INFLUENCE OF DIGITAL SKILLS ON DIGITAL RESOURCES PRESERVATION PRACTICES IN LADOKE AKINTOLA UNIVERSITY OF TECHNOLOGY LIBRARY, OGBOMOSHO, OYO STATE, NIGERIA

By

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CERTIFICATION

This is to certify that this project titled **"*Influence of Digital Skills on Digital Resources Preservation Practices in Ladoke Akintola University of Technology Library, Ogbomosho, Oyo State, Nigeria"*** by Jimioh Taoreed Olawale meet the regulations guiding the award in National Diploma in Kwara State Polytechnic Ilorin and is approved.

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DEDICATION

This project is dedicated to God for being my ultimate source of strength and inspiration. In Him, I derived all powers needed to live, weather the storms and become an embodiment of hope to myself and the people around me.

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Abstract

This study evaluates the influence of digital skills on digital resources preservation practices in Ladoke Akintola University of Technology Library, Ogbomosho, Oyo State, Nigeria. It adopts descriptive survey design and its population is 141 professional and para-professional staff of Ladoke Akintola University of Technology Library, Ogbomosho, Oyo State, Nigeria. 71 respondents were randomly selected to fill the questionnaire administered to them by the student researcher. Response rate for the questionnaire is 80.37%. This study reports that majority of the respondents possess the skills to search the web, library databases and creating and updating institutional OPAC. Furthermore, digital projects, theses and dissertations, journals, books, newspapers and OERs are the digital resources preserved through technology preservation, bit-stream copying/back-up and migration in the university libraries understudied. Results also showed that digital skills enhance productivity of the respondents with digital tools, improve their confidence to use digital technologies for work and learn and develop the abilities to create and share digital contents. Though, the respondents' opinions indicated that cost of purchasing digital tools needed for preservation, rapid obsolescence of digital media, poor understanding of the protocols, strategies and technologies involved digital preservation are the factors affecting their preservation of digital resources. This study concludes that digital skills are pivotal to the management and handling of digital resources in libraries and one of the areas digital skills are highly essential is digital resources preservation because the digital tools are sophisticated gadgets that require special knowledge before that can be appropriately preserved. One of the recommendations of this study is that management of Ladoke Akintola University of Technology Library, Ogbomosho should always fund their libraries adequately. This will make the libraries afford the cost of purchasing digital tools/media needed for preservation of digital resources.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Library is a repository of knowledge and a social institution saddled with the responsibility of disseminating knowledge to the people without any discrimination. Information collections are the priceless heritage of mankind as they preserve facts, ideas, thoughts, accomplishments and evidence of human development in multifarious areas, age and directions. Preserving intellectuals and cultural heritage become not only the academic commitment but also the moral responsibility of librarians, who are in charge since proper dissemination of library materials is only possible when the documents are in good and usable condition.

Preservation of deteriorating information materials in libraries become global phenomenon to which libraries must aggressively respond if the mission of meeting the information needs of their patrons would be achievable in the era of dwindling budgetary allocations of libraries. Deterioration of information materials is one of the basic challenges facing library materials which are prone to wear and tears, shrinkage, cracks, brittleness, warping, bio-infestation, discoloration, abrasion, hole, dust and dirt accumulation. External causes of deterioration of collections include poor handling or storage, theft or vandalism, fire and flood, pests, pollution, light and incorrect temperature and relative humidity (Alegbeleye, 2008; Walker, 2013).

Almost all library collections are organic in nature, so they are in need of preservation. Books and other materials suffer damage or deterioration because of several factors, some inherent in the materials and others beyond the control of the library. Each type of paper material, glue, plastic that goes into the manufacturing of a book, recording or optical media has its own combination of physical and chemical properties, and a life span. The other factors include all the condition surrounding the processing, storage and the use of materials. The deterioration of information material is caused by either inherent chemical instability of the materials or the external environmental factor (Akussah, 2013). To avoid these heavy loose of materials in the library, preservation practice become very important and germane.

The major development taking place in library and information centres today are the wide spread availability and use of various kinds of digital learning resources. Digital resources have increasingly become the focus of research and development of any institution in the recent years. The commonly available digital resources namely CD/ROMS, OPACs, web data bases, internet and other networked information resources are competing with, and in some instances replacing the print-based information sources, which have been in place for centuries as the primary medium for storage and communication of recorded information.

The term digital resources refer to information accessed through electronic sources like internet. Unlike print information resources, digital resources are not limited by location or time. Libraries have changed with the emergence and application of information technology (IT). Libraries have assumed the role of educators/teaching users to find, evaluate and use information both in libraries and over electronic networks. As the use of digital resources continues to soar, users are expected to develop digital literacy skills. These skills will enable users to make efficient and effective use of information sources.

As the digitization becomes part of everyday life, policy makers have developed a range of initiative to try to ensure that all individuals have access to digital contents to benefit from a wide range of online learning, employment, networking, and informational opportunities. Simultaneously, academic research in this field has proliferated rapidly and will now have a great deal of research that demonstrates the complexity of factors that helps us understand how and why people use the digital resources.

Digital skills is considered an important driver of quality and efficiency in library operations. Most library service and operations are facilitated by technology applications such as web-based catalogues, integrated library software (LIS), mobile applications of social media, multimedia, cloud competing applications and so on. These advancements have led to library automation and creating digital and virtual libraries and therefore flexibly redefining library operations and services (Kowalczyk, 2018). Digital skills provide new opportunity for the library. It's provides easy access to information and services without time and location limitation. It's also allows different users to engage with library service and resources using different electronic equipment, devices, systems and materials that produce, store or disseminate information (Tiemo, 2019).

Digital skills are necessary to work and manage digital resources and services. Accordingly, there is an urgent need for assessing the level of digital skills among librarians at academic libraries in Kwara State university library. It is also important to investigate the influence of digital skills on technology acceptance among librarians. Most importantly, the level of digital skills positively influence the librarian's acceptance and use of technology. It was noted that factors such as sex, age, experience, specialization and library type had no effect or result over digital skills acquisition.

Gui and Argentine (2011) suggested that librarians need to possess digital skills. These skills include knowledge of the basic principles of computing devices; skills in using computer networks; the ability to engage in online communities (virtual communities) and social network; the ability to find, capture and evaluate information and also processing critical thinking skills. Digital skills are necessary for resources management and make them available for use all the time. It describe the information and communication technology competence that are needed by librarians in order to improve individual participation in digital skill economy.

In library context, digital skills metadata/tag, Photoshop, installation and managing library software, creation of intuitional repositories, managing library consortium, library networking, barcode and radio frequency identification (RFID) technology and website design (Seena & Pillai, 2014). Librarians need to master these skills, as it will enable them to manage library technology infrastructures and online resources. They also need to make informed decision relative to technology adoption (Izuagbe et al., 2019). Accordingly, librarians need skills for sharing digital preservations, social networking, searching the internet, instant messaging, blogging and other digital related oriented activities.

Digital skills are the ability to effectively perform tasks in digital environment's and use digital tools, communication tools, or networks in computerized environment (Chinien & Boutin, 2011) to locate, evaluate, use and create information. Okeji et al. (2019); Shank and Bell (2011) affirmed that digital skills are the ability to understand the use information in multiple formats from wide range of sources through computers. It is also the ability to read and interpret media, to produce data and images through digital manipulation, and to evaluate and apply new knowledge gained from digital environments (Okeji et al., 2019).

It is now common knowledge that digital information is fragile in a way that differ from traditional technologies, such as papers. The fact that information is increasingly stored in digital form has led to an accelerated search for effective method of managing digital information resources. The huge and ever expanding multiple sources of information on Web normally contain special formatting and are produced with a variety of software in different versions. If the original digital resources is not "born digital", it may be a digital representation of digital surrogate of the physical medium, e.g. page of text, an object, a pointing, a photograph, sculpture, a song, a movie and the likes. The persistence of digital information resources is an important factor for any digital library development. Addressing the preservation and long-term access issue for digital resources is one of the key challenges facing libraries and information centre today. In order to make sense of the high heterogeneity that exist among digital resources, a growing body of research has attempted to deal with the problem associated with the volume and nature of information on the web and to look into ways to achieve consensus on a standard.

1.2 Statement of the Problem

Digital resources preservation practices are sets of actions taken to avoid damages or destructions of information resources in electronic formats, which are accessible through internet-connected computers or other electronic devices. Also, the optimal handling of digital resources required a set of skills for the confident and critical usage of the full range of digital technologies for information, communication and basic problem-solving in all aspects of life (Tiemo, 2019). Possession of digital skills enhances the preservation of digital resources.

However, Alegbeleye (2013) and Kowalczyk (2018) have established that problems such as inadequate protection or security of digital information, lack of proficiency with the technicality of digital information, lack of awareness of digital resources, quick obsolescence of technologies used for digital information, technophobia, poor technological efficacy of library personnel amongst others have become germane obstacles to the efficient handling and effective usage of digital resources in libraries.

