



**A TETFUND INTERVENTION PROJECT ON DIGITIZATION OF THESES AND
DISSERTATIONS IN UNIVERSITY OF JOS LIBRARY: TOWARDS POPULATING
AN INSTITUTIONAL REPOSITORY**

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Submitted: 04/09/2023

Accepted: 03/10/2023

Published: 08/11/2023

ABSTRACT

Global adoption and usage of Information and Communication Technologies in every sphere of human lives have revolutionized the way daily activities are carried out. Among its various innovations is digitization and institutional repositories (IR). This study sets out to discuss staff experiences of digitization at the University of Jos Library; with a view to finding the nexus between the digitization project and University of Jos Institutional Repository. Qualitative research design was selected as the study design, and interview and participant observation were used to obtain the required data. Through interview with two past heads of Documents and Special Collections Sections of the Library, information about past digitization activities in the Section were obtained. Also, through interview with the University Librarian, the aim of the digitization project (as spelt out by TETFund) was obtained. As revealed in the interview, the aim is to collate in one location, the University's theses and dissertations in order to provide a wider accessibility to users. From the interview, it was revealed that due to copyright issues, only the abstracts of the digitized theses and dissertations are being uploaded into the IR for accessibility by users. Through participant observation the equipment being used for the project and



A TETFund Intervention Project on Digitization of Theses and Dissertations in University...

2

the procedure involved were revealed. Also, the challenges being encountered by staff during the digitization were revealed, to include network and ergonomics issues, as well as inconsistency in the submission of softcopies of theses and dissertations by the students. Based on the findings, it was recommended, among others, that a link should be provided by the Library on its website for the uploading of students completed theses or dissertations by their supervisors and permission to upload full texts of theses and dissertations of postgraduates should be sought by the postgraduate school.

Keywords: Library, Digitization, Institutional repository, Information and communication technologies, Theses and dissertations, Documents, Special Collections Section.

Introduction

Recent advancements in Information and Communication Technologies (ICTs), especially the Internet and Web-based technologies have brought significant changes in the ways information are generated, distributed, accessed and used. Prior to these developments, printed information resources were made available to users by publishers, booksellers, librarians and information scientists. With the introduction of Information Technology (IT), so many steps have been taken to reduce the efforts users put in to access information resources in a short time. As a result of this, librarians and information scientists today face unique situations on how to carry out their services, tied to modern policies that encompasses recent realities. This is because the use of ICTs is far more pervasive today than they were years back. This has changed the whole scenario of information landscape, as these technologies now play important roles in minimizing the problems rigidity encountered in accessing information resources, necessitating the automation of physical (tangible) information resources into soft or digital copies, to enhance their life span, viability and visibility. Thus, there are various aspects of ICT application in librarianship and digitization is one of them.

University of Jos Library was established in 1972. Today the Library comprises of a central Library known as the Naraguta Campus Library and other branch libraries, which are the Law Library, Bauchi Road Campus Library and Health Sciences Library (University of Jos, 2023). Like any other traditional library, the University of Jos Library consists of various sections. The Documents and Special Collections Section forms one of such sections. The Section was created in 1978. The Section serves as an archive because it houses some rare and unique documents. Thus, the Section could be described as the physical predecessor of the institution's repository. The documents in the Section are in closed access; hence users are not allowed to borrow them.

Some documents that are housed in the Section include undergraduate projects, theses and dissertations from the University, theses and dissertations from other universities submitted by staff that graduated from such universities, state and federal government publications, publications emanating from international organizations such as World Health Organization, and International Monetary Fund, publications of the University such as convocation brochure, inaugural lecture, and public lecture. The Documents and Special Collections Section started archiving theses and



A TETFund Intervention Project on Digitization of Theses and Dissertations in University...

3

dissertations as far back as 1995. Currently, the theses and dissertations available in the Section are those of all faculties in the University excluding the Faculty of Law, and Faculty of Health Sciences. The theses and dissertations of these two faculties are housed in the Law Library and Health Sciences Library respectively. At the onset of the digitization exercise, through head count, the statistics of theses and dissertations in the Section were approximately five thousand, one hundred and twenty-seven (5,127).

