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A PROPOSED FRAMEWORK FOR DIGITAL LIBRARIANSHIP IN ACADEMIC LIBRARIES IN KENYA

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DECLARATION

I declare that this research project is my original work and has never been presented before any panel or institution for the award of any university degree.

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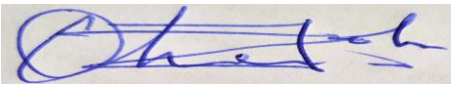
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DEDICATION

I dedicate this research project to my mum Agnes Munini whose strength, intelligence, love, and kindness constantly inspired me.

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ABBREVIATIONS AND ACRONYMS

ACRL	Association of College and Research Libraries
ALIA	Australian Library and Information Association
AVU	African Virtual University
CARL	Canadian Association of Research Libraries
CAS	Current Awareness Services
CCT	Core Competency Theory
CD-ROM	Compact Disk-Read Only Memory
CILIP	Chartered Institute of Library and Information Professional
CPD	Continuing Professional Development.
CUK	Cooperative University of Kenya
CUK	Cooperative University of Kenya Library
DIS	Digital Information Services
DIRs	Digital Information Resources and services
DLs	Digital Libraries
DLn	Digital Librarian
DVDs	Digital Versatile Discs
ETD	Electronic Thesis and Dissertation
ICT	Information Communication Technology
IL	Information Literacy
IPR	Intellectual Property Rights
JD	Job Description
JKML	Jomo Kenyatta Memorial Library
KLISC	Kenya Library and Information Science Consortium
KU	Kenyatta University
KUL	Kenyatta University Library
LIS	Library and Information Sciences

MU	Moi University
MMU	Multimedia University of Kenya
MMUL	Multimedia University of Kenya Library
ODLIS	Online dictionary of library and information science
OPAC	Online Public Access Catalogue
OST	Occupational Self-Efficacy Theory
SDI	Selective Dissemination of Information
TCF	Theoretical and Conceptual Framework
TUK	Technical University of Kenya
TUKL	Technical University of Kenya Library
UON	University of Nairobi
UONL	University of Nairobi Library
WWW	World Wide Web

ABSTRACT

The service delivery in academic libraries in Kenya has been regressing due to the failure of Digital Librarians (DLns) to perform optimally. This study aimed at developing a proposed framework for digital librarianship in academic libraries in Kenya with special emphasis to three selected public academic institutional libraries namely the University of Nairobi Jomo Kenyatta Memorial Library, Technical University of Kenya Library and Multimedia University of Kenya Library. The study's specific objectives were to determine the roles played by the current DLns' in academic libraries, establish job description of DLns' in various academic libraries in Kenya, ascertain DLns best practices, and to implement a viable digital librarianship conceptual framework. The study adopted three theories namely, Core Competency Theory (CCT), Occupational Self-Efficacy Theory (OST) and Technology Acceptance Model (TAM). The study used a survey research with open-ended questionnaire designed as per the objectives of the study. Relevant literature review was conducted to identify the DLns' roles, job description, and skills for developing and managing DLs. A purposively selected sample of 30 Library and Information Science (LIS) professionals from the three selected academic libraries in charge of Digital Information Services (DIS) and managing electronic resources in Nairobi County-Kenya were selected and interviewed. A piloted self-administered questionnaire was used to gather information from these respondents. A total of thirty (30) questionnaires to the LIS professionals-ten from each of the three selected academic libraries were administered. The data was analyzed using SPSS software v25. The findings revealed a disconnect between digital librarians' roles and their job descriptions where 59.1% of respondents agreed whereas 40.9% had no idea whether there was any disconnect or not. A majority (72.73%) of the respondents also indicated that there was no formal conceptual framework for digital librarians' roles and recommended that such a model should be developed and that the model should incorporate such elements such as, e-resources management, job descriptions, policies, and strategic planning. The study also established that only one-fifth or 20% were digital librarians in academic libraries in Kenya. Moreover, the specific roles of the few DLns that are serving in academic libraries are not clear or not known and what is described in their job descriptions (JDs) is not what they do in their daily tasks. However, academic libraries should designate DLns to specific roles, duties and responsibilities which should also form part of their job. The study thus developed a proposed conceptual framework for DLns' that details the pertinent issues currently facing academic libraries when hiring DLns. The study recommended that the provided framework be adopted to guide library managers in identifying the needs of staff training and selecting the most adequate training method as well as settling on the best practices to be sent to staff for training and development.

CHAPTER ONE

INTRODUCTION AND STUDY BACKGROUND

1.1   Introduction

Manpower in any organization is vital and powerful (Uzuegbu & Arua, 2012). This is more important when it comes to library services. Any library is expected to have an excellent stock, a beautiful and comfortable building but failure to have a skilled, competent, and well-versed staff is likely to make it lose its value given the fact that the users using the library will not be served well. Academic libraries today look for skilled, competent, suitable, and qualified digital librarians (DLns) with library skills to implement IT knowledge; build; manage change; protect digital library (DL) contents and fulfill the information needs of users efficiently and effectively (Mthembu & Ocholla, 2019; Shakeel & Rubina, 2017; Yadav & Bankar, 2016; Raju, 2014). The current digital landscape is inevitable for DLns to acquire DL competencies and new skills to effectively build DLs for their users and meet the challenges of digital librarianship. This calls for employability skills along with technical and subject knowledge (Mthembu & Ocholla, 2019). LIS education and training is essential to DLns in updating skills and knowledge to carry out tasks to the best of their abilities (Mthembu & Ocholla, 2019).

Thomas & Patel (2008; Tammaro, 2007) found that inadequate supply of DLns in the world for many years attributed to flaws in LIS curriculum; lack of consensus on the DLns specific roles and job description; lack of agreement between LIS educators, and practitioners on the proper training courses for DLns; inadequate informal and formal education opportunities in IT suitable for libraries; lack of conceptual background to LIS courses offered; and DLn's education acquired through apprenticeship and short education courses. The fragmentation and dispersion of LIS education across many topics. The inclusion of subject DL in many computer science curricula and digital librarianship education content in some continents like Europe, more technical than that of North America; the failure for LIS schools to recognize the significance of librarians possessing cross-functional expertise in computer science (CS) and LIS; lack of a clear career path for DLns; varied goals and expectations for DLs at various institutions; unstructured degree programs for DLns; and the requirement for constant learning as a component of the job, made it difficult to define the job and domain of DLns that brought a barrier to international joint courses and cooperation.

Raju (2014) found that to date no comprehensive study had been done on the role of DLns in USA, whereas Tammaro (2007) found that the emergency of digital universe to libraries in USA increased the number of positions requiring DLns with advanced IT related skills, competencies, and know-how. Several previous literatures and studies have found that none has fully identified DLns' job description, and none give up-to-date and conclusive information on their specific roles, proficiencies, and skills. This is because they find themselves at a crossroad where they perform many tasks that are performed by traditional librarians.

The LIS curriculum in Kenya currently do not adequately address the present DLns labor market needs because of the following factors: lack of ICT content in the course, lack of teaching resources at LIS training; continued development of education through short programs; inadequate duration of irrelevant job market courses; lack of leadership and political good will; LIS students' lack of industrial attachment that is extremely too short for an apprentice to acquire appropriate skills; ignorance of the LIS job market opportunities; inadequate technology infrastructures development; LIS educators and DL practitioners have been conducting trainings to curb the shortage and not to suit the job market; continuing disagreements on LIS education that saw LIS practitioners efforts to train DLns through continuing education fail; the few LIS schools involved in DLns training and certification programs have been done for many years without shared standards and definition of the specialization; DL courses within LIS curricula has been an environment rich with competing approaches to DLns education usually without foundations in the broader context of how libraries and librarians operate (Mthembu & Ocholla, 2019; Tammaro, 2007).