The above submission thus creates the need for this study to evaluate influence of digital skills on digital resources preservation practices in Ladoke Akintola University of Technology Library, Ogbomosho, Oyo State, Nigeria.

1.3 Research Objectives

This study will be guided by both broad and specific objectives. The general objective is to evaluate the influence of digital skills on digital resources preservation practices in Ladoke Akintola University of Technology Library, Ogbomosho, Oyo State, Nigeria.

The specific objectives are to:

1. Find out the digital skills possessed by staff of Ladoke Akintola University of Technology Library, Ogbomosho,
2. Find out the digital resources preserved in Ladoke Akintola University of Technology Library, Ogbomosho,
3. Examine the methods of preserving digital resources in Ladoke Akintola University of Technology Library, Ogbomosho,
4. Examine the benefits of digital skills on preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho, and;
5. Examine the factors affecting the preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho.

1.4 Research Questions

This study will aim to answer the following questions:

1. What are the digital skills possessed by staff of Ladoke Akintola University of Technology Library, Ogbomosho?
2. What are the digital resources preserved in Ladoke Akintola University of Technology Library, Ogbomosho?
3. What are the methods of preserving digital resources in Ladoke Akintola University of Technology Library, Ogbomosho?
4. What are the benefits of digital skills on preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho?
5. What are the factors affecting the preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho?

1.5 Significance of the Study

This study will be important to the aspect of digitization in the field of Library and Information Science by contributing to the existing literature and also reveal the state-of-the-art of digital skills and digital resources preservation practices in academic libraries. Also, it will reveal the digital resources available in academic libraries and the methods or strategies followed to preserve those resources.

Specifically, the management of university libraries will benefit from this study by knowing the digital skills possessed by its personnel and discover the necessity of investing in the digital skills of its personnel, so that the preservation practices of digital resources will be enhanced and effective.

Furthermore, this study will be of high significance to the personnel of academic libraries by exposing them to the digital skills they can acquire and equip themselves with in order to efficiently and effectively discharge digital services to the library users.

1.6 Scope and Limitations of the Study

This study will be concerned with digital skills and digital resources preservation practices in academic libraries, with a focus on Ladoke Akintola University of Technology Library, Ogbomosho, Oyo State, Nigeria. Hence, the professional and para-professional staff of the libraries will be respondents that will provide data that will be used to answer the questions posed by this study.

1.7 Operational Definition of Terms

Digital skills: These are sets of abilities or competences possessed to manage, handle, operate and preserve digital resources in Ladoke Akintola University of Technology Library, Ogbomosho.

Digital resources: These are resources that are technologically or electronically-aided, which their management, handling, operations and preservations in Ladoke Akintola University of Technology Library, Ogbomosho required a set of skills or abilities.

Digital resources preservation: These are sets of consistent procedures, steps, measures or actions taken to avoid damages or destructions of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho.

Ladoke Akintola University of Technology Library, Ogbomosho: This is an academic library established and owned by Ladoke Akintola University of Technology Ogbomosho, to provide digital resources to support its teaching, research and learning activities based on the digital skills and digital preservation practices it adopts.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter is structured to review positions, assertions, statements, opinions and conclusions of scholars and researchers on the subject understudying. Kolawole and Ijiebor (2018) posited that review of related literature involves the collection of ideas, views, positions and opinions expressed in various writings of recognized authorities as well as findings of previous researches in ones area of investigation.

Literature review can be best understood by arranging relevant topics in order of importance or seniority. Therefore, this chapter will be arranged in the following order:

2.2 Concept of Digitization

2.3 Digital Skills and its Aspect

2.4 Some Digital Resources Preserved

2.5 Digital Preservation Methods

2.6 Benefits of Digital Skills on Preservation of Digital Resources

2.7 Factors Affecting Preservation of Digital Resources

2.8 Summary of the Literature Reviewed

2.2 Concept of Digitization

Digitization is a discrete unit of information in electronic form. Digitization results to digital objects, which can be a representation, file, bitstream, or filestream (Library of Congress, 2012). It is an entity with one or more content files united (physically and/or logically, through the use of a digital wrapper) to their corresponding metadata. Digitization also involves information resources that have been digitally encoded and integrated with metadata to support discovery, use, and storage.

Singh (2016) defined digitization as means of acquiring, converting, storing and providing information in a computer format that is standardized, organised and available on demand from common system. Digitization is the process used to capture an analogue signal into a digital form (Bandi, Angadi & Shivarama, 2015). It involves the making of an electronic version of a 'real world' object or event, enabling the object to be stored, displayed and manipulated on a computer and disseminated over networks and/or the World Wide Web.

Sahoo and Mohanty (2015) explained that digitization is an offspring of the technological innovation has emerged as a viable tool for long-term access to the documentary heritage. Digitization of manuscripts promises documentation and preservation of original texts and at the same time facilitates greater access for scholars and researchers. Akinwale (2012) submitted that digitization is often based on two main perspectives which are library-oriented and cultural heritage-oriented approaches. He explains that the first perspective portrays digitization in terms of the system of knowledge in relation to digital libraries, while the second perspective is primarily based on communication of memory.

Seifi (2014) noted that digitization has become a practical necessity and reality with technological interventions to provide improved access to information resources, preservation and dissemination as required anywhere at any time. Successful digitization could lead to some hundreds of millions of easily and freely combinable digital resources of cultural heritage, which may or may not replace traditional museums, archives and libraries (Loebbecke & Thaller, 2011). Roy (2015) affirmed that digitization and the Internet have combined to produce both the possibility of greater access to collections, as well as a new set of tensions for communities who wish to gain some control over the classification of, access to, and cultural protocols for the circulation of digital resources.

Digitization is well suited to meeting the needs of digital scholarship by providing technical services across diverse disciplines, and thus facilitating dialogue; furthermore also in promoting ideals such as open access and digital preservation, and championing scholarly and pedagogical innovation (Roy, 2015). Its evolution has encouraged data management and data curation, enabled a fluency with topics such as repositories, web publication and information-sharing practices, descriptive standards, metadata formats and the plethora of different file formats that characterise digital data.

Many scholars and researchers have studied the importance of digitization and they agreed that it promotes access to manuscripts, preservation in a longer lasting medium, access the information and digital resources 24X7 anywhere, multiple users can access the information simultaneously anytime instantly, reduce handling of very fragile or frequently used original manuscripts, maintain historical value of information and preserve and conserve the national cultural heritage.

2.3 Digital Skills and its Aspect

Digital competence means the skills associated with using technology to enable users to find, evaluate, organize, create, and communicate information; and developing digital citizenship and the responsible use of technology (Vanek, 2017). Digital competence is much more than proficiency with discrete computer skills. Certainly, digital competence are critical; however, the crux of what is meant by digital competence is the recognition of the skills relevance in specific contexts and one's ability to creatively apply digital resources (Jacobs & Castek, 2018).

Spires and Bartlett (2012) have divided the various intellectual processes associated with digital competence into three categories: (a) locating and consuming digital content, (b) creating digital content, and (c) communicating digital content. Digital competence is often referred to as one monolithic construct; but it is really one that encompasses several groups of competencies. In their foundational work on the topic, Lankshear and Knobel (as cited in Vanek, 2017) suggested that successful functioning in digital spaces and with digital media requires a plurality of proficiencies, starting with text literacy and technical skills and extending to include the cognitive and sociocultural strengths.

Digital skills involve any number of digital reading and writing techniques across multiple media forms, including: words, texts, visual displays, motion graphics, audio, video, and multimodal forms. Gbaje (2013) posited that digital skill has become an inevitable quality for librarians and information practitioners in 21st century. She stressed that Library and Information Services in this digital era are increasingly technologically driven, thereby changing the way library provides its services. To effectively work in the digital work environment, librarians require re-training with the skills, knowledge, and experience that will enable them to manage digital information resources and services.

Bin Hashim and Mokhtar (2014) asserted that new technological changes are affecting the field of library science and information systems. Just like any other fields are shifting, the roles of a librarian from simply being a book keeper to a dynamic agent that brings together information from different sources and makes it available for the users. Librarians in the new era are required to play different roles that demand the presence of various skills including managing digital information system within a library.

The need for digital skills for the library staff in general is becoming extremely essential to face this ever-changing technology. Training librarians to be digitally competent can be required at three levels: baseline, desired and target levels. The baseline information includes general competence such as turning on the computer, familiarity with the basic operations of computers, turning on printers and adding paper, knowing how to open browsers and use menu bars, sending and receiving emails, and search engines. The desired level includes competence are a little more advanced than the basic level, but are not as developed as those in the target level, which include knowledge of downloading files, cookies and general security issues. These skills include knowledge of metadata, database development, digital archiving and preservation, collection development and content management system (Hamada & Stavridi, 2014).

