that "for Kashim Ibrahim library, Unesco's sponsorship of the heads of six University librarians to a workshop on the use of the Greenstone open source software, sparked the library's initial interest in digitization". They added that the digitisation of theses and dissertations at the libraries of Jos and the Obafemi Awolowo Universities, organized by the AAU-DATAD, provided a model for ABU to start the digitization of its post-graduate theses and dissertations. That means that training and bold/successful steps of some libraries will serve as important form of motivation for other libraries towards the establishment of IRs.

Preliminary findings revealed that there are only five universities with functioning open access IRs in Nigeria. They are Ahmadu Bello University, Zaria; Covenant University, Ota; Federal University of Technology, Akure; University of Jos; and University of Nigeria, Nsukka. There are a few other universities in Nigeria which might be at various stages in the establishment of IR. For instance, University of Ibadan, Federal University of Technology, Akure and Federal University, Oye-Ekiti have adopted Institutional Repositories but at various stages. It could be seen that the establishment of IR in Nigerian universities is relatively new, and at the developmental stage. The adoption rate is very low. There are few previous studies on IRs in universities in Nigeria (Christian, 2008; Nwokedi, 2011) and none of the studies has actually addressed the institutional repository activities at Kenneth Dike Library University of Ibadan, Nigeria which is the premier university in Nigeria.

III.   Objectives

The main objective of the study is to examine the institutional repository activities at Kenneth Dike Library, University of Ibadan, Nigeria.

The specific objectives are to find out:

1. The procedures used in the development of institutional repository at Kenneth Dike Library, University of Ibadan, Nigeria.
2. The digitization processes in the development of institutional repository at Kenneth Dike Library, University of Ibadan, Nigeria and

3. The problems encountered, and solutions put in place by the institutional repository managers of the project.

Research Questions

1. What are the the procedures used in the development of institutional repository at Kenneth Dike Library, University of Ibadan, Nigeria?
2. What are the the digitization processes in the development of institutional repository at Kenneth Dike Library, University of Ibadan, Nigeria?
3. What are the problems encountered and solutions put in place by the institutional repository managers of Kenneth Dike Library IR project?

IV.   Research Methodology

The study adopted survey method. Interview instrument was used for the work with observation. The researcher organized interview sections with the librarian and those who are in charge of the Institutional repository project at UI. The basic information about University of Ibadan IR development and procedures were obtained through a face-to-face interview with some library's systems personnel who are knowledgeable on the university's IR. They included the systems unit librarian, digitization Librarian and those involved in the digitization of materials in the library. A total of five library staff were interviewed. Questions were directed at the selected library staff. The questions sought information on identifying and determining the activities involved, the processes and procedures in the management of the IR as well as human resources /material implications necessary for the successful implementation and smooth running of the system.

V.   Results

Background Information of Kenneth Dike Library's Ir

This section deals with the profile of the library in study. Such background knowledge include the year of establishment of the Kenneth Dike Library, University of Ibadan the total collection size, time the institution started IR amongst others.

TABLE I
BACKGROUND INFORMATION OF KENNETH DIKE LIBRARY

Year of establishment	1948
Total collection size	Over 1,000,000
Time IR started	2014
Time ended (backlog)	On going
Number of staff	5
Number of computers	14
Number of scanners	12
Digital Camera	1

Table 1 indicates that Kenneth Dike Library started in 1948, with the establishment of University of Ibadan, the premier University in Nigeria. The collection size is well over one million. The finding revealed that U.I. institutional repository started in 2014. The staff strength used for the project consist of two library professionals and three IT staff, forming a team of five staff for the repository management. Presently, there are 14 computers, 12 scanners and one TIV Book Driver Professional Digital

camera. The staff is still battling with the digitization of the backlog of thesis and other grey materials in the library while faculty members are bringing in their post prints.

Research Question 1: What are the procedures used in the development of institutional repository at Kenneth Dike Library, University of Ibadan, Nigeria?

The activities involved in UI IR as narrated by the head of the section, is represented on Fig. 1.

Strategic planning by the management of UI library

⬇

Seeking for and getting the universities' management approval

⬇

Deployment of in-house approach to digitization/efficient vendors for the project

⬇

Selection of materials for digitization based on certain criteria,

⬇

Employment of a set of highly specialized skilled personnel

⬇

Purchase of good and efficient computer systems/server and internet connectivity

⬇

The adaptation of Macromedia fireworks software

⬇

Staff trainings to keep up with trends in the maintenance of IR

⬇

Awareness programmes.