Efforts within LIS schools to merge theory and practice have been in place but stakeholders have failed to reach a consensus on the proper training criteria to be adopted (Burnett, 2013; Ocholla, 2008; Tammaro, 2007; Thomas & Patel, 2008). A study by Horaya & Curran (2012) found LIS educators struggling with a dynamic work environment for the new librarian graduates. A study by Burnett (2013) identified several skills lacking in LIS education in Ethiopia like human resource management; communication skills; teaching expertise; and IT- related skills, competencies and know-how among others. As libraries and digital collections begin to migrate and make more information available to the public, the need for DLns continues to grow. As a

result, most librarians in academic libraries in Kenya have few studies published on the scope of DIRs.

Today, approximately 80% of LIS courses graduates are required as information professionals to be fully prepared to lead, manage and contribute to the management process by helping in the recruitment; training and mentoring beginners forming committees; managing donors and other external groups, and representing the institution with external parties in the workplace at some point in their career (Horaya & Curran, 2012). Today's DLn training programs differ hugely in objectives, focus, content, and LIS practitioners and educators have continuously grappled with issues concerning all librarians' core competencies yet; the shortage of DLns' workforce is becoming more serious. However, one of the challenges faced by DLns is the hiring of new DLns and staff allocation (Choi & Rasmussen, 2009). Studies by Bala & Lal, (2016; Tutu, 2016) found that several scholars have written about DL giving a lot of emphasis to technology and information resources. However, it was noted that there was a very noticeable lack of discussion on the role and conceptual framework for DLns' in the service delivery in academic libraries in Kenya. Further, according to (Corrall & Keates, 2011) less attention has been given to the training of DLns.

This study focused on developing a proposed conceptual framework for digital librarianship in Kenya's academic libraries with exceptional attention given to three selected academic institutional libraries i.e., JKML, TUKL, and MMUL. This study is meaningful because there has not been any study on conceptual framework for DLns' role(s) in the service delivery in Kenyan academic libraries.

1.2   Statement of the Research Problem

Academic libraries are regarded as the largest and the oldest institutions with a vital role in ensuring service for intellectual excellence in the lives of scholars from their parent institutions yet, the service delivery has been regressing due to the failure of DLns to perform optimally (Andoh, et al, 2019; Khan & Bhatti, 2017). The worsening libraries' performance has been attributed to the high number of academic establishments along with the rate of student enrolment and massive budget cuts from the government which led to shortage of information resources and skilled personnel (Ocholla, Mutsvunguma & Hadebe, 2016; CUE, 2012). Several existing studies have identified several hindrances facing academic libraries such as reduced

funding; increased cost of resources; higher subscription fees of e-resources; and increased licensing fees (Sejane, 2017; Jabeen et al., 2017; Olanike, 2016). Other scholars have discussed the content inadequacy in the ICT courses offered, inadequate programs that are irrelevant to the dynamic job market, lack of teaching resources at LIS training, and LIS students' lack of industrial attachments (Rukwaro & Bii, 2016). Others are inadequate technical staff; hardware and software degradation; and inconsistent acquisition criteria for e-resources that only focus on content instead of quality (Kumar, 2016). Others are administrative bureaucracy; inability to exploit e-resources due to ignorance of such resources and skill inadequacy in accessing and using such information (Begum & Ambika, 2018; Ambika & Begum, 2017; Reddy, 2017). All these prevailing challenges led to deleterious effect on quality service delivery and difficult in fulfilling the requirements of the LIS charter; low level of research in academic public libraries; waning staff to student ratios; and low internal and external efficiency in Kenya. Various studies have been undertaken to address these epileptic challenges such as reduction of student subsidies; imposing of student's fees; privatization and commercialization of universities in Kenya; incorporating many approaches to promote awareness and adequate utilization of available library services and resources such as adoption of IT and Internet medium to improve access and usage of e-resources both on-campus and off-campus; and to create prompt progress in handling, storage, organization, and communication of information to users (Rajan, Jasimu & Kumar, 2012; Ringeera, 2007); which became an imperative for academic libraries in Kenya today to adopt and use together with traditional services (Sejane, 2017).

However, there are some issues that have not been fully addressed by previous studies. For example, the title "Digital Librarian" exists in DLs and other academic libraries but their specific roles is not clear. The researcher feels that there is need to identify specific roles of DLns in the developing and management of DLs so that DLns in Kenya may acquire these skills in advance to meet the user community's digital information needs. The researcher further has the feeling that these titles were once proposed by the management of those academic libraries through what they term as benchmarking, yet their size, structure and population and policies differ very much. Further what DLns do is not clear or it is not known and what is documented as their tasks in their "Job Description" famous known as "JDs" is not what they do in actual sense and therefore the researcher feels that there is acute need to define their specific roles in the service delivery in academic libraries in Kenya. Therefore, this study aimed at developing a proposed conceptual

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framework for digital librarianship in Kenya's academic libraries with special emphasis to three selected academic institutional libraries i.e., the University of Nairobi JKM Library, Technical University of Kenya Library and Multimedia University of Kenya Library.

1.3   Aim of the Study
The aim of this study was to develop a proposed framework for digital librarianship in Kenya's academic libraries.

1.4   Objectives of the Study
The specific objectives of this study were to:

1. Examine the role (s) played by the current digital librarians in academic libraries.

2. Establish job descriptions of digital librarians in various academic libraries in Kenya.

3. Ascertain digital librarians' best practices.

4. Develop a framework for digital librarianship.

1.5   Research Questions
   i.   What is the role of digital librarians in academic libraries in Kenya?

  ii.   What are the job descriptions of digital librarians in academic libraries in Kenya?

 iii.   What are digital librarians' best practices?

 iv.   What is the appropriate framework for digital librarianship?

1.6   Significance of the Study
The study findings will help academic libraries to identify basic roles of DLns and to improve service delivery in those institutions. Additionally, the study will enable the government to come up with a policy framework on the specific roles of DLns in Kenya. Furthermore, the study will act as reference to future studies, thus contributing to the existing body of knowledge concerning roles of DLns. Moreover, the findings will help Kenya's academic libraries to redefine the role of DLns.

The study developed a conceptual framework for DLns' roles to curb the pertinent challenges that are currently facing Kenya's academic libraries when hiring DLns. The study will be useful to library managers, acting as a guide or to give a direction to the management every time the library wants to define the training needs of staff and facilitate selection of the most relevant

training method for the parties as well as specify the best practices to guide staffs during training. DLns are encouraged to combine both librarianship and technological competency skills.

Policy development helps to promote and enhance human development in that it is the most effective way of guiding the procedures and providing an alternative way to be adopted when recruiting DLns for academic libraries.

1.7   Scope of the Study

This study was restricted to only three handpicked public university institutional libraries namely: - the University of Nairobi JKM Library, Technical University of Kenya Library and Multimedia University of Kenya Library. This is because these are some of the public libraries in Kenya.

1.8   Limitations of the Study

The study was conducted when the whole world was infected with Covid-19 Pandemic and all the Universities in Kenya had been closed. The number of participants was small due to the fact that only digital librarians from three selected academic libraries responded in this study. There are few resources touching specifically on the role of DLns' in service delivery in academic libraries in Kenya. The respondents had face masks which made it hard to define their mood when responding to various questions.

1.9   Definition of Concepts

Academic Libraries: These are the libraries of institutions of higher learning like colleges and universities that are directly involved in supporting the teaching, learning, and research.

Digital Information Resources (DIR): These refer to digitized information materials that can be accessed from a library portal, an information center's database, and from the World Wide Web. DIRs include stories, games, pamphlets, e-magazines, e-journals, cartographic materials, e-books, encyclopedias etc.

Digital Information Services (DIS): These are the electronic resources and computerized and networked e-resources that can be accessed through computer networks and libraries.

Digital Library (DL): This is a library set-up where instead of storing information print, such information is stored in digital formats and made accessible over computers.