Gbaje (2013) submitted that digital competence include knowledge and skills that are relevant for librarians to effectively work in the digital environment. The competence must include a certain degree of knowledge and skills in information technology. In order to disseminate knowledge and information available in all current formats: print and electronic, the new era librarians are required to understand the need to learn more about new technologies and be comfortable using them in order to perform their utmost role, which is to organize the vast amount of information and resources in a way that is conveniently accessible to library users (Bin Hashim & Mokhtar, 2014).

Bin Hashim and Mokhtar (2014) and Gbaje (2013) highlighted e-mail management skills, word processing skills, database management skills, spreadsheet skills, competence to use presentation software, use of portable document format (PDF) software, web searching skills, searching library databases, using an Integrated Library System (Virtua/Alice for Windows etc.), use of digitization software (Greenstone/Dspace, etc.), installing Printer, scanner and computer systems, use of digital camera for digitization and web navigation skills.

Others are, teaching others to use technology, file management/operating system navigation skills, CD-ROM/DVD search, using scanners and similar devices, troubleshoot printing problems, creating online instructional materials/products, how to cite and evaluate Internet resources, installing software, web design, security of digital resources, connecting patrons laptop to the library wireless, graphic design, creating and updating Institutional OPAC, and network management.

2.4 Some Digital Resources Preserved

Libraries all over the world possessed a wide variety of digital resources. The digital resources form an essential part of the services provided by libraries in the modern era. The digital resources include texts, photos, audios, videos and graphics in electronic form. Jonathan and Udo (2015) have identified the following digital resources:

1. **E-Journals:** Electronic journals are the counterparts of the print journals. They are periodical publications published in electronic format, usually on the Internet or whose contents can be accessed through computers or other electronic means. Electronic journals have several advantages over traditional printed journals. Users can search the contents pages and/or the full text of journals to find articles on a certain subject, users can read journal articles on their desktops, users don't have to be in the library physically, users can e-mail articles to themselves or download them for printing, articles users want to read will always be available, even when the library is closed, hypertext links allow users to move to different sections within individual journals or articles and can link users to related resources on the Internet, journals can include more images and audio-visual material, reading e-journals can be interactive because users can e-mail the author or editor with their comments (SOAS Library, 2022).

2. **E-Books:** E-books are the electronic version of the print books we read. As we have physical books on fiction and non-fictional works, we also have e-books containing fictional and non-fictional information. The fictional e-books contain works of imaginations of their authors, while the non-fictional e-books focus on real life issues written on a particular subject. Publishers have found the publication of e-books cost-

effective and most of them are now publishing e-book version to expand the readability and user access to their publications (Adenariwo & Sulyman, 2022).

3. **E-Newspapers:** These are information resources containing news, articles, commentaries, editorials, advertorials, etc., that are disseminated to the public. The evolution of ICT has facilitated the publishing of newspapers in electronic format. Some newspapers use URLs to make their newspapers available where readers can visit their website and be surfing through their webpages to read the news that interests readers. On the other hand, some newspapers also use word format, pdf format or FTP to report news to their readers (Nwokedi & Emeghara, 2015).

4. **E-Reference Books:** These are electronic versions of information resources that are meant for consultations and not meant to be read from page to pages. These resources include e-directories, e-dictionaries, e-abstracts, e-indexes, e-bibliographies, etc (Amadi & Igwe, 2015; Peterson, 2022).

5. **E-Theses, Projects and Dissertations:** These are electronic versions of academic publications required by tertiary institutions of learning to be published by students as a requirement in partial fulfillment of a particular course of study and thereby justifying their qualification for earning a degree certificate in the taken course. Dissertations are meant to be written by MSc students, while theses are meant to be written by doctoral students.

6. **Databases:** Databases are a systematic collection of data that support electronic storage and manipulation of data. Databases make data management easy. There are many types of databases. Among them are: distributed, network, hierarchical, object-oriented, relational, centralised, open-source, cloud, data warehouse, graph, personal, multi-modal, etc. (Peterson, 2022).

7. **CDs/VCDs/DVDs:** These are known as compact discs, video compact discs and digital versatile discs respectively. They are storage devices with varied storage capabilities of storing electronic information. These storage media can contain information such as

videos, audios, pictures and files. The information they can contain is determined by their storage capacities.

8. **Websites:** This is the World Wide Web that contains hyperlinks of related web information resources by educational institutions, cooperate individuals, government, company, organisations, professional bodies and others available online. Website can be accessed with the aid of Internet, Uniform Resource Locator (URL) or intranet (Ikenwe & Udem, 2022).

9. **Online Public Access Catalogues (OPACs):** OPACs are electronic versions of library catalogues that contain bibliographic details of information materials housed by different libraries (Ikenwe & Udem, 2022).

10. **Institutional Repositories (IRs):** According to Crow (as cited in Nwokedi and Emeghara, 2015) institutional repositories are digital collections used for capturing and preserving the intellectual output of a single or multi-university community. Institutional Repositories are 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. Some scholarly publications that can be uploaded into repositories include preprints and post-prints of journal articles, technical reports, theses and dissertations, work in progress, conference proceedings, teaching and learning materials. There are a number of open source software for running IRs such as Dspace, Eprints, Fedora and Greenstone.

11. **Open Educational Resources:** These are web-based educational resources that are freely available on the Internet for use by all in the society. The OER, typically refers to as online resources, including those in multimedia formats are information materials generally released under a creative commons or similar license that supports open use of the contents in online, e-learning or hybrid environments. They can originate from colleges and universities, libraries, archival organizations, government agencies, commercial organizations such as publishers, or faculty or other individuals who develop educational resources and are willing to share with the public (Amadi & Igwe, 2015).

12. **Virtual Libraries:** Virtual library refers to an information service or collection of electronic resources whose collections are entirely in virtual or digital form and information is accessed over a network. Such a library provides access to virtual indexes, catalogues, and books.

13. **Open Access Repositories:** Open access is interested in the free availability of scholarly outputs on the Internet granting the user to make legal and non-commercial use of the document and at the same time acknowledging the intellectual ownership of the author of the document (Jonathan & Udo, 2015).

14. **Federated Search:** This is a technology that came into existence as a result of the desire by database and digital resource subscribers to search and retrieve resources from multiple and disparate sources on a single interface (Breeding, 2017).

2.5 Digital Preservation Methods

The term "digital preservation methods" refers to ways or patterns of protection of materials that are created originally in digital form and never existed in print or analogue form (also called "born digital") as well as those converted from heritage documents and artefacts (printed documents, pictures, photographs or physical objects) into images using scanners, digital cameras, or other imaging technologies for access and preservation purposes (Rathika, Muthuvennila & Thanuskodi, 2020).

The importance of digital preservation practices cannot be overemphasized because they are aimed at protecting digital resources for future use (Singh, 2016). Digital preservation practices involved numerous ways of maintaining the good conditions of digital information materials. According to the UKOLN (2011), digital preservation practices are the management of digital information over time. It takes the form of processes and activities that ensure continued access to information and all kinds of records, both scientific and cultural heritage, that exist in digital form.

The aim of digital preservation is long-term, error-free storage of digital information, with the means of retrieval and interpretation, for the period of time that information is required. IFLA Strategic Programme on Preservation and Conservation (PAC) (2015) posited that digital preservation practices are essential to the survival and development of digital culture and

scholarship. These practices will aid the reduction of damages or deterioration or digital information resources caused by changes in climatic conditions, bio-deterioration and also by constant handling (Sahoo & Mohanty, 2015).

Cornell University (2015) argues that digital preservation practices focused on the long term. These practices, therefore, are not limited to storage and backup; rather it involves multifaceted strategies aimed at providing a trusted environment (covering authenticity, integrity, long-term access, security issues) where digital information resources can evolve along with the changes in technology, hardware and software. Rathika, Muthuvenilla and Thanuskodi (2018) posited that digital preservation method begins with digital image processing (DIP), electronic filing system (EFS) and document management system (DMS).

Castagne (2013) asserted that the continuous evolution of digital resources have called for sophisticated techniques for digital preservation such as emulation, migration, and cultivation. However, each of the digital preservation practices have unique pros and cons. Though, migration continues to be a successful strategy in providing long-term access to static digital objects, this approach has proved less successful in preserving dynamic digital objects. Chadha (2014) highlighted bit-stream copying, refreshing, replication, migration, emulation, data abstraction and structuring, encapsulation and cannibalization.