Review of Related Literature

Gupta (2020) defines digitization as the process of creating an electronic or digital representation of physical attributes or objects. From the view point of Gorensek and Kohont (2019), digitization is the process of converting analog data such as texts, images and videos, into electronic or digital format. According to Alghnimi and Chaudhry (2022), digitization has demonstrated its important role in academic libraries due to its ability to preserve historical and rare materials that are priceless and unique. Dhule (2018) mentions that digitization is a vital aspect of current universal information system. Otubelu and Ume (2015) explain that digitization of resources is fast becoming the standard among libraries as each library seeks to give its quota to the global information resource. They further mentioned that many libraries are digitizing materials which might be lost in the future such as research projects, old manuscripts, photo images, non-live musical recordings, analogue maps, government gazettes and other historical records.

This strengthens the benefits of digitization in academic libraries which includes its ability to allow users read unique or older documents without damage to the original documents (Otubelu & Ume, 2015), digitization of older documents usually makes the documents to be more accessible, digitization helps libraries to preserve endangered resources, it alleviates space constraint in libraries (Jagboro, Omotayo & Aboyade, 2012), it encourages collaboration among libraries (Momoh & Abubakar, 2019), offers solution for theft of library resources, especially in developing countries where libraries have no electronic security systems to prevent theft of their collections (Dhule, 2018).

There are three main reasons or aims for a digitization project which are top reserve endangered library resources from deterioration and subsequent extinction from the information and knowledge space, Improve the efficiency of information search mechanism to make it easier for users and improve access to library resources by providing the needed equipment and technical know-how to librarians and users (Otubelu & Ume, 2015). Jagboro, Omotayo and Aboyade (2012) mentioned the basic equipment, which could be used for digitization. These are computer systems, scanners such as handheld, flatbed, or advanced scanning machines such as Kirtas and SMA 2, camera phones, digital camera, Compact Disc (CD) or Digital Versatile Disc (DVD) writer, and printer.

The process of digitization involves the selection of materials, scanning, and saving the scanned documents into the computer. The scanned documents could be saved in different formats such as PDF, JPEG, and TIFF. They could also be trimmed or cropped before they are saved permanently. Furthermore, they could be written to CDs or DVDs, for usage and preservation by other libraries



A TETFund Intervention Project on Digitization of Theses and Dissertations in University...

4

that have no access to the Internet. A Content Management Software is necessary in order to make the scanned image accessible to users via the Internet (Jagboro, Omotayo & Aboyade, 2012). In the same vein, Dhule (2018) outlines the stages of a digitization project. The stages are policy making, policy endorsement from authority, planning, budgeting and monitoring, acquisition of suitable technology, legal/copyright issues, document selection criteria, document verification and Metadata (Dhule, 2018).

Jagboro, Omotayo and Aboyade (2012), note that the process of digitization in developing countries has been very challenging due to the fact that it has been slow and expensive. Pandey and Misra (2014) mention some common challenges encountered during digitization of library resources. They include funding, technical expertise, legal aspects, technophobia, constantly changing software and hardware, inadequate infrastructure, technological obsolesce, deterioration of digital media, emulation, and continuous migration (Pandey & Misra, 2014). Otubelu and Ume (2015) assert that the world is rapidly evolving and academic libraries are now responding to this global change by adopting digitization, Institutional Repositories (IRs), and digital library in their various institutions. Crow (2002) defines IR as digital collections that capture and preserve the scholarly outputs of universities. Lynch (2003) views IRs as services that universities offer to members of their communities, for the dissemination and management of digital resources created by the universities and their community members. IRs offer some benefits to institutions, academic libraries and their users.

Some of the benefits include the ability to collate research outputs that are fragmented across disciplines and departments (Akintunde, 2009), increase in the visibility of institutions, preservation of scholarly work, improve in the ranking of institutions, making it easier to attract grant funders, competent staff and students, centralization and storage of all types of institutional outputs, including unpublished literatures, they enable institutions to keep track of, and analyze research performance and they have the capacity to break down publisher's costs and permission barrier (Sucheth, 2021). These benefits increase in capacity and efficiency every time because digitization now makes several users access the same material the same time without hindrance. It also removes the problem of distance, as users do not have to travel to libraries that possess the hard copies of library materials before they can access and use such materials. By going online to access an institution's electronic library, the invisible is made visible electronically. Hence the need for the population of the University of Jos IR.

Methodology

Qualitative research design was selected as the research design for this study. Interview and participant observation were used to obtain the required data. Interview was conducted between the researchers and three staff of the library. Participant observation was used to document the whole process of the digitization.



A TETFund Intervention Project on Digitization of Theses and Dissertations in University...