Digital Repository: an organized store of digital information items

Electronic Books: These are digital textual documents that have been converted and published electronically for immediate consumption.

Electronic Resource (ER): These are information resources that require a computer to enable their access or any automated product that holds a collection of data.

Institutional Repository (IR): This is a specialized digital library that is managed and controlled by an organization to ensure all relevant digital materials are made available to the users.

Library: This is a physical place where musical scores, manuscripts, books, or any other artistic and literary materials are maintained specifically for use and not for sale.

Library Portal: It is a "gateway" which gives access to the library's digital materials and other collections from web search engines or other library collections that is interfaced to relevant e-information resources that library users can use access such materials.

CHAPTER TWO

LITERATURE REVIEW

2.1   Introduction

Literature review refers to a critical and analytical justification of the existing research on a particular topic. A literature review assembles and assesses the research available on a certain topic under research (Pandey & Pandey, 2015). A literature review is a methodical, reproducible, and unequivocal, method of identification, evaluation, and synthesis of the available body of recorded and completed artistic work developed and produced by practitioners, scholars, and researchers (Booth, Sutton, & Papaioannou, 2016). This chapter will cover theoretical and conceptual framework, the role played currently by digital librarians (DLns), their minimum academic qualifications, their curriculum, and nature of their job description in various academic libraries; and measures to improve service delivery in academic libraries. Further the chapter will cover disconnect between the DLns' roles and job description (JD), and the best practices and appropriate proposed framework for DLns' roles.

2.2   History of Librarianship

Gillian (2009) refers librarianship as a discipline or a profession or both. It is an emerging profession that presents one of the oldest as well as one of the youngest callings. Gillian acknowledges that despite many texts published each year on different aspects of library and information practice, it is rare to find a "comprehensive coverage of the entire subject and profession". However, the ruin of the ancient world is a good evidence that the older civilization had their library systems in place meaning that they had a place for the collection and preservation of literary materials for safekeeping and for reference. The ancient conception of librarianship as consisting of the safekeeping materials, written, or printed, has survived even in modern times.

In USA, librarianship started in Philadelphia in 1876 at the first 'Convention of Librarians' whereas in 1880s had been realized in Australia although libraries that time were small and were managed by library committee and scholarly librarians that only needed someone to 'keep things in order'. This same practice was similar in England in 19th Century. In 19th Century, librarianship had been developed despite the absence of the accepted professional skills, minimum standard of education and transferable qualifications (Sue, 2009).

2.3   Digital Librarians (DLns)

A librarian is skilled personnel that provide information to patrons with both traditional and new skills. Successful librarian according to Thanuskodi (2015; Warrier et al., 2015; Yared, 2018) are those who are equipped with fundamental traditional functions such as user education, reference service, indexing, classification, and cataloguing that are necessary and desirable. However, professional associations and institutions do not usually recognize them through proper pay and status, consistent with Yared (2018; Cooke, 2011) concepts of one size no longer fitting all. A digital librarian (DLn) is skilled competent and qualified personnel with adequate skills for the selection, acquisition, accessibility, and preservation of digital library contents. DLn is the mother of invention as provides easy access to digital information (Momoh & Folorunso, 2019; Shahbazi & Hedayati, 2016; Jabeen, 2017).

2.4   The Current Digital Librarians (DLns) Role in Academic Libraries

Raghu (2019) refers to the role of librarians as follows: promoting the library resources in order to equip and arm themselves with different contemporary tools; to educate users through newsletter, lectures, workshops, and training programs; to provide numerous services to their stake holders such as addressing their diverse needs, characteristics, and interests; help users to access information that is vital to today's living; and nurturing information literacy.

With the advent of CD ROMs, online databases, and online catalogs, the library's role has been redefined. Due to this revolution, students and other library users do not have to physically visit a library for information access. With the availability of new technologies, internet, abstracts, databases, and numerous indexes, there has been a dramatic increase in the range of services provided by academic libraries with library user being able to access library resources online without physically visiting the library building. DLns according to recent literature are professionals that works with networks; oversees all library portal management; organize and conduct information literacy (IL) training workshops; involved in teaching, learning and research process (Ocholla, Mutsvunguma & Hadebe, 2017; Shao & Purpur, 2016; Schwartz, 2016); help users to access a collection of electronic document files; use ICT to improve efficiency in the acquisition, organization, management and in service delivery to information; develop systems that allow staff, students, and researchers access information; use library consortia to procure electronic resources (Bhattacharjee & Gautam, 2014); oversee the intellectual property rights

(IPR) issues; draft various library policies like institutional repository open access policy, copyright fair use policy, ETDs repository set up policy, an institutional plagiarism policy, library usage policy and acquisition policy among others (Singh, 2019; Tiemo, 2017; the U.S. Bureau of labor statistics). DLs nowadays are looking for DLns who are skilled, competent and qualified with IT knowledge to efficiently and effectively build; manage; protect digital contents and fulfill the information needs of users (Mthembu & Ocholla, 2019; Shakeel & Rubina, 2017; Yadav & Bankar, 2016; Raju, 2014).

A study by Raju (2014) on DLns knowledge and skills in USA found no comprehensive study done on the role of DLns and their job description to date. A study by Katuli-munyoro & mutual (2016) conducted in America, Asia, Australia, South Africa, Zimbabwe and Kenya found a series of pragmatic studies affirming that DLns are inadequately prepared for their role and job description; and are unfairly criticized for being unprepared for their careers. A research by Bala & Lal (2016; Tutu, 2016) found that several scholars have written about DL with a lot of emphasis being given to technology and information resources and a very noticeable lack of discussion on the role of DLns' in the service delivery in academic libraries and conceptual framework for digital librarianship in Kenya. Further, it has been noted that, less attention has been given to the training of DLns (Corrall & Keates, 2011). Several previous literatures and studies have found that none has fully identified DLns' job titles, and none comprehensively outline current and emerging information on their specific roles, capabilities, and skills. This is because they find themselves at a crossroad where they perform many tasks that are performed by traditional librarians. Efforts within LIS schools to merge theory and practice have been in place but stakeholders have failed to reach a consensus on the proper training criteria to be adopted (Burnett, 2013; Ocholla, 2008; Tammaro, 2007; Thomas & Patel, 2008). However, recent DL literature affirms that the role and job description of DLns in academic libraries are not clear, or not well known (Momoh & Folorunso, 2019).

2.5   Theoretical Framework (TF)

Theoretical framework according to Grant & Osando (2014) is the foundation from which all knowledge is constructed for a research study. This study was based on a theoretical foundation that strengthens the motivation for the study, specifically the Core Competency Theory.

2.5.1 Occupational Self-Efficacy Theory (OST)

This theory was developed by Albert Bandura, a Canadian Psychologist in 1977 (Shidi, 2013 citing Sote & Aramide, 2010). OST is a psychological theory and explains how one can demonstrate his or her ability to effectively accomplish a specific job. OST is related to organizational commitment with its roots in commitment theory. Self-efficacy concerns with the beliefs of an individual on their capability to deliver certain promising results through their actions and behavior. OST will be applied in this study on occupational context to refer to the professional competencies, qualifications, experience, knowledge, skills and attitudes that DLns should have to enable them successfully to fulfill their role in the service delivery in academic libraries (Mthembu & Ocholla, 2019). The OST avers that the more committed an employee is, the more willing he or she will be in remaining with that organization and be able to work harder and perform exceptionally above standards; whereas employees with exceedingly low institutional commitment would give little energy and effort at work, thus low job engagement (Liu & Huang, 2019; Zhang, Ling, Zhang, & Xie, 2015). Self-efficacy affects individuals' actions, feeling, and thinking, and further influences time duration, effort, and amount of energy invested in a task (Liu and Huang, 2019). Individuals possessing high self-efficacy levels exhibit superior confidence and self-esteem in their capacities, continuously make efforts aimed at achieving organizational goals in the wake of setbacks, are hardly affected by the severe effects of stress, and always remain committed to their assigned work (Mthembu & Ocholla, 2019; Peng & Mao, 2015).