1. **Bit-stream Copying:** This is also known as "backing up data." It refers to the process of making an exact duplicate of a digital object. It deals only with the question of data loss due to hardware and media failure, whether resulting from normal malfunctioning and decay, malicious destruction or natural disaster. It is considered the minimum maintenance strategy for even the most lightly valued, ephemeral data.
2. **Refreshing:** This means copying digital information from one long-term storage medium to another of the same type, with no change whatsoever in the bit-stream (e.g. from an older CD-RW to a new CD-RW). "Modified refreshing" is the copying to another medium of a similar type with no change in the bit-pattern that is of concern to the application and operating system using the data, e.g. from a QIC tape to a 4mm tape; or from a 100 MB Zip disk to a 750 MB Zip disk. Refreshing is a necessary component of any successful digital preservation project. It potentially addresses both decay and obsolescence issues related to the storage media.

3. **Replication:** This is used to represent multiple digital preservation strategies. Bit-stream copying is a form of replication. LOCKSS (Lots of Copies Keeps Stuff Safe) is a consortia form of replication, while peer-to-peer data trading is an open, free-market form of replication. The intention of replication is to enhance the longevity of digital documents while maintaining their authenticity and integrity through copying and the use of multiple storage locations.
4. **Technology Preservation:** This is based on keeping and maintaining the technical environment that is used for creation of contents including operating systems, original application software, media drives, etc. It is sometimes called the "computer museum" solution. In other words, technological preservation becomes applicable to digital materials that are left on obsolete storage media and hardware and software required to access them are discarded. Technology preservation is more of a disaster recovery strategy for use on digital objects that have not been subjected to a proper digital preservation strategy.
5. **Backwards Compatibility and Version Migration:** This strategy relies on the ability of current versions of software to interpret and present digital material created with previous versions of the same software and to save them in current format. In the case of backwards compatibility, the presentation may be limited to temporary viewing, whereas version migration permanently converts documents into a format that can be presented by the current version of the software.
6. **Migration:** Migration is a broader and richer concept of digital preservation than "refreshing." Migration is a set of organized tasks designed to achieve the periodic transfer of digital materials from one hardware/software configuration to another, or from one generation of computer technology to a subsequent generation. Migration includes refreshing as a means of digital preservation but differs from it in the sense that it is not always possible to make an exact digital copy or replica of a database or other information object as hardware and software change and still maintain the compatibility of the object with the new generation of technology. The purpose of migration is to preserve the integrity of digital objects and to retain the ability for clients to retrieve, display, and otherwise use them in the face of constantly changing technology (Singh, 2016).

7. **Viewers and Migration at the Point of Access:** Migration or providing viewing facility at the point of access has been proposed as an alternative to recurring and incremental migration. The process involves use of appropriate viewers, software tools or transformation methods that provide accessibility at the time of access, using the original data stream. For example: The VERS strategy converts documents to a PDF format on the basis that third party viewers for PDF may be constructed from the format specification.
8. **Cannibalization:** This is a technique designed to allow determination of whether the essential characteristics of a document have remained intact through a conversion from one format to another. Cannibalization relies on the creation of a representation of a type of digital object that conveys all its key aspects in a highly deterministic manner. Once created, this form could be used to algorithmically verify that a converted file has not lost any of its essence (Chadha, 2014).
9. **Emulation:** This uses a special type of software called an emulator to translate instructions from original software to execute on new platforms. The old software is said to run "in emulation" on newer platforms. This method attempts to simplify digital preservation by eliminating the need to keep old hardware working. Emulation combines software and hardware to reproduce in all essential characteristics the performance of another computer of a different design, allowing programs or media designed for a particular environment to operate in a different, usually newer environment. Emulation requires the creation of emulator programs that translate code and instructions from one computing environment
10. **Investment Strategies:** Investment preservation strategies involve investment of efforts at the time of archiving digital materials. Such strategies include: Restricting formats and standards, reliance on standards, data abstraction and structuring, encapsulation, software re-engineering and universal virtual computer.
11. **Analogue Backups:** This combines the conversion of digital objects into analogue form with the use of durable analogue media, e.g., taking high-quality printouts or the creation of silver halide microfilm from digital images. An analogue copy of a digital object can, in some respects, preserve its content and protect it from obsolescence, without sacrificing any digital qualities, including sharability and lossless transferability.

12. **Digital Archaeology:** This includes methods and procedures to rescue content from damaged media or from obsolete or damaged hardware and software environments. Digital archaeology is explicitly an emergency recovery strategy and usually involves specialized techniques to recover bit-streams from media that has been rendered unreadable, either due to physical damage or hardware failure.
13. **Software Re-engineering:** Digital materials are mostly tied to the application software used for creating them. The application software, in turn, are dependent on a specific system or platform in order to function. Application software get most affected by changes in technology. Moreover, they are also usually unsuited for preservation strategies, including regular migration.
14. **Universal Virtual Computer:** Universal Virtual Computer is a form of emulation. It requires development of a computer program independent of any existing hardware or software that could simulate the basic architecture of every computer since the beginning, including memory, a sequence of registers, and rules for how to move information among them. Users could create and save digital files using the application software of their choice, but all files would also be backed up in a way that could be read by the universal computer.

2.6 Benefits of Digital Skills on Preservation of Digital Resources

Digital competence combines series of abilities that empower and equip library staff. Roy (2015), Singh (2016) noted that digital skill is beneficial to preservation of digital resources in the following ways:

1. **Understand the protocols surrounding the handling of digital resources:** Digital competence is essential to understanding the efficient handling of digital resources by enabling library personnel know the procedure guiding the use and conditions to be followed when handling digital resources.
2. **Equips libraries' staff with skills required to create and share digital contents:** Digital competence helps libraries' personnel in the preservation of digital resources by enabling them to know the right digital tools they can use to create digital contents and also share such contents. This will minimise stressing digital tools to perform tasks they are not designed for.

3. **Allow libraries' staff to collaborate globally and instantaneously:** Digital competence helps libraries' personnel with the skills of collaborating globally in order to be exposed to the trends and practices associated with digital tools and resources. This enhances their preservation of digital tools and resources.
4. **Helps to streamline preservation processes:** This means that less time is spent on repetitive tasks and libraries' staff are freed up to focus their efforts on higher value work that helps them and the libraries they serve.
5. **Improve libraries' personnel's confidence to use technology for work, learning and daily life:** Digital competence is beneficial to the preservation of digital resources by enabling libraries' personnel cultivate the habit of continuous learning. This will help in updating their knowledge on the digital tools can be adopted and deployed to perform library services.
6. **Help libraries' personnel work efficiently in a digitally via smart devices:** Digital competence empowers libraries' personnel work efficiently. This is associated with reducing the workloads on the digital tools of libraries. This, in the end, will prolong the lifespan of digital tools and resources possessed by libraries.
7. **Plays a critical role in libraries' personnel's ability to digitally transform:** Digital competence enables personnel of libraries to learn swift actions needed to advance their use of digital tools without abusing the previous ones.
8. **Enhanced productivity of libraries personnel *with digital tools:*** Digital competence empowers productivity of libraries' personnel with digital tools by equipping them with the abilities to manage and handle digital tools appropriately.
9. **Maximum protection of digital information:** Digital competence equips libraries' personnel with skills needed to secure and protect digital resources, in order to reduce abuses and mismanagement of digital resources and tools.

2.7 Factors Affecting Preservation of Digital Resources

Issues regarding digital preservation will continue to be pressing in the digital universe and despite DP policies that differ greatly across countries, the fundamental challenges regarding information resources' availability over time are universal (UNESCO, 2015). These challenges concern the whole curation lifecycle of digital resources and are largely addressed by the central

methodological problems of research in science and technology at the intersection of digital libraries (IFLA, 2014).

The rapidly changing digital world suffers from an over-abundance of unstructured digital information, rapid obsolescence of hardware and software, and increasingly restrictive intellectual property regimes (Solodovnik & Budroni, 2015). Poor understanding of the protocols, strategies and technologies involved in digital preservation, technological obsolescence, legal issues and framework issues. Chadha (2014), Adila and Habee (2018) noted that several issues are recognized regarding the preservation of digital records, and are categorized into the following:

1. **Digital Media:** Digital materials are especially vulnerable to loss and destruction because they are stored on fragile magnetic and optical media that deteriorate rapidly and that can fail suddenly from exposure to heat, humidity, airborne contaminants, or faulty reading and writing devices. Digital media are subject to destruction and deterioration in new ways, though unintended loss can be avoided if procedures are adapted to the needs of the technology. Precautions can be taken which will help significantly to reduce the danger of loss and include: Storing in a stable, controlled environment, implementing regular refreshment cycles to copy onto newer media, making preservation copies (assuming licensing/copyright permission), implementing appropriate handling procedures and transferring to "standard" storage media.
2. **Changes in Technology:** Unlike the situation that applies to books, digital archiving requires relatively frequent investments to overcome rapid obsolescence introduced by galloping technological change. Because digital material is machine dependent, it is not possible to access the information unless there is appropriate hardware, and associated software which will make it intelligible. The certainty that there will be frequent technological change poses a major challenge.
3. **Costs:** The cost of digital preservation cannot be easily isolated from other organizational expenses, nor should it be. Digital preservation is essentially about preserving access over time and therefore the costs for all parts of the digital life cycle are relevant. In that context even the costs of creating digital materials are integral in so far as they need to include cost elements which will ultimately facilitate their long-term preservation.