From the flow chart, the procedural activities in the IR development at UI are grouped into stages. The starting stage was strategic planning of the project by UI library management, and getting the universities' management approval. This is followed by the decision on the approach to be adopted in the IR project, and eventual adoption of in-house approach to the digitization and management of IR system. This stage was preceded by good and efficient vendor deployment to ensure quality and the selection of the materials for digitization based on certain criteria.

Next was the recruitment of a set of highly specialised skilled personnel accompanied with appropriate trainings to manage the institutional repositories, and the procurement of equipment /software for the digitization process. This was coupled with the configuration of a good and efficient computer systems/server and internet connectivity. Finally, Awareness programmes were conducted to facilitate the use of the repository by the academics, students and other UI community members.

Research Question 2: What are the the digitization processes in the development of institutional repository at Kenneth Dike Library, University of Ibadan, Nigeria?

Tables 2 and 3 present the Digitization requirements and processes at Kenneth Dike Library as reported by the head digitization Section of the library.

TABLE II
DIGITIZATION EQUIPMENT, FORMAT OF DIGITIZED MATERIALS AND STANDARDS ON DIGITIZATION PRESERVATION

Equipment for digitization	Format of digitized materials	Standards on digitization preservation
Scanner	The Digital image formats used is colour	Digital documents generation (word processing)
Desktop Computer	File format is PDF	Database management
Digital Camera	Compression methods used are ZIP and WAR	Electronic format
Printer	File size obtained for compression-Mbytes	Imaging software (Photoshop and Fireworks)
CD-Rom	Average compression rate by image types- olour	Web development language
UPS		Web site development software
Wireless AP		Library management software.
Outdoor Radio Projector		

Table 2 presents the equipment used for digitization in KDL, the format of digitised materials and the standards on digitisation preservation. The equipment used for digitization in KDL are: twelve (12) Scanners, fourteen (14) Desktop computers, one (1) TIV Book Driver Professional Digital camera, Printer, CD-Rom, UPS, Wireless AP, Outdoor Radio, Projector. Digital image format used is coloured; File format is PDF, Compression methods used are ZIP and WAR. Again the File size obtained for compression is Mbytes, while the average compression rate by image is also coloured. As for the standards on digitisation preservation, KDL makes use of Digital documents generation, Database management, Imaging software, Audio recording software, Web development language, Web site development software and Library management software.
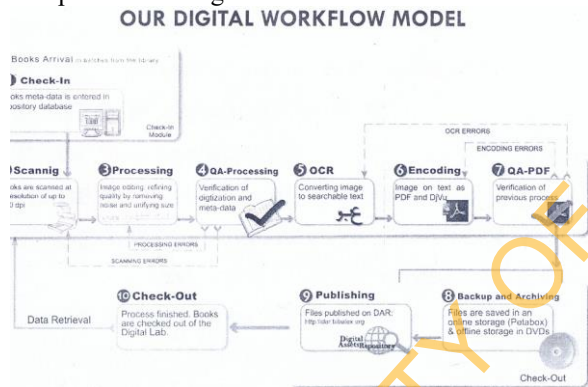
TABLE III
WORK PROCESS / PROCEDURE IN THE DIGITISATION OF MATERIALS FOR
IR IN KDL, UNIVERSITIES IN NIGERIA

Stages	Work procedure
Stage 1	Materials are moved to the digitisation chamber
Stage 2	Materials are scanned
Stage 3	Image editing
Stage 4	Generation of metadata
Stage 5	Converting image to searchable text
Stage 6	Converting to PDF
Stage 7	Verification of the previous processes
Stage 8	Storage: a. online- (Potabox) b. offline-Terabyte Storage Disk (TSD)
Stage 9	Materials are checked out of the chamber

Table 3 shows the work procedure in the digitization of materials for IR in KDL

The starting point in the process of digitization is the movement of materials to the digitisation chamber, where they are organized, scanned and edited. This stage is proceeded by the generation of metadata for each item and the conversion of image to searchable text and PDF. Furthermore, the previous processes are verified, before the materials' storage/ checking out are done. There are two types of storage systems: online storage ((Potabox)) and offline storage in Terabyte Storage Disk.

The Digital Workflow model for Kenneth Dike Library IR is represented in figure 2.

Research Question 3: What are the problems encountered in IR project and solutions put in place by the institutional repository managers for the IR project?