2.5.2 Core Competency Theory (CCT)

Core Competency Theory (CCT) developed by Selznick in 1957 has its roots in organizational theory. Mthembu & Ocholla (2019) in their study refer core competency as the ability of a digital librarian (DLn) to learn collectively how to coordinate various technologies and skills within the academic library to add better value to the delivery of service; the academic library's coordinating ability to deliver the best it can (Mthembu & Ocholla, 2019 citing Enginoglu & Arikan, 2016). CCT was used by Mthembu & Ocholla in South Africa to determine whether the LIS training and education is adequately preparing and positioning LIS students for the job market, focusing on academic libraries that led to inappropriately skilled people filling professional posts with an attendant deleterious effect on service delivery. CCT used by many

scholars in related studies to determine LIS professional competencies, qualifications, experience, knowledge, skills, and attitudes in South Africa (Mthembu & Ocholla, 2019).

2.5.3. Technology Acceptance Model (TAM)

Technology acceptance model (TAM) was developed by Davis in 1989 and aimed at addressing specific factors influencing the acceptance and usage of ICT in academic institutional libraries by DLns especially in the provision of DIS (Enakrire & Ocholla, 2017). TAM examines the usefulness of systems to the DLns and their perceived conveneince in carrying out the operations in academic libraries (Enakrire & Ocholla, 2017).

2.6   Curriculum for Digital Librarians (DLns)

A study by Mthembu & Ocholla (2019; Tammaro, 2007) found LIS curriculum for DLns in Kenya currently do not address DLns labor market requirements; and that LIS curriculum in Kenya do not always meet the LIS job market demands and only emphasize more on hypothetical knowledge of the occupation, thus leaving their graduates without relevant technical skills (Abdulsalami, 2012; Baro, 2010; 2011; Oketunji, 2001). Further the nature of LIS curriculum in Kenya has not been uniform because each and every higher education institution (HEI) determines its own that results to lack of consistency and uniformity in the names of courses as well as the study's length and content standards. LIS curriculum in Kenya has been criticized for churning out graduates without the required skills and knowledge to perform effectively in their immediate jobs. LIS curriculum should be aligned with what is required in the LIS job market in order to bring rich collective experiences and abilities (Mthembu & Ocholla, 2019). Today's DLn training programs differ sharply in objectives, focus, and content and LIS practitioners and educators have for a long time grappled with issues affecting all librarians' core competencies yet; the shortage of DLns' workforce is becoming more serious, although their role and job description in DL is not well known (Choi & Rasmussen, 2009). A chunk of DL literature acknowledges the existing lack of IT proficiency in academic libraries in Kenya and a lot of efforts are being made by library associations, non-governmental institutions, and government organizations to organize seminars and workshops in order to provide relevant skills to DLns to enable them effectively to perform their tasks. Mthembu & Ocholla (2019; Kumar & Gupta, 2016) alludes that LIS education and training are essential for updating our knowledge. A study by Burnett (2013; Horaya & Curran, 2012) found several skills lacking in LIS curriculum

in South Africa, Zimbabwe, Ethiopia and Kenya such as human resources management; communication skills; teaching skills; and IT- related skills, competencies and know-how among others. The developing trends in ICTs necessitated the need for change of the LIS curriculum to reflect the prevailing librarians' skills, characteristics, and roles (Emezie & Nwaohiri, 2013; Yared, 2018). Many scholars have proposed the hybrid curriculum by arguing that, it would result in a more calibrated program bringing together corresponding strengths from various departments like policy studies, LIS, psychology, and computer science, as well as cover specific curriculum jurisdictions such as historical and theoretical foundations; knowledge organization in DLs, technical infrastructure of the DLs; collection development and maintenance; professional, political, economic, and social issues, and information access and utilization of DLs (Baro, 2009).

The trend in ICT changed LIS syllabus and adjusted skills, characteristics, and roles, that require DLns to acquaint themselves with ICTs to empower them and create future expanding and new roles (ALIA, 2014; Emezie & Nwaohiri, 2013). DLns need to remain relevant in their occupations not only to provide the specified services to the library users but to also bridge the gap between the library and users (Yared, 2018; Werrier, et al., 2015). According to Organization for economic cooperation and development (2010; UNESCO, 2009) ICT skills are considered as basic literacy skills that are changing the modern landscape and enable DLns to perform a series of tasks, ranging from information literacy to access to cybrarian and transliteracy. According to ALIA (2014), the constant expanding digital space will result in high value of the information literacy as well as digital skills that lead to a novel transliteracy concept. DLns need to be equipped with adequate skills, knowledge, and competencies necessary in meeting the ever -varying needs of different users across all generations (Yared, 2018).

2.7   Digital Librarians (DLns) Minimum Academic Requirements

According to Cooke (2012), DLns should be as knowledgeable as their clients, and the best effective and productive way in keeping with such constant changes is for librarians to seek, discover, and exploit available proficient growth and development opportunities. Digital librarians (DLns) are required to be 'hybrid' and 'blended' professionals referring to staff with mixed backgrounds (Corrall, 2010). Cooke (2012) argues that learning for the current professional does not necessarily end with diploma, but supports the concepts that ongoing

education strengthens skills, knowledge, attitudes, and values needed for the service alignment of a given profession. To remain cognizant of the new development in their field, DLns need to strive at becoming as much competent to their clients as possible. According to Tammaro (2007) a lot of research has been done on minimum academic qualifications of DLns since the emergency of DL. Corrall (2010) affirms that LIS academic qualifications must recognize the set standards and measures by international and national professional bodies. The ALA (2008) approved and adopted policy document that defined and documented the basic knowledge that must be possessed by an individual graduating with a master's degree in LIS from accredited institution of higher learning. This notion is also supported in UK's Chartered Institute of Library and Information Professionals (CILIP) which is the country's body of professional knowledge, the quality assurance agency for higher education and national occupation standards. The ACRL standard committee and the ACRL Board of Directors (2018) is silent on minimum academic qualifications although it gives a limelight on how one can grow his /her career up the ladder through continuing professional development.

2.8   Job Description (JD) of DLs in Academic Libraries

According to Jerabek (2009), Job Description (JD) identifies a job and provides a summary of the job that includes, a description of essential job tasks and duties and responsibilities. JD identifies the relevant education, training, skills required by a potential employer and outlines specific duties, roles, and responsibilities of the job. Therefore, the nature of DLns JDs in Kenya differs depending on the nature of the job they perform and the size of the institution in terms of population and coverage. Various academic libraries differ in size, population, and policies and therefore the nature of the JD for various DLns from various academic libraries may differ. The researcher postulates that the title of "DLn" exists in DLs and other academic libraries, but their role are not clear or well stipulated in their job description. It is true that DLns in various academic libraries have job description. This is done in tandem with the set policies that lack shared standards. Further what DLns do is not clear, or it is not well known and what is documented as their tasks in their "Job description" famous known as "JDs" is not what they do in actual sense. The researcher further postulates that these titles were once proposed by the management of those academic libraries through what they term as benchmarking, yet their size, structure and population and policies differ very much.