Nonetheless the exercise of calculating costs, however complex, is a valuable and necessary task to establish cost-effective practices and a reliable business model. The cost of the labor required for digital preservation will be the most significant by far and includes not only dedicated experts but varying proportions of many staff such as administration, management, IT support, legal advisers etc.

4. **Expertise:** The need for digital preservation expertise is high: asked to rate staff as expert, intermediate, or novice, only 8 of the 54 institutions considered their staff at the expert level. The dramatic speed of technological change means that few organizations have been able even fully to articulate what their needs are in this area, much less employ or develop staff with appropriate skills. In addition, there is little in the way of appropriate training and "learning by doing" can often be the most practical interim measure.
5. **Selection of digital resources/tools:** The enormous quantity of information being produced digitally, its variable quality, and the resource constraints on those taking responsibility to preserve long-term access, makes selectivity inevitable if the objective is to preserve ongoing access. In the digital environment, it is possible to by-pass the traditional distribution channels, as well as filtering and quality control processes. While there are benefits for users in terms of swift access, there are also difficulties in terms of quality control. Selecting quality materials for long-term retention therefore places a burden on organizations in terms of resources and also in terms of the potential impact of selection.
6. **Intellectual property rights (IPR)/Legal Issues:** Copyright and other intellectual property rights (IPR) such as moral rights have a substantial impact on digital preservation. The preservation of digital materials is dependent on a range of strategies, which has implications for IPR in those materials. The IPR issues in digital materials are arguably more complex and significant than for traditional media and if not addressed can impede or even prevent preservation activities. Consideration may need to be given not only to content but to any associated software. Simply copying (refreshing) digital materials onto another medium, encapsulating content and software for emulation, or migrating content to new hardware and software, all involve activities which can infringe

IPR unless statutory exemptions exist or specific permissions have been obtained from rights holders.

7. **Privacy and Confidentiality:** Information held within the repository may be subject to the Data Protection Act or similar privacy legislation protecting information held on individuals. Information may also be subject to confidentiality agreements. Privacy and confidentiality concerns may impact on how digital materials can be managed within the repository or by third parties, and made accessible for use.

2.8 Summary of the Literature Reviewed

This chapter clearly explains the concept of digitization before providing insights into the concept of digital skills and its aspect. It establishes that digital skills shouldn't be an isolated concept and one of the areas it can be applied is digital preservation, in order to protect, secure and control the use of digital resources and enhance its lifespan. Literature shows that digital skills have vital roles to play in the preservation of digital resources. This makes this chapter justifies various methods of digital preservation and discusses some challenges affecting digital preservation in libraries and information centers.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter states the scientific processes followed in the act of conducting this study. Kolawole and Ijiebor (2018) posited that methodology is an essential aspect of research work because it outlines the systems or ways and the scientific justifications used in a research study.

Based on the above, this chapter will be arranged under the following sub-headings:

3.2 Research Design

3.3 Population of the Study

3.4 Sampling Technique and Sample Size

3.5 Instrument for Data Collection

3.6 Validity and Reliability of the Instrument

3.7 Administration of the Instrument

3.8 Method of Data Analysis.

3.2 Research Design

Research design is to indicate the patterns of how a study will be conducted. Descriptive survey method will be adopted for this study. The reason for adopting descriptive survey is because it would avail the researcher the opportunity of obtaining data on digital skills and digital resources preservation from a portion of this study's population and use the data to generalize the population.

3.3 Population of the Study

Population is the total area, environment, scope or aspect a study is expected to cover. According to Issa (2012), population of a study is referred to as all the members or elements of a particular

group of people, animals, or things in a defined area. Thus, the population of this study will be 141 professional and para-professional staff of Ladoke Akintola University of Technology Library, Ogbomosho.

3.4 Sampling Technique and Sample Size

Sample is the unit, portion or element of the population, which will provide data that are relevant to the study. In this study, sample size will be determined with Calculator.net (www.calculator.net), which was calculated in the order below

Population: 141

Confidence level: 90%

Margin error: 0.05

Population proportion: 85

Sample size = 71 respondents.

Furthermore, multi-stage sampling technique will be adopted for this study. The reason for using multi-stage is because the population crosses across the library and the researcher intends to categorise them into groups, pick them based on their percentage to the population, before they are finally selected as samples in this study. Hence, the two stages of sampling techniques that will further be used in this study are stratified and simple random.

Stratified sampling will be used to arrange the population into groups which samples will now be drawn from them based on their percentage to the population, and simple random sampling will be used because it allows the researcher to give every staff of Ladoke Akintola University of Technology Library, Ogbomosho in the population equal chance of being chosen and included in the sample.

3.5 Instrument for Data Collection

This study will adopt questionnaire as its data collection instrument. The questionnaire, according to Issa (2012) is a data collection instrument containing series of questions and other prompt responses for the purpose of gathering information from library users. The questionnaire

will be titled ***"Questionnaire on influence of digital skills on digital resources preservation practices in Ladoke Akintola University of Technology Library, Ogbomosho, Oyo State, Nigeria"*** and will be arranged into the following six major sections:

1. Section "A" – Demographic information of respondents
2. Section "B" – Digital skills possessed by staff of Ladoke Akintola University of Technology Library, Ogbomosho
3. Section "C" – Digital resources preserved in Ladoke Akintola University of Technology Library, Ogbomosho
4. Section "D" – Methods of preserving digital resources in Ladoke Akintola University of Technology Library, Ogbomosho
5. Section "E" – Benefits of digital skills on preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho
6. Section "F" – Factors affecting the preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho.

3.6 Validity and Reliability of the Instrument

Validity refers to the level at which an instrument accurately measures what it intends to measure (Li, 2016). The questionnaire will be given to one subject expert for assessment of the quality of presentation of the contents of the variables the researcher wishes to measure. The expert opinions of the assessor will be effected before the questionnaire is presented to the supervisor for assessment and corrections. After effecting the corrections made by the supervisor, the questionnaire will be administered.

However, reliability refers to the levels at which an instrument yields consistent results. Internal consistency will be used to assess the degree of differences among the test items by investigating the same construct that produce similar results (Thomas, 2022).

3.7 Administration of the Instrument

The questionnaire will be administered to the respondents by the student researcher. The researcher will administer the questionnaire to staff of the selected university libraries by the researcher and two research assistants, which the respondents will be given one working-day to fill.

3.8 Method of Data Analysis

Data collected will be presented in simple percentage and frequency table and analysed by using the IBM Statistical Package for Social Science (SPSS) 23rd edition. The reason for the choice of simple percentage and frequency table is because it allows presentation, analysis and comparison of multiple attitudes, opinion and ideas which can enhance easy understanding of tables and the data they contained.

CHAPTER FOUR

PRESENTATION OF RESULTS, ANALYSIS, DISCUSSION AND INTERPRETATIONS

4.1 Introduction

This chapter presents data analysis, presentation of result and discussion of findings. The chapter is presented under the following headings:

4.2 Questionnaire Distribution and Response Rate

4.3 Demographic Information of Respondents

4.4 Presentation and Analysis

4.5 Discussion and Interpretations of Findings

4.2 Questionnaire Distribution and Response Rate

From the 71 questionnaire administered to staff of Ladoke Akintola University of Technology Library, Ogbomosho, only 62 were returned. Out of the returned questionnaires, only 57 were adequately filled and suitable for analysis.

The return rate of 80.37% is adequate for analysis and discussion of findings going by the assertion of Ramshaw (2021) that questionnaire is suitable for analysis if the response rate is more than average for physically administered questionnaires and can be used to represent majority of the characteristics intended to describe by the researcher.

4.3 Demographic information of respondents

Table 1: Demographic distribution of respondents

Options		F	%
Gender	Male	21	36.8
	Female	36	63.2
	Total	**57**	**100**
Age range	21 – 30 years	8	14.0
	31 – 40	18	31.6
	41 – 50	21	36.8
	51 - 60 years	7	12.3
	61 and above years	3	5.3
	Total	**57**	**100**
Academic qualification	ND	4	7.0
	HND	12	21.1
	BLIS	16	28.1
	MLIS	17	29.8
	PhD	8	14.0
	Total	**57**	**100**
Work experience	1 – 5 years	5	8.8
	6 – 10 years	10	17.5
	11 – 15 years	30	52.6
	16 – 20 years	9	15.8
	21 – above years	3	5.3
	Total	**57**	**100**
Marital status	Single	9	15.8
	Married	48	84.2
	Divorced	0	0.0
	Widow	0	0.0
	Total	**57**	**100**

Table 1 reveals that majority 36 (63.2%) of the respondents are female, while 21 (36.8%) are males. Twenty one (36.8%) of respondents are 41 – 50 years age range, followed by 31.6% for 31 – 40 years and 14.0% for 21 – 30 years. More so, 29.8% of respondents are MLIS holders, 28.1% holds BLIS, 21.1% holds HND, while only 14.0% holds Ph.D.