5

Interview Reports

Prior to Digitization: TETfund Intervention Project

An interview with the University of Jos Librarian revealed that in February 2022, TETFund initiated a project across tertiary institutions in Nigeria aimed at digitization of theses and dissertations in their holdings. In March 2023, a letter was written to the University Librarian informing him about TETFund's intention to sponsor the digitization of theses and dissertation housed by the Documents and Special Collections Section of the Library. This sponsorship included the provision of three ASUS laptop computers, three Kontera Portable Document Scanner Devices, one Blue Gate UPS, one Buffalo Network Storage Device for back-up, as well as an Airtel network internet Router. The sponsorship also covered payment of stipends to the staff who are involved in the digitization process. According to the TETFund memo, as explained by the librarian, the scope of the project requires interaction with the institution's librarian with a view towards commencing the digitization of 2000 theses titles. The specific project scope is as follows:

1. Notification of institution of project commencement and kick-off meeting.
2. Assessing materials to be digitized and other necessary requirements.
3. Training of the personnel for the project.
4. Commencement of dematerialization exercise.

A resource person was later sent to the Library to train the staff of the Documents and Special Collections Section and also some staff of the Systems Section on how to use the handheld scanners. Training was carried out on 28th November, 2022 and it lasted for two hours. After the training, the University Librarian instructed that the digitization project should commence immediately. He further instructed that due to copyright issues, full texts of the theses and dissertations should be kept in a hard drive for possible future use, while the abstracts should be uploaded into the IR for accessibility by users. Currently, the IR is being managed by the Systems Unit staff of the Library. The content of the Repository includes journal articles, past question papers, conference proceedings, book chapters, abstracts of theses and dissertations and so forth. In addition, interviews were also conducted on two past heads of the Documents and Special Collections Section on the history of digitization in the section.

Table 1: Demographic Data of the Participants (Staff)

S/No. Gender Years spent as the Head of Documents and Special Collections Section

1	Female	2005-2010
2	Male	2016-2022

Table one shows the demographic data of the two past heads of Section. The table shows that one of the heads of section is a female while the other is a male. The table also shows that the female served as the sectional head for a period of five years, while the male served as the sectional head for a period of six years. As explained by the past female sectional head, digitization in the Section started with the Databases of African Theses and Dissertations



A TETFund Intervention Project on Digitization of Theses and Dissertations in University...

6

(DATAD) in 2008, which was under the Association of African Universities (AAU). She mentioned that part of the objectives of AAU was to make universities in Africa digitize their theses and dissertations. According to her, during that period, they were using Endnote software and Procite software for the project, and they normally send the digitized theses and dissertations to Ghana for uploading into the DATAD. She further mentioned that with the creation of the University's IR, they channeled their submissions from DATAD to the IR. As further explained by her, they usually upload both abstracts and full texts into the IR. Finally, she mentioned that when she was the sectional head, she published some articles concerning the digitization activities in the section.

The past male sectional head who before he became the sectional head, was a subordinate under the past female sectional head, confirmed the information that was provided by her concerning the past digitization activities in the Section. However, the past male sectional head added that there was a fire incident that happened in the library in 2013, which destroyed their server, scanners and computers that were being used for the digitization. He said that due to the fire incident, all the theses and dissertation they had digitized and uploaded into the IR were lost. Hence, they had to start afresh to digitize the theses and dissertations. He said that the new digitization project was ongoing before the TETUND intervention in 2022.

Based on these findings from the interviews, the University of Jos library decided to develop and adopt a first-of-its-kind Digitization procedure on the TETFund digitization project after the training organized by TETFund. To achieve this, a meeting was held in the Documents Section. During the meeting, it was agreed that each staff should digitize a minimum of two theses or dissertations per week. The equipment that are being used for the digitization are three scanners, three computers, flash drive, and hard drive. Below are the major procedures that were adopted for digitization of the theses and dissertations:

1. The first step was to develop a policy for the digitization process. A committee was set up for the policy development. The digitization policy that was developed by Jacksonville State University (2012), Mountain Province State Polytechnic College (nd), University College London (2023), and Western Illinois University Libraries (nd) were used as guidelines to develop a suitable policy for the Library. Based on the policy, only theses and dissertations will be digitized. Also, based on the policy, the full texts of the theses and dissertations will be digitized, but only the abstracts will be uploaded into the IR for wider accessibility through the Internet. However, due to copyright issues, the full texts will be stored in a hard drive and also in the Buffalo Network Storage Device for possible future use, when the copyright issues are fully resolved.
2. Based on the policy that was developed, the digitization will be systematically carried out. If there is any new submission of thesis or dissertation in the Documents Sections (without the electronic copy), the new submission will be digitized immediately before shelving the hard copy. But in the absence of new submission, the most recent theses and dissertations (which do not have electronic copies) in the Section will be digitized gradually. Each staff will be assigned the collection of theses and dissertations of a particular faculty to work on, starting from the most recent copies to dated copies.