2.9   What to be Done to DLs Curriculum to Improve Service Delivery in Academic Libraries

There is need for hybrid curriculum. Mthembu & Ocholla (2019 citing Raju, 2015 & Shongwe, 2015) proffers increased integration of technology in the LIS curricula. DLns syllabus should be customized reflect on the prevailing needs of the job market and requirements; and to enable DLns to acquire new skills to effectively navigate through the digital universe and overcome challenges of digital librarianship through workshops; conferences; seminars; individual development initiatives; informal engagements; self-training and research; practical work; internship and voluntary work (Shakeel & Rubina, 2017; Ocholla, Mutsvunguma & Hadebe, 2016; Rukwaro & Bii, 2016 citing Shogwe & Ocholla, 2012). All the LIS curriculum stakeholders should be involved in the syllabus' development and LIS workers should be facilitated with relevant refresher courses (Rukwaro & Bii, 2016 citing Amunga & Khayesi, 2012). The LIS syllabus should largely cover information disciplines that targets evolving markets. Digital library (DL) literatures require DLns to be equipped with traditional essential roles like user education, reference service, indexing, classification, and cataloguing, (Thanuskodi, 2015; Warrier et al., 2015; Yared, 2018).

Other than just being viewed as adding additional course to the program, DLns curriculum development should concern with the deep mastery and understanding of the twenty first century skills and knowledge; the LIS curriculum should be free from the challenges faced by the previous LIS education systems offering worldwide (Yared, 2018; Tammaro, 2007); LIS curriculum should be restructured to reflect international standard requirements while also paying attention to the local realities; librarians' education has to expect changes, improvements, and developments in professional expectations, tasks, and roles (Yared, 2018; Corrall, 2011).

LIS syllabus and library services need to reflect on the constant changing contemporary library landscape. Thomas & Patel (2008) proposes competency- based training (CBT) as the best curriculum to equip DLns with IT related skills that are lacking and allow trained communities to create, develop, and refine training needs for definite types of job; help LIS educators and practitioners better understand and train a new DLn's workforce; and build curricula shaped by the skills, knowledge, and competencies and capacities required to execute the task.

According to Yared 2018; Walser (2008), soft skills like creativity that computers cannot provide are necessary for DLns to perform their jobs. As such, DLns curriculum and pedagogical skills should incorporate the developing skills sporadically into the LIS syllabus to enhance its responsiveness to the job market's demand for workforce (Yared, 2018). DLns require enabling competencies that blends multi-literacy, expertise, skills, knowledge, and content necessary to succeed in life and work engagements (Ledward & Hirata, 2011). Thanuskodi (2015) proposed a close coordination between LIS professionals and practitioners, educationists, and employers in order to formulate DLns' curriculum and LIS programs capable of equipping DLns with enabling competencies, and skills; associations of library at national, regional, and international levels are in the fore front to realize improvement in the LIS career. Continuing professional development (CPD) is viewed as the only important technique for persons to secure their careers in the library and information industry for it equips librarians with required skills; and offer professional growth prospects that enhances librarians' competency and professionalism and, remain aware of the developments and trend in the LIS curriculum (Yared, 2018; ALIA, 2014; Cooke, 2011).

2.10   The Disconnect Between the Role of DLns and JDs

Although Raju (2014) found no comprehensive study done on the role of DLns to date, several previous DL literatures and studies found that no study had fully identified DLns' roles and gave up-to-date and comprehensive information on their JD, competencies and skills. Studies by Chunk & Salwa (2008; Thomas & Patel, 2008) found a disconnect between the DLns' roles and JD in the world for many years. This is attributed to lack of consensus between LIS educators and LIS practitioners about the DLns' job and the proper training courses requirements. A study by Tammaro (2007) links the disconnect to: lack of opportunities for formal and (informal) education in IT for DLns acquired through apprenticeship and short courses; lack of conceptual background to LIS courses; fragmentation and dispersion of LIS education across a wide spectrum of topics; and inclusion of DL subject in many computer science curricula; failure for LIS schools to recognize the need for having librarians of cross-functional experts in both CS and LIS fields; lack of clear career path for DLns; different goals and expectations for DLs at various institutions; inadequate structured degree courses for DLns; and the requirement for recurrent learning activities as a component of the job which made it hard to define the role and JD for DLns that brought a barrier to international joint courses and cooperation.

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2.11   Digital Library (DL) Best Practices

Raghu (2019) defined best practices as the application of theoretical concepts to the real simulation process that when correctly implemented unwaveringly produce greater results; method or technique that is accepted as better because it produces outcomes superior to those that could be achieved through other accepted procedures. Raghu & Anjaiah (2017) refer Best Practices as a reliable technique or method proved to have occasionally shown higher outcomes compared to results attained via other mechanisms; and that serves as a standard for benchmarking. Benchmarking is one of the approaches leading to Best Practices and has a significant bearing on the libraries' operations. Best Practices can be standards that are accepted across the industry and exceed the industry standards wherever possible. Raghu (2019; Raghu & Anjaiah, 2017) opined that the best practices should prove that they are adequate in helping an organization achieve its objectives and that DLs should monitor practices of others to identify and implement the best practices that will result in higher number of library users, and providing better library services to the maximum satisfaction of the library users. Raghu (2019) applying Ranganathan law affirms that "the kind of education given to the library profession must be reflected in the service given by the profession" and that academic institutional library staff must identify and implement exceptional and active practices to satisfy the information needs of the end-users.

Bhattacharjee & Gautam (2014) defined best practices as the procedures embraced by a leading institution in any sector to achieve highest performance standards and serve as objectives for upcoming and established organization seeking excellence in their service provision and operations. It can be an innovative, a practice, process, strategy, policy, or philosophy that creates new opportunities or addresses an empirical problem. Australian best practices demonstration program refers to best practice as "the pursuit of world class performance" or the best mechanism through which successful organizations organize and manage their operations. Bhattacharjee & Gautam (2014) affirms that for academic libraries to cope with the higher education system challenges, then every DL should identify and implement individual evidence-based best practices to improve the management; and enhance the use in academic libraries to improve the overall library performance as well as the entire institution. Other than supporting learning activities, DLs also have been recently emerged as reliable learning, which is more appropriate and reliable than the physical classroom setting. Singh (2019; Bhattacharjee &

Gautam, 2014) listed the following best practices: digital library administrator; ICT administrator; Local Area Networks (LAN) facilitator; and Institutional repository (IR) manager. Others include university coordinator of electronic thesis and dissertation (ETD); research advocate; the policy maker or formulator; and plagiarism detector. Others are an IPR issue councilor; social media communicator; and website designer. Others include content manager; training organizer and trainer; and e-resources development collaborator/ library consortium collaborator. Others are electronic publishing; digital library applications developer; Library portal designer; CD mirror server facilitator; user feedback mechanisms provider; Inter Library Lending (ILL) and OPAC.

Prabhakar & Rani (2017) posits that for Digital libraries (DLs) to continue providing best services to their clients, they must adopt processes, procedures, and practices that are not only best to their scenario, but also equivalent with the leading in the industry. Prabhakar & Rani (2017) listed the following best practices: information literacy programs; internet facilities to different user groups; conducting user surveys periodically; hanging newspaper trimmings on notice boards occasionally; suggestion box and timely response; organizing book talk sessions; occasionally conducting book exhibitions; organizing competitions annually; implementing yearly best user-award for students; circulating a list of those to academic departments and show-casing new arrivals; provision of career or employment information/ services; including sufficient information on the library in the university/college prospects; computerizing library with standardized software; assembling teacher/student attendance and locating the same information on the notice boards. Best practices in DLs results in improved activities and processes; results in resource optimization, resource utilization; delivery of high-quality value-added services to the library users; identify and meet user's needs and demands; advertise library services and products; and execute the purpose of the library to minimize operational costs; and enhance service quality and overall performance (Prabhakar & Rani, 2017). Best librarians are those that adopt best practices that address the underlying gap between user community and library collection for optimal utilization of resources. Such Best practices include use of technology, extent of service use, management, and administration. The technology-based services are critical in the provision of current information to end-user communities.