Furthermore, majority of respondents (82.5%) are from University of Ilorin Library, followed by 12.3% from Kwara State University Library and 5.3% from Al-Hikmah University Library. Thirty respondent (52.6%) have 11 – 15 year work experience, 17.5% have 6 – 10 year work experience, while 15.8% have 16 – 20 year experience. Forty eight respondents (84.2%) are married and 15.8% are single.

4.4 Data Presentation, Analysis and Discussion

4.4.1 Research Question One: What are the digital skills possessed by staff of Ladoke Akintola University of Technology Library, Ogbomosho?

Table 2: Digital skills possessed by staff of Ladoke Akintola University of Technology Library, Ogbomosho

	Yes		No			
Options	**F**	**%**	**F**	**%**	**M**	**SD**
E-mail management	40	70.2	17	29.8	1.30	0.46
Word processing	44	77.2	13	22.8	1.23	0.42
Database management	37	64.9	20	35.1	1.35	0.48
Competence to use presentation software	43	75.4	14	24.6	1.25	0.43
Use of portable document format (PDF) software	43	75.4	14	24.6	1.25	0.43
Web searching	46	80.7	11	19.3	1.19	0.40
Searching library databases	48	84.2	9	15.8	1.16	0.37
Use of digitization software (Greenstone/Dspace, etc.)	43	75.4	14	24.6	1.25	0.43
Installing Printer, scanner and computer systems	42	73.7	15	26.3	1.26	0.44
File management/operating system navigation skills	41	71.9	16	28.1	1.28	0.45
Creating online instructional materials/products	35	61.4	22	38.6	1.39	0.49
Security of digital resources	45	78.9	12	21.1	1.21	0.41
Connecting patrons laptop to the library wireless	41	71.9	16	28.1	1.28	0.45
Creating and updating Institutional OPAC	45	78.9	12	21.1	1.21	0.41

Table 2 reveals that majority 84.2% of the respondents possessed the skill of searching library databases, followed by 80.7% for web searching and 78.9% for security of digital resources and creating and updating institutional OPACs respectively. However, only 61.4% possessed the skill of creating online instructional materials/products.

4.4.2 Research Question Two: What are the digital resources preserved in Ladoke Akintola University of Technology Library, Ogbomosho?

Table 3: Digital resources preserved in Ladoke Akintola University of Technology Library, Ogbomosho

Options	Yes		No			
	F	%	F	%	M	SD
Digital journals	48	84.2	9	15.8	1.16	0.37
Digital books	46	80.7	11	19.3	1.19	0.40
Digital newspapers	46	80.7	11	19.3	1.19	0.40
Digital reference books	45	78.9	12	21.1	1.21	0.41
Digital projects, theses and dissertations	57	100.0	0	0.0	1.00	0.00
CDs/VCDs/DVDs	43	75.4	14	24.6	1.25	0.43
Databases	41	71.9	16	28.1	1.28	0.45
Websites	38	66.7	19	33.3	1.33	0.48
Online public access catalogues (OPACs)	36	63.2	21	36.8	1.37	0.49
Institutional repository	44	77.2	13	22.8	1.23	0.42
Open educational resources (OERs)	46	80.7	11	19.3	1.19	0.40
Virtual libraries	41	71.9	16	28.1	1.28	0.45
Microforms	43	75.4	14	24.6	1.25	0.43
Federated search	34	59.6	23	40.4	1.40	0.41

Table 3 shows that 100% of the respondents believed that digital projects, theses and dissertations are the digital resources preserved in the libraries understudied, followed by 84.2% for digital journals and 80.7% for digital books, newspapers and Open educational resources (OERs). However, only 59.6% believed that federated search is preserved in their libraries.

4.4.3 Research Question Three: What are the methods of preserving digital resources in Ladoke Akintola University of Technology Library, Ogbomosho?

Table 4: Methods of preserving digital resources in Ladoke Akintola University of Technology Library, Ogbomosho

Options	SA		A		U		D		SD			
	F	%	F	%	F	%	F	%	F	%	M	SD
Bit-stream copying/Back-up	12	21.1	28	49.1	7	12.3	4	7.0	6	10.5	3.63	1.21
Copying digital information from one storage medium to another of the same type, with no change in the bit-stream	12	21.1	12	21.1	9	15.8	13	22.8	11	19.3	3.02	1.45
Technology preservation	14	24.6	27	47.4	4	7.0	6	10.5	6	10.5	3.65	1.26
Backwards compatibility and version migration	11	19.3	15	26.3	7	12.3	12	21.1	12	21.1	3.02	1.46
Migration	13	22.8	23	40.4	6	10.5	6	10.5	9	15.8	3.44	1.38
Viewers and Migration at the Point of Access	15	26.3	14	24.6	7	12.3	11	19.3	10	17.5	3.23	1.48
Emulation	14	24.6	15	26.3	13	22.8	7	12.3	8	14.0	3.35	1.36
Analogue backups	9	15.8	12	21.1	14	24.6	9	15.8	13	22.8	2.91	1.39
Software re-engineering	17	29.8	12	21.1	9	15.8	8	14.0	11	19.3	3.28	1.51
Universal virtual computer	12	21.1	12	21.1	12	21.1	7	12.3	14	24.6	3.02	1.48

Table 4 indicates that technology preservation is ranked highest out of the methods of preserving digital resources with (3.65 ± 1.26), followed by bit-stream copying/back-up (3.63 ± 1.21) and 3.44 ± 1.38 for migration. Nevertheless, analogue backups is ranked lowest with (2.91 ± 1.39). This implies that technology preservation, bit-stream copying/back-up and migration are the major methods of preserving digital resources in the libraries understudied.

4.4.4 Research Question Four: What are the benefits of digital skills on preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho?

Table 5: Benefits of digital skills on preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho

	SA		A		U		D		SD			
Options	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**M**	**SD**
Make me understand the protocols surrounding the handling of digital resources	7	12.3	25	43.9	11	19.3	8	14.0	6	10.5	3.33	1.19
Equip me with skills required to create and share digital contents	13	22.8	27	47.4	6	10.5	4	7.0	7	12.3	3.61	1.26
Allow me to collaborate globally and instantaneously	7	12.3	22	38.6	10	17.5	9	15.8	9	15.8	3.16	1.29
Help me to streamline preservation processes	5	8.8	19	33.3	13	22.8	12	21.1	8	14.0	3.02	1.22
Improve my confidence to use technology for work, learning and daily life	15	26.3	23	40.4	6	10.5	4	7.0	9	15.8	3.54	1.38
Help me work efficiently in a digitally via smart devices	11	19.3	18	31.6	13	22.8	9	15.8	6	10.5	3.33	1.26
Play a critical role in my ability to digitally transform	4	7.0	21	36.8	15	26.3	8	14.0	9	15.8	3.05	1.20
Enhance my productivity with digital tools	17	29.8	26	45.6	7	12.3	5	8.8	2	3.5	3.89	1.05
Maximum protection of digital information	4	7.0	25	43.9	10	17.5	10	17.5	8	14.0	3.12	1.21

Table 5 shows that enhance my productivity with digital tools is ranked highest out of the benefits of digital skills on preservation digital resources with (3.89 ± 1.05), followed by equip me with skills required to create and share digital contents (3.61 ± 1.26) and 3.54 ± 1.38 for improve my confidence to use technology for work, learning and daily life. On the other hand, help me to streamline preservation processes is ranked lowest with (3.02 ± 1.22). This means that enhance my productivity with digital tools, equip me with skills required to create and share digital contents and improve my confidence to use technology for work, learning and daily life are the major benefits of digital skills on preservation of digital resources among the staff of the libraries understudied.

4.4.5 Research Question Five: What are the factors affecting the preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho?