TABLE IV
PROBLEMS AND SOLUTIONS IN UNIVERSITY OF IBADAN IR PROJECT

Problems in UI IR project	Solutions
Academics/researchers are not fully yielded to submiting their works to IR	Awareness and advocacy through emails, universities bulletin and face to face interaction.
Inadequate professionals and technical staff	Not yet achieved
Copyright issues	Only open access publications are made open on the IR, while others are only forwarded to authors on request
Inadequate facilities and Power supply	Provision of a backup generator
Poor funding	TedFund intervention
Non written digitization policy	Not yet achieved
Preservation issues	Preservation is in terabytes
Issues in the submitted publications (Sometimes missing pages of some submitted works and faint duplicate copies)	Emails are sent to concerned persons

From the responses by the IR manager at UI during the interview session, there were various problems encountered in the development and sustenance of IR project in UI. The problems as highlighted in table 3 are as follow: academics/researchers are not fully yielded to submitting their works to IR; inadequate professionals and technical staff to manage the IR; Copyright issues; inadequate facilities and power supply occasioned by poor funding, and the non-existence of written IR policy. Finally there were some issues with preservation, as well as in the submitted publications for digitisation. For instance some of the copies of materials submitted for digization were not in good state for scanning.

Though KDL institutional repository managers are still battling with a few of the problems in the management of the IR, some means of solution have been attained. Such measures used to tackle the problem include: Awareness and advocacy programes on IR through emails, universities bulletin and face to face interaction with the lecturers. There is the provision of a backup generator to augment power supply. Again only open access publications are made open to users on the website. TetFund intervention in the procurement of facilities for IR, and the constant communication with authors where there is need to straighten issues with their publications.

VI. Discussions

The establishment of institutional repositories in universities in Nigeria is relatively new, and at the developmental stage. The University of Ibadan institutional repository started in 2014, with the repository section consisting of a team of competent staff: both professional and paraprofessionals. The staff of the section have appropriate ICT competence. The IR section is also furnished with appropriate facilities and equipment for the efficient running of the system. The equipment used in UI library for the digitization processes include: desktops, scanners, digital cameras, printers and server. Again the software options for IR were considered and Macromedia fireworks software was deployment due to the fact that it is an open source software, cheap, flexible, and easy to maintain.

The procedural activities in the IR development at UI are: strategic planning of the project by UI library management, management approval, deployment of in-house approach to the digitisation and management of IRs and the continual digitization processes. According to the respondents, in-house approach is more sustainable than using contractors, as it eliminates communication gaps that usually emerges between the vendors and IR managers, as well as enhances efficiency and low maintenance cost.

The starting point in the process of digitization is the movement of materials to the digitisation chamber, where they are organized, scanned and edited. The selection of the materials for digitization was made based on certain criteria such as:

- The historical value of the material
- The academic importance of the intellectual property

▪ The need to preserve the intellectual property of the university

▪ The need to save space

▪ Cultural values of the intellectual property and

▪ The need for increased access to the intellectual property

Editing of the scanned materials is necessary to ensured that they are preserved in good state. This stage is preceded by the generation of metadata for each item and the conversion of image to searchable text and PDF. Furthermore, the previous processes are verified, before the materials' storage or checking out are done. Though there are many besetting hindrances to the full development of the University of Ibadan IR, the challenges are being tackled and overcome.

Firstly, academics/researchers are not fully yielded to submitting their works to IR. This problem is being tackled with awareness and advocacy through emails, universities bulletin and face to face interaction with the faculty members on the need and benefits of IR.

Next is the issue of inadequate professionals and technical staff to manage the IR. Though the staff strength is still low, appropriate trainings are usually organized to enhance their professional and technical capacities respectively.

As regards the issues of Copyright, only open access publications are made open on the IR, while others are forwarded to authors on request. University of Ibadan IR is also hindered by inadequate facilities and power supply occasioned by poor funding. However, the TedFund intervention project has been very supportive in the procurement of some infrastructure for the sustenance of the system.

Another impediment to the efficiency of the system is the non existence of written policy, which spells out the submission process, IR content, data type, and preservation etc. Though there are guiding principles, but are not formally documented.

Finally there are preservation issues, as well as in the submitted publications (sometimes): It was reported that there were times, authors submit works with some missing pages and faint duplicate copies. To resolve this problem, preservation is done in terabytes, while authors are communicated on the issues with their works through the use of email, for ratification.

Conclusion

The deadly COVID-19 virus is still wreaking havoc around the globe. Unfortunately, we have observed the virus's unrestricted global spread. Information services appear to have been hampered. We need to think about dynamic, inventive approaches to improve information access, taking a cue from the pandemic's experience. Digital services allow for a larger number of users to be engaged at once, as well as a wider range of material. The functional capacity of human sensory organs plays a big role in information seeking. A human's natural method of acquiring information is through sight. Similarly, information resources for visually impaired people can only be useful if they are both readable and audible.

VII. Conclusion

The institutional repository at the University of Ibadan is still at the inception stage but making a tremendous progress. The repository is accessible to users and working efficiently and effectively. There is need for a written IR policy to be put in place, coupled with more awareness programmes in order to sensitize the university community on IR so as to ensure optimal support and contributions by the stakeholders.

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