Patel (2018) listed best practices on NAAC website as: library automation; conducting book exhibitions on different occasions; conducting IL programs; providing Internet facilities to different user groups; facilitating book talk events; implementing best user award for students annually; holding annual competitions; conducting periodical user surveys; occasional hanging of newspaper clippings across notice boards; employment/career services/information; show-casing new arrivals and sharing out the list of materials mean for academic departments; suggestion box and timely response; compiling teacher/student attendance data and displaying the information on the notice board occasionally; and including of satisfactory information on the library in the university/college prospects. Jotwani (2008) refer best practices as strategies, policies, resources, and standards applied by DLns to achieve top performance; a best way to perform a function or process that results in exceptional performance; management idea acknowledges that there is an incentive, activity, process, and method that is more adequate and reliable in delivering a desired outcome to achieve superior results; it is a commitment by DLns to use relevant material technology and knowledge at the disposal of an individual to enhance success.

Jotwani (2008) alludes that it is not just adequate for an institution to implement best practices; but rather, the organization should ensure effective and efficient dissemination of such practices for broader use and application throughout the system. Best practices are the most efficient and effective way for a DLn to accomplish a task. Since best practices are those that are borrowed, DLns ought to benefit and learn from each other's individual experience (Singh, 2019; Bhattacharjee & Gautam, 2014). Whereas many patrons of library believe that any best practice concerns usage of high amounts of resources (equipment and money), there is another aspect to this since the concepts requires problem solving and creativity capacities, willingness, and active participation attitude by respective library authorities.

In academic libraries, best practices improve its ability to disseminate information; provide a safe and comfortable environment to enhance the teaching-learning process; increases the footfalls to the library further; increases the usage of print and e-resources; improves library performance; increase user satisfaction; improve upper management support; build professional relationship and learning culture; substantiates library's value; increase in the knowledge resources and library use; ease and increase convenience to the end-users causing an increasing foot falls and

usage; increases Audio visual services that increases students visits to the library (Raghu, 2019). Failure of a library to incorporate best practices will become incredibly difficult for it to survive. Library best practices can help the other libraries to adopt and practice the same if that model works out well through benchmarking but affirms that "the traditional librarian is nowhere seen in the academic institutes at the present scenario" by comparing librarians speed with that of the Google world since when it comes to internet speed, it is their technology that is controlling the contemporary world.

2.12   Conceptual Framework (CF)

A conceptual framework (CF) refers to a hypothesized model that identifies the concepts and relationship in a study; or is an integrated mechanism of approving a problem being studied (Adom, Hussein & Joe, 2018). CF is a schematic diagram that highlights the key variables in a particular study. CF helps the researcher to explain what s (he) seeks to find in a study; it is the researcher's soul for it determines research problem and how to investigate it (Creswell & Creswell, 2018; Imenda, 2014). The emergence of DIS to academic libraries in previous years experienced a high number of positions that required DLns possessing advanced IT related skills and competencies (Tammaro, 2007). Raghu (2019) avers that library occupy critical places in any academic system framework. The hiring of new DLns and subsequent staffing is a key challenge faced by academic libraries in Kenya (Choi & Rasmussen, 2009). Academic libraries play a significant part in the provision of quality and standard education, despite this contribution being intangible (Reddy, 2017). Literatures affirm that before an academic institution starts a DL, the management needs to first ascertain the need for establishing one and must seek approval for it. What follows is to carry out survey of user needs and formulation of policies. The policies will guide on the various practices such as acquisition, management and recruitment of the personnel including digital or blended librarians. After the policy, the JD is developed to describe the tasks or functions that the right candidate is supposed to undertake in order to enhance efficacy and management practices. The JD will help the library management to come up with the minimum academic qualifications for the required candidate. Since library is a source of knowledge of seasoned thinkers of all generations (future, present, and past) there is need to recruit librarian equal to the task with knowledge of preservation and conservation, IT-related skills, internet knowledge and portal. This is so because as Ambika (2017) puts it that any

loss or damage to the preserved materials cannot be replaced and as such, cultural heritage and intellectuals is an academic commitment and moral responsibility accorded to the DLns entrusted with the academic repositories. Then library management will have two options to either recruit new qualified DLn or to train an existing staff to oversee the management practices of the DL. Whichever way the library management opts for the candidate is supposed to undertake the new roles of DLn.

These roles include policy formulation, detecting plagiarism, research advocate, coordinating ETD, electronic publishing, collections developer, digital library administrator, social media communicator, content manager, IPR issues conciliator, e-resources development collaborator, IR manager, collection developer manager, website designer, digital library application developer, among others.

Figure 2.1: *The appropriate conceptual Framework for Digital Librarians Roles (Source: Researcher, 2021)*
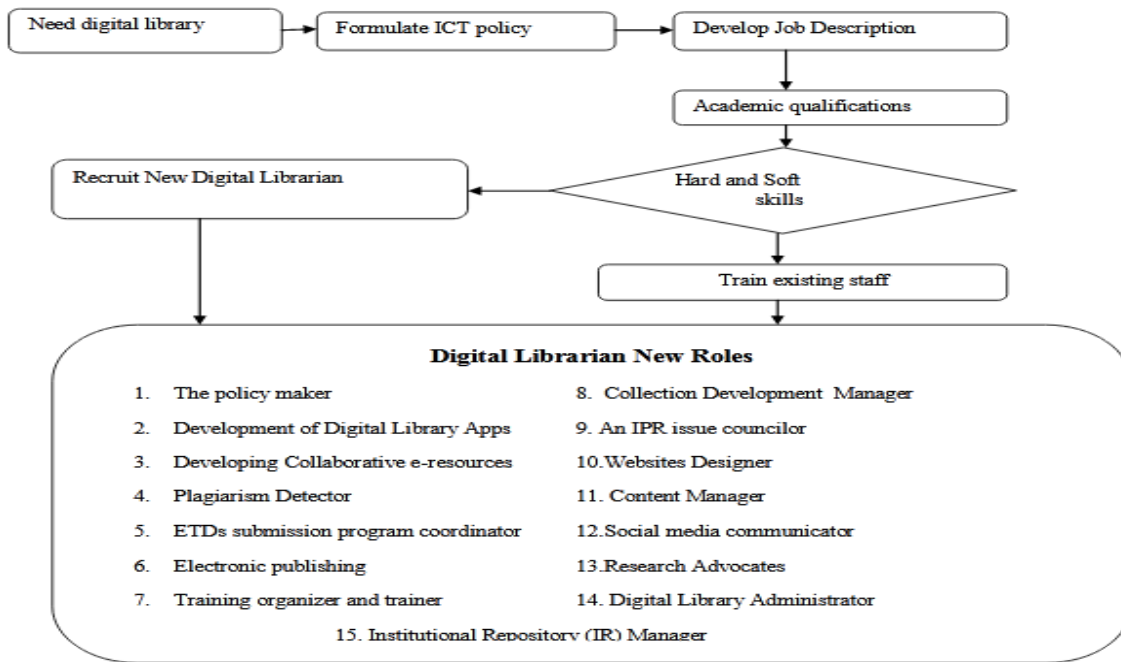
CHAPTER THREE

RESEARCH METHODOLOGY

3.0   Introduction

This chapter described the methodology employed to collect data. It addressed the research design, the targeted population, the sampling design, sample size, data collection instruments, and the data analysis techniques.

3.1   Research Design

Research is the collection and examination of data to solve a problem (Oso, 2016). Research design can be a plan, a procedure or "blueprint" for data collection; a concept for the data collection and analysis (Bhattacherjee, 2012; Creswell & Creswell, 2018; Henn, Weinstein & Foard, 2006; Walliman, 2006). Research design is a theoretical structure that specifies how a research should be conducted and entails an outline for the data collection, measurement, and analysis; it is a blue-print and a strategy that identifies the types and sources of information pertinent to the research problem (Kothari & Garg, 2014; Kothari, 2004; Madan, Paliwal & Bhardwaj, 2010). Research design is a precise technique deployed by a researcher in the collection, analysis, and interpretation of data (Stangor, 2011). Research design according to Kumar (2014) refer to the plan, outline, or scheme to be applied in generating answers from the study questionnaires through the combination of economic relevance and research in procedure. This study applied descriptive research design where the researcher in the first phase conducted a detailed analysis of the relevant literature to identify the digital librarians' roles, JD, skills, and competencies for the development and management of digital libraries (Shakeel & Rubina, 2017; Shidi, 2015).