Table 6: Factors affecting the preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho

	SA		A		U		D		SD			
Options	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**M**	**SD**
Poor understanding of the protocols, strategies and technologies involved in digital preservation	14	24.6	17	29.8	11	19.3	9	15.8	6	10.5	3.42	1.31
Rapid obsolescence of digital media	17	29.8	21	36.8	7	12.3	7	12.3	5	8.8	3.67	1.27
Legal and framework issues	10	17.5	13	22.8	11	19.3	13	22.8	10	17.5	3.00	1.38
Over-abundance of unstructured digital information	10	17.5	28	49.1	4	7.0	5	8.8	10	17.5	3.40	1.36
Cost of purchasing digital tools needed for preservation	14	24.6	25	43.9	10	17.5	4	7.0	4	7.0	3.72	1.13
Inadequate expertise	9	15.8	9	15.8	16	28.1	14	24.6	9	15.8	2.91	1.30
Selection of digital tools /resources	6	10.5	11	19.3	17	29.8	14	24.6	9	15.8	2.84	1.22

Table 6 reveals that cost of purchasing digital tools needed for preservation is ranked highest out of the factors affecting preservation of digital resources with (3.72 ± 1.13), followed by rapid obsolescence of digital media (3.67 ± 1.27) and 3.42 ± 1.31 for poor understanding of the protocols, strategies and technologies involved in digital. However, selection of digital tools /resources is ranked lowest with (2.81 ± 1.22). This reveals that cost of purchasing digital tools needed for preservation, rapid obsolescence of digital media and poor understanding of the protocols, strategies and technologies involved in digital are the major factors affecting the staff of the libraries understudied from preservation of digital resources.

4.5 Discussion and Interpretations of Findings

The implications of the findings above is that majority of the respondents (65 or more per cent) are in the category of HND, BLIS, MLIS or PhD holders. This means that a larger portion of the respondents are academically exposed enough to be knowledgeable on the subject of this study. What provides more assurances on this is the realisation that more than 90% of the respondents have work experience ranging from 6 – 25 and above. This shows that most of the respondents have experienced the emergence different digital tools and resources, which the quest for its management must have challenged the respondents to acquire relevant skills and competences.

Finding out that the respondents possessed the skills of searching library databases, web searching, security of digital resources and creating and updating institutional OPACs shows that the respondents are responding to the calls of Seena and Pillai (2014) and Okeji et al. (2019) that if 21st century library personnel want to remain relevant, they have to acquire the skills of searching databases and websites, securing digital resources and develop the abilities to create and update a library's online public access catalogue through different library management software.

Truly, the ability to search databases through different websites and other online platforms gives librarians an edge in the preservation of digital resources (Gbaje, 2013). This means that when a library personnel knows how to search for digital resources on websites and databases, they will be acquainted with the use of different protocols and strategies required to protect digital resources from being misused and abused.

The ability to secure digital resources cannot be overemphasized because it enables the library personnel to code, name and password digital resources in ways that will avoid the users from damaging the digital resources. For instance, library personnel that know the difference between https and http in website protocols will know that one website is protected than the other. Thus, the ability to know this will make the library state exercise restraint or caution when using websites containing the either protocols.

Furthermore, the ability to create and update the online public access catalogues has become an important requisite for the sustainability of library services in the modern era (Seena & Pillai, 2014). This is because most libraries have migrated from the traditional library services and with the application of ICT to library services, most academic libraries have shifted to the use of OPACs or WebPACs to make users access their holdings. Thus, the need to be skillful in creating and updating a library's OPACs.

In spite of the digital skills possessed by majority of the respondents, it is worrisome to uncover that the skill of creating online instructional materials/products. The ability to create online instructional materials is highly required in the contemporary library world where electronic resources are driving the relevance of libraries. Possession of this skill can help the library personnel deliver information literacy instructions digitally, deliver library orientations without

necessarily required the users to come to the library and also create entrepreneurship opportunities for the library personnel.

It is interesting to find out that digital projects, theses and dissertations, journals, books, newspapers and Open educational resources (OERs) are digital resources preserved in the libraries of the respondents. This shows an acceptable level of correlation with the respondents' opinions in Table 2 where majority of them possessed the skills to search databases, websites and security of digital resources. Since the libraries understudied are university libraries, it is welcomed to realise that they preserved the digital resources aforementioned.

University libraries are established for tripartite functions of supporting teaching, learning and research. This, thus, makes it imperatives for the libraries understudied to be ensuring that digital resources such as digital projects, theses and dissertations, journals, books, newspapers and Open educational resources (OERs). Projects, theses and dissertations constitute an important section of the collection of every university libraries because they can facts and original data that can be used for archival purposes. Findings have shown that the university understudied have different dimensions of submitting projects, theses and dissertations digitally. For example, the Ladoke Akintola University of Technology Library, Ogbomosho collects a CD containing projects, theses and dissertations of students. The contents of the CDs are later migrated for digital preservation.

Findings have revealed that digital journals, books and OERs have become the lifeblood of providing information to users in most academic libraries (Kowalczyk, 2018; Tiemo, 2019). This is because it has been mandated by the Nigerian University Commission that a certain percentages of journals and books should be held in university libraries before they can be considered for accreditations. To meet this requirement, most university libraries are leveraging digital resources by subscribing to databases of commercial journals and publishers to enrich their collections. And for university libraries to remain relevant, they need to protect these resources from abuses and damages (Jonathan & Udo, 2015).

On the other hand, federated search is not that preserved in the libraries understudied. What this means is that the university libraries don't prioritize the preservation of multiple and disparate

platforms of sourcing, searching and retrieving database and digital resource to users on a single interface (Breeding, 2017).

Digital preservation refers to ways or patterns of protection of materials that are created originally in digital form and never existed in print or analogue form (also called “born digital”) as well as those converted from heritage documents and artefacts (printed documents, pictures, photographs or physical objects) into images using scanners, digital cameras, or other imaging technologies for access and preservation purposes (Singh, 2016; Rathika, Muthuvenilla & Thanuskodi, 2018). Discovering that technology preservation, bit-stream copying/back-up and migration are the major methods of preserving digital resources in the libraries shows that the libraries understudied adopted some common digital preservation known in libraries (Rathika, Muthuvenilla & Thanuskodi, 2018).

For instance, the use of technology preservation implies that the libraries involved in computer museum, which is keeping and maintaining the technical environment that is used for creation of contents including operating systems, original application software, media drives, etc. it means these libraries are more concerned on a disaster recovery strategy for use on digital objects that have not been subjected to a proper digital preservation strategy (Cornell University, 2015).

Also, bit-stream copying/back-up means that the libraries considered the minimum maintenance strategy for even the most lightly valued, ephemeral data. This makes the libraries create an exact duplicate of a digital object by answering the question of data loss due to hardware and media failure, whether resulting from normal malfunctioning and decay, malicious destruction or natural disaster (Singh, 2016).

Also, the respondents deployed migration for a set of organized tasks designed to achieve the periodic transfer of digital materials from one hardware/software configuration to another, or from one generation of computer technology to a subsequent generation. Migration includes refreshing as a means of digital preservation but differs from it in the sense that it is not always possible to make an exact digital copy or replica of a database or other information object as hardware and software change and still maintain the compatibility of the object with the new generation of technology.

Digital skills and preservation are highly essential to the relevance of libraries in the digital world. Findings of this study have validated this by revealing that digital skills enhance the respondents' productivity with digital tools, equip the respondents with skills required to create and share digital contents and improve the respondents confidence to use technology for work, learning and daily life. This is consistent with the points of Roy (2015) and Singh (2016).

With digital skills, the respondents will be productive in using digital tools by equipping them with the abilities to manage and handle digital tools appropriately.

Furthermore, it is important to know that digital skills equip the respondents with skills required to create and share digital contents. This means that digital savviness competence helps libraries' personnel in the preservation of digital resources by enabling them to know the right digital tools they can use to create digital contents and also share such contents. This will minimise stressing digital tools to perform tasks they are not designed for.

Ultimately, digital skills improve the respondents' confidence to use technology for work, learning and daily life, according to the findings. This implies that digital competence is beneficial to the preservation of digital resources by enabling libraries' personnel cultivate the habit of continuous learning, which will help in updating their knowledge on the digital tools can be adopted and deployed to perform library services (Roy, 2015).

This study has revealed that many factors affecting the respondents from leveraging digital skills for digital preservations are cost of purchasing digital tools needed for preservation, rapid obsolescence of digital media and poor understanding of the protocols, strategies and technologies involved in digital are the major factors affecting the staff of the libraries understudied from preservation of digital resources. These factors are consistent with the point of IFLA (2014); UNESCO (2015); Adila and Habee (2018).

Obviously, funding is a major challenge to most Nigerian libraries. Thus, it is not surprising to find out that cost of purchasing digital tools needed for preservation affects digital preservation in the libraries understudied. The implication of this is that the libraries understudied cannot afford the cost of acquiring digital resources needed for digital preservation.

Also, rapid obsolescence of digital media is a challenge to digital preservation. According to Singh (2016) most of the digital media used for digital resources are quickly outdated based on the rapid advancement of digital tools. This, therefore, becomes a problem for libraries to maintain because they will always be driven by the need to acquire latest digital media to preserve their digital resources.

Above all, knowing that poor understanding of the protocols, strategies and technologies involved in digital is also major factor affecting the staff of the libraries understudied from preservation of digital resources is interesting. This means that, in some cases, the respondents may have challenges in understanding the codes, patterns and strategies of protecting digital resources.