A TETFund Intervention Project on Digitization of Theses and Dissertations in University...

7

3. Scanning of the theses and dissertations using Kupar software: this will be done from the title page to the last page of a specific thesis or dissertation. Each page will be captured; the page will then be cropped and saved. When a whole thesis or dissertation is captured, the staff will check the thesis or dissertation page by page for possible error such as missing pages or blurred texts. If there is any error, the error will be corrected before the document will be converted to PDF format using PDF 24 software. On the verso page of each hardcopy of digitized thesis or dissertation, the staff that carried out the digitization will indicate in writing that the thesis or dissertation has been digitized in order to avoid repetition of the process in future. The PDF version of the theses or dissertation will be kept in a folder on the desktop. At the end of every month, all the scanned theses and dissertations by various staff members will be collated by the staff assigned for that task using the flash drive or hard drive. After which the staff will upload the abstracts into the IR, while the full texts will be stored in the hard drive and in the Buffalo Network Storage Device.

Nexus between the Digitization Project and University of Jos Institutional Repository

The place of IR in housing digitized theses and dissertation, from the Documents Section of the Library is hinged to the fact that the IR has improved the idea of better documentation. The Section is now positioned for better visibility of its resources, not only to the immediate university community but to the global community. This means that presently, the University of Jos IR serves as an electronic version to the physical theses and dissertations in the Documents Section. Another pertinent aspect is that the physical resources in the Section have better chances of longevity in digital form.

Impact of the Digitization Project on the University of Jos Institutional Repository

As a result of this project, populating the IR with theses and dissertations generated from the Section has impacted the IR positively, thereby improving the visibility and utilization of the theses and dissertations by users. Another positive impact of the digitization is that the University of Jos has better chances in improved ranking from its present position in Nigeria, Africa and the world.

Challenges

In the Documents and Special Collections Section of the Library, the following are the major challenges that are being encountered by the staff during the digitization process:

1. Although full texts of theses and dissertations are being digitized, only their abstracts are uploaded into the IR. This is because the consents of the postgraduates have not been sought to enable the full texts to be uploaded into the IR.
2. Inconsistency in the submission of Compact Discs (CDs) that contain the soft copies of students' theses and dissertations by the postgraduates. This inconsistency gives rise to a situation whereby current submissions of hard copies of theses and dissertations that exist in born-digital format are still being digitized. Also, at times, some of the submitted CDs may not be accessible or may be empty.



A TETFund Intervention Project on Digitization of Theses and Dissertations in University... **8**

3. Power failure usually disrupts the scanning of the theses and dissertations by the staff that is using desktop computer in the Section.
4. Irregular internet connectivity usually affects the process of uploading the abstracts of the theses and dissertations into the IR.
5. Ergonomics issues at the computer workstations. The staff involved in the digitization usually experience eye strain, shoulder pain, back pain and general fatigue, especially during scanning of lengthy pages of theses and dissertations.
6. Lack of incentives to motivate staff. During the early stages of the digitization, little incentives were given to the staff that are involved in the exercise by TETFund. But afterward, the staff have not received any further incentives.

Way Forward

1. The permission to upload full texts of theses and dissertations of postgraduates should be sought by the postgraduate school. Uploading the full text of theses and dissertations into the IR will increase the visibility of the intellectual outputs of the University.
2. A link should be provided by the Library on its website, through which postgraduates' supervisors could upload their students completed theses or dissertations. By so doing, the time and energy of the staff involved in the digitization would be channeled towards digitizing dated theses and dissertations whose digital copies are not available.
3. The desktop in the Documents and Special Collections Section of the Library should be replaced by a laptop to prevent the disruption of the digitization process during power failure.
4. The internet connectivity in the Library should be regularized to allow the smooth uploading of the abstracts of the theses and dissertation into the IR.
5. The staff involved in the digitization should be encouraged to take short breaks during the digitization process. This will enable them observe some ergonomics principles at the computer work station such as exercising the body, and resting the eyes, shoulder and back.
6. The incentives that are supposed to be paid to the staff by TETFund should be paid regularly in order to motivate the staff to effectively digitize the theses and dissertations.

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9

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