3.2   Target Population

Population according to Bhattacherjee (2012) involves all subjects with the similar characteristics that a researcher wishes to study. Additionally, population can refer to all items in any field of inquiry (Kothari, 2014; Madan, Paliwal & Bhardwaj, 2010). Target population according to Oso (2016) refers to the aggregate of study subjects or elements. Population can also refer to all members of a hypothetical or real set of events, objects, or people, to which a researcher intends to, draw conclusions to the outcomes. Target population can be the entire group of objects from which sample is extracted. The target population for this research involved

thirty librarians in charge of digital information resources and services (DIRs) and in particular managing electronic resources from the three selected academic libraries in Nairobi County, that are UONJKML, TUKL and MMUL. The academic library has somehow a well-developed digital collection of information resources and services subscribed through a consortium. This is because librarians are supposed to be involved in the administration, management, and provision of DIRs and may provide comprehensive data and information on the topic thus the focus of the study.

3.3   Sample and the Sampling Techniques

3.3.1   Sample Size

Sample design according to Kothari & Garg (2014) refers to a specific plan used in obtaining a sample from a study population and determines the specific items included in a sample size. Madan, Paliwal & Bhardwaj (2010) refer sample design as a technique adopted by a researcher when selecting items for the sample and is usually determined before data are collected. A sample according to Oso (2016) refers to a group of participants or subjects selected systematically from the given target population. Further Oso (2016) explained the concept of sampling as the systematic process of picking a 'few cases' from the target population to provide useful information in making judgments on a wide number of cases. The 'few cases' is referred to as a sample whereas the entire group from which the 'few cases' were extracted is known as the population. Sampling size is the number of phenomena to be extracted from the population to form a sample; it is the number of cases or elements from which reliable inferences can be made about a population and must be large enough (Oso, 2016; Kothari & Garg, 2014; Madan, Paliwal & Bhardwaj, 2010). Sampling frame is the names of all items or objects in the universe (Kothari & Garg, 2014). The sample size of this study involved thirty librarians. The respondents from the study population were selected through purposive sampling technique due to the small number of the digital librarians in the library and knowledge in DIRs.

3.3.2   Sampling Techniques

A sample is a descriptive of the total population. It can be a group of participants selected systematically from the target populace to exemplify the population (Oso, 2016). A sample should be able to fulfill the requirements of flexibility, reliability, representativeness, and efficiency (Kothari and Garg, 2014). Sampling is the procedure of obtaining a representative

sample from the target population and a sampling technique is the selection process (Oso, 2016; Kothari & Garg, 2014). Bhattacherjee (2012) refers to sampling as the arithmetical process of selecting a sample of a population of interest used in making statistical inferences and observations about that population. Since the power of research lies in the ability to obtain the necessary information from a few cases to describe the characteristics of a population. A researcher is supposed to determine the minimum possible sample size required to give minimum error and avoid unnecessarily large samples since the same information can be obtained from a smaller sample. According to (Kothari, 2014; Kothari, 2006; Oso, 2016), the researcher should select the design that has a small sampling error for a given cost and sample size. This study employed deliberate or purposive sampling technique to select thirty librarians as respondents from the three selected academic libraries for data and information collection.

3.4   Research Instruments

3.4.1   Questionnaire
A well-thought-out questionnaire with well-designed questions, introduction and background information was used to collect information from thirty librarians in three selected academic libraries. The researcher self-administered the questionnaires to the thirty respondents in the three selected academic libraries in Nairobi County-Kenya.

3.4.2   Document Review
Document review analysis combined with practical experiences and related information sources that involved the use of information resources was adopted such as Emerald insight; EBSCO Host; IEEE; Ebrary e-books; Wiley online journals; and JSTOR among others. Information and web portals of the three sampled academic public libraries provided the additional needed knowledge. The purpose of the document review was to provide updated information and knowledge in regard to the specific roles and JD of DLs in academic libraries.

3.5   Pilot Study
Pilot study refers to a pre-study conducted on a small-scale to determine the relevance and need for proceeding with a research and is usually performed whenever a researcher wants to examine areas about which he or she lacks sufficient (Kumar, 2014). In order to facilitate the study, a pilot study aimed at revealing the weaknesses of the questionnaires was done to test the questionnaire's adequacy and valuable comments were incorporated into the final research

questionnaires. A pilot study involving library and information staff in a different university's digital library environment was conducted so as to assess the reliability and validity of the data collection tools. The purpose of the pretesting was to gauge the effectiveness of the questionnaire in data collection process and take corrective measures before the actual research. The pretesting of data collection tools was conducted at the Cooperative University of Kenya-Karen where a sample of six librarians participated in the exercise.

3.5.1 Validity

Validity ascertains an instrument's ability to quantify what it purports to measure; it refers to the extent to which a study finding matches the world's realities; the usefulness, meaningfulness, and appropriateness of the decisions made by the researcher based on the collected data; it is about the truthfulness of results (Oso, 2016). Validity refers to a measure's adequacy to represent the construct under consideration that it is developed to measure (Bhattacherjee, 2012; Kumar, 2014). Kumar (2014) further defined validity as the extent to which a researcher has ascertained what he intended to measure. Validity describes the soundness of the results of a research. To guarantee validity of the research instruments for this study, the researcher conducted a detailed document review to provide current information on digital librarians in academic library. The researcher further designed a structured questionnaire that involved brainstorming with ideas and opinions from supervisors and experts in the study. The structured questionnaires were guided by the research questions and objectives of the study to enable data and information to be collected from the respondents.

3.5.2 Reliability

Reliability is concerned with consistency and repeatability or the degree to which a study is free from random errors (Oso, 2016). Reliability measures or estimates how much variation to expect from a measurement; it is the extent of dependency and consistency of a construct's measure (Oso, 2016; Bhattacherjee, 2012). Reliability is also concerned with consistency and replicability of study results, or of a measuring device. Reliability refers to a tool that is accurate, stable, predictable, consistent, and dependable (Kumar, 2014). The researcher ensured reliability by pre-testing the questionnaire to determine its effectiveness and accuracy in the process of data and information collection. Further the digital experts in the study were consulted in the process of data coding, analysis, and presentation.

3.6　Data Presentation and Analysis

Descriptive analysis was used to analyze the collected data in relation to research questions and objectives of the study. The interviews were transcribed into written text to understand the meaning which made it easy for the researcher to discover and develop an understanding of the hidden meanings in the participants' responses (Khachatryan, 2014). Other data analyses were done using various statistical formulae; by coding, tabulating and then drawing statistical references (Kothari 2014).

3.7　Ethical Considerations

Bhattacherjee (2012) refer ethics as the adherence to the defined standards of conduct of a specific group or profession, the moral difference between wrong and right. Oso (2016) refer ethics in research as the balance that exists between pursuit of knowledge and participants' respect in the research process; they are accepted beliefs which control the behavior of researchers and participants on what is morally right or wrong within the organization or group. In relation to this study, the researcher obtained a license from NACOSTI and letter of authority to collect research data from the office of the Chairperson, Master of Library and Information Science. The researcher also ensured that the behavior of the researcher before, during, and after the study activity was done with respect and concern for the dignity and welfare of the participants (Kumar, 2014). Letter of introduction and authorization from the three academic libraries were given to the respondents assuring them of the confidentiality of the information shared and shall be used without bias for the sole purpose of academic research. Respondents voluntarily participated in the study without any incentive or reward either in monetary terms or in kind. Acknowledgement of all sources of information was done in order to ensure intellectual honesty and avoid any forms of plagiarism. Other than being concerned with the benefits of the research, the researcher considered the participants' rights to privacy and confidentiality throughout the research process. The researcher was not only concerned with the benefits of the research findings but also with the rights of the participants in the research process (Oso, 2016).