However, it is interesting to know from this findings that selection of digital resources/tools is not among the major challenges of preservation of digital resources to the respondents. This suggests that the enormous quantity of information being produced digitally, its variable quality, and the resource constraints on those taking responsibility to preserve long-term access, are not affecting the libraries understudied to preserve digital resources for ongoing access (Solodovnik & Budroni, 2015).

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter will summarise the findings made in this study, draw conclusion from those findings and make appropriate recommendations. This chapter is be arranged in the following order:

5.2 Summary of findings

5.3 Conclusion

5.4 Recommendations

5.2 Summary of findings

Results of this study showed that:

1. Searching library databases, web searching, creating and updating institutional OPAC and security of digital resources are the digital skills possessed by staff of Ladoke Akintola University of Technology Library, Ogbomosho.
2. Digital projects, theses and dissertations, journals, books, newspapers and OERs are the digital resources preserved in Ladoke Akintola University of Technology Library, Ogbomosho.
3. Technology preservation, bit-stream copying/back-up and migration are the methods of preserving digital resources in Ladoke Akintola University of Technology Library, Ogbomosho.
4. Enhancing productivity with digital tools, improving confidence to use digital technologies for work and learning and developing the abilities to create and share digital contents are the benefits of digital skills to preserving digital resources in Ladoke Akintola University of Technology Library, Ogbomosho.
5. Cost of purchasing digital tools needed for preservation, rapid obsolescence of digital media, poor understanding of the protocols, strategies and technologies involved digital

preservation are the factors affecting preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho.

5.3 Conclusion

Digital skills are pivotal to the management and handling of digital resources in all libraries. One of the areas digital skills are highly essential is digital resources preservation because the digital tools are sophisticated gadgets that require special knowledge before that can be appropriately preserved.

This study has proven that digital skills such as searching library databases, searching the webs, creating and updating institutional OPAC and security of digital resources are vital to the preservation of digital projects, theses and dissertations, journals, books, newspapers and OERs in Ladoke Akintola University of Technology Library, Ogbomosho through technology preservation, bit-stream copying/back-up and migration.

Digital skills enhanced the productivity of personnel of Ladoke Akintola University of Technology Library, Ogbomosho with digital tools, improved their confidence to use digital technologies for work and learning and also helped them develop the abilities to create and share digital contents. In spite of this, personnel of Ladoke Akintola University of Technology Library, Ogbomosho cannot harness their digital skills for digital preservation because of cost of purchasing digital tools needed for preservation, rapid obsolescence of digital media, poor understanding of the protocols, strategies and technologies involved digital preservation.

5.4 Recommendations

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

1. Management of Ladoke Akintola University of Technology Library, Ogbomosho should always fund their libraries adequately. This will make the libraries afford the cost of purchasing digital tools/media needed for preservation of digital resources.
2. Staff of Ladoke Akintola University of Technology Library, Ogbomosho responsible for the selection and acquisition of digital tools/media for preservation should always

consider the durability and long-term usage of the digital tools/media they select. This will give their libraries an edge in overcoming obsolescence of digital tools/media.

3. Management of Ladoke Akintola University of Technology Library, Ogbomosho should endeavour to organise digital training for their staff on the creation of online materials/products. This will add to the digital skills of their staff and makes them competent in creating some online contents that can be relevant to promoting the library services and understanding the protocols and strategies involved in digital preservation.
4. Staff of Ladoke Akintola University of Technology Library, Ogbomosho should be using federated search to preserve digital resources. This will reduce the availability of digital resources to public domain by using an interface to search and retrieve resources from multiple and disparate sources.
5. Ladoke Akintola University of Technology Library, Ogbomosho should consider using analogue preservation. This will enable them to combine the conversion of digital objects into analogue form with the use of durable analogue media, taking high-quality printouts or the creation of silver halide microfilm from digital images.

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KWARA STATE POLYTECHNIC, ILORIN
INSTITUTE OF INFORMATION AND COMMUNICATION TECHNOLOGY
DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

Questionnaire on "***Influence of digital skills on digital resources preservation practices in Ladoke Akintola University of Technology Library, Ogbomosho, Oyo State, Nigeria***"

Dear Respondent,

Request for Response to Questionnaire

I am an undergraduate of the above-named institution, carrying out research on the above-mentioned topic. My research is in partial fulfillment of the requirements for the award of National Diploma certificate in Library and Information Science (BLIS).

Your assistance is hereby sought for timely completion of this questionnaire. I am assuring you that all data provided will be treated with utmost confidentiality and used for academic purpose only.

Thank you for your anticipated cooperation.

Researcher

Section A: Demographic Characteristics of Respondents

Kindly select the option of your choice by ticking from the answers below

1. Gender: Male ( ) Female ( )
2. Age range: 21 – 30 years ( ) 31 – 40 years ( ) 41 – 50 years ( )
   51 – 60 years ( ) 61 and above years ( )
3. Academic qualification: ND ( ) HND ( ) BLIS ( ) MLIS ( ) PhD ( )
4. Work experience: 1 – 5 years ( ) 6 – 10 years ( ) 11 – 15 years ( )
   16 – 20 years ( ) 21 – above years ( )
5. Marital Status: Single ( ) Married ( ) Divorced ( ) Widow ( )

Section B: Digital skills possessed by staff of Ladoke Akintola University of Technology Library, Ogbomosho

What are the digital skills possessed by you?

Kindly tick "yes" if you agree with the question and "no" if you disagree and tick as many statements as applicable

S/No	Options	Yes	No
1.	E-mail management		
2.	Word processing		
3.	Database management		
4.	Competence to use presentation software		
5.	Use of portable document format (PDF) software		
6.	Web searching		
7.	Searching library databases		
8.	Use of digitization software (Greenstone/Dspace, etc.)		
9.	Installing Printer, scanner and computer systems		
10.	File management/operating system navigation skills		
11.	Creating online instructional materials/products		
12.	Security of digital resources		
13.	Connecting patrons laptop to the library wireless		
14.	Creating and updating Institutional OPAC		
	Others, please specify……..		

Section C: Digital resources preserved in Ladoke Akintola University of Technology Library, Ogbomosho

What are the digital resources preserved in your library?

Kindly tick "yes" if you agree with the question and "no" if you disagree and tick as many statements as applicable

S/No	Options	Yes	No
1.	Digital journals		
2.	Digital books		

3.	Digital newspapers		
4.	Digital reference books		
5.	Digital projects, theses and dissertations		
6.	CDs/VCDs/DVDs		
7.	Databases		
8.	Websites		
9.	Online public access catalogues (OPACs)		
10.	Institutional repository		
11.	Open educational resources (OERs)		
12.	Virtual libraries		
13.	Microforms		
14.	Federated search		
	Others, please specify……..		

Section D: Methods of preserving digital resources in Ladoke Akintola University of Technology Library, Ogbomosho

What are the methods of preserving digital resources in your library?

Kindly tick SA for "Strongly Agree," A for "Agree" U for "Undecided," D for "Disagree" and SD for "Strongly Disagree."

S/No	Options	SA	A	U	D	SD
1.	Bit-stream copying/Back-up					
2.	Copying digital information from one storage medium to another of the same type, with no change in the bit-stream					
3.	Technology preservation					
4.	Backwards compatibility and version migration					
5.	Migration					
6.	Viewers and migration at the point of access					
7.	Emulation					

8.	Analogue backups					
9.	Software re-engineering					
10.	Universal virtual computer					
	Others, please specify…….					

Section E: Benefits of digital skills on preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho

What are the benefits of digital skills on preservation of digital resources in your library?

Kindly tick SA for "Strongly Agree," A for "Agree" U for "Undecided," D for "Disagree" and SD for "Strongly Disagree."

S/No	Options	SA	A	U	D	SD
1.	Make me understand the protocols surrounding the handling of digital resources					
2.	Equip me with skills required to create and share digital contents					
3.	Allow me to collaborate globally and instantaneously					
4.	Help me to streamline preservation processes					
5.	Improve my confidence to use technology					

	for work, learning and daily life					
6.	Help me work efficiently in a digitally via smart devices					
7.	Play a critical role in my ability to digitally transform					
8.	Enhance my productivity with digital tools					
9.	Maximum protection of digital information					
	Others, please specify…….					

Section F: Factors affecting the preservation of digital resources in Ladoke Akintola University of Technology Library, Ogbomosho

What are the factors affecting the preservation of digital resources in your library?

Kindly tick SA for "Strongly Agree," A for "Agree" U for "Undecided," D for "Disagree" and SD for "Strongly Disagree."

S/No	Options	SA	A	U	D	SD
1.	Poor understanding of the protocols, strategies and technologies involved in digital preservation					
2.	Rapid obsolescence of digital media					
3.	Legal and framework issues					
4.	Over-abundance of unstructured digital information					
5.	Cost of purchasing digital tools needed for preservation					
6.	Inadequate expertise					
7.	Selection of digital tools /resources					
	Others, please specify…….					