3.8　Chapter Summary

This chapter covered the various aspects of research methodology. It discussed how the study was conducted from research design, population sampling to data collection. In addition, it also touched on the validity of the instruments and its relation to the reliability of data collected. It set

the stage for the researcher to embark on the subsequent chapter on research findings and presentation.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.0 Introduction

This chapter presents, analyzes, and interprets data, as well as discusses the study's findings. The aim of the study was to develop a proposed framework for digital librarianship in academic libraries in Kenya. This study employed descriptive approach where the findings were presented descriptively with the aid of charts, graphs, and tables.

4.1 Questionnaire Response Rate

Questionnaires were self-administered by hand and others sent online through Google to librarians who had knowledge and skills of digital information resources and services (DIRs) to three selected public institutional libraries that is: Jomo Kenyatta Memorial Library (JKML), Technical University of Kenya Library (TUKL), and Multimedia University of Kenya Library (MMUL). Table 4.1 below shows the total number of sampled respondents. Out of the 30 questionnaires administered, 24 were filled and returned. This represents 80% response rate. Nzioki (2018), citing Babbie (1990), stated that a 50% response rate is sufficient. He considered 60% response rate to be better while anything above 70% is regarded as very good. At 80%, the researcher considered this level of response to be more than adequate.

Table 4.1: Questionnaire Response Rate

Respondents	Sample Size	Response received	Response rate
JKML	10	10 (33.3%)	
TUKL	10	7 (23.3%)	80%
MMUL	10	7 (23.3%)	
Total	**30**	**24 (80%)**	

Source: Researcher, 2021
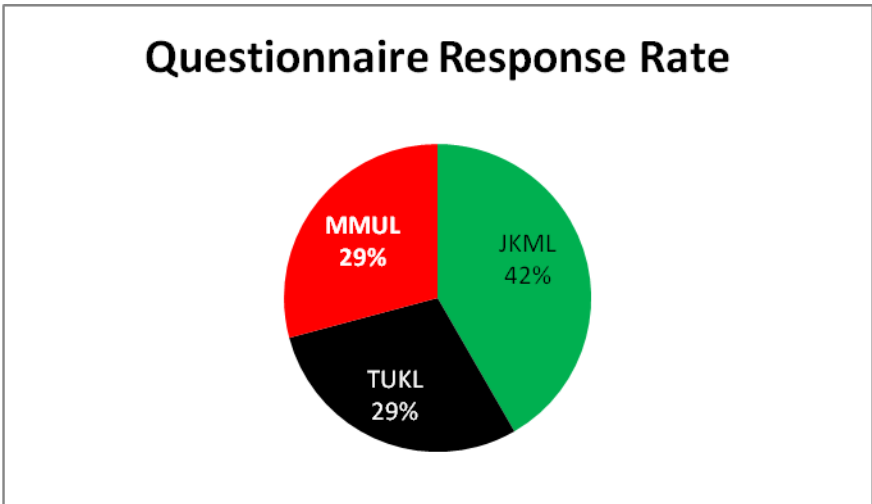
Figure 4.1: *Questionnaire Response Rate (Source: Researcher, 2021)*

4.2 Digital librarians'(DLns) roles in academic libraries

The first objective of the study was to examine the roles of current digital librarians (DLns) in academic libraries. This was determined by asking questions related to their current job titles. Figure 4.2 below shows that 22.7% (N= 5) were digital librarians, 18.2% (N= 4) were systems librarians, 40.9% (N= 9) were data librarians, while 18.2% (N= 4) indicated other. This finding suggests only one-fifth of the respondents considered themselves DLns. The finding suggests that a larger percentage of librarians in academic libraries are data librarians (40.9%).
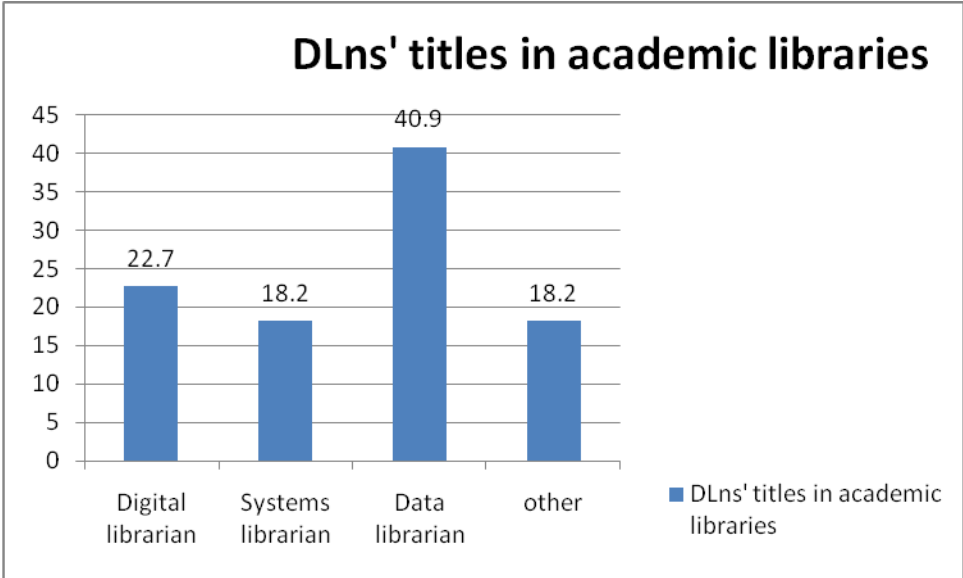
Figure 4.2: *Current Job (Source: Researcher, 2021)*

4.2.1 Number of years served.

The staff were asked to indicate the number of years served in their respective careers. Figure 4.3 below indicated that 27.3% (N= 6) had served less than 5 years, 36.4% (N= 8) had served between 5-10 years, 22.7% (N= 5) had served between 10-15 years, whereas 13.6% (N=3) had served for more than 20 years. This finding suggests that a larger percentage of librarians in academic libraries had served between 5-10 years (36.4%). The findings suggest that a larger percentage of librarians had served between 5-10 years.
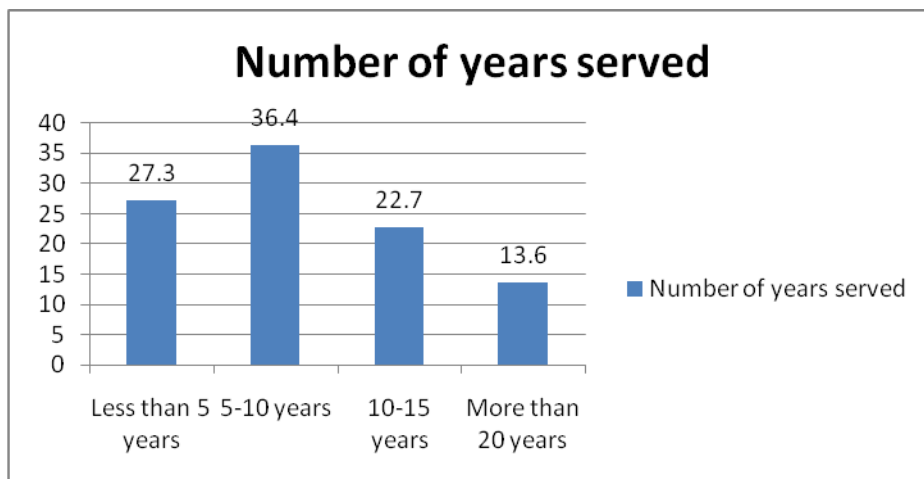
Figure 4.3: Number of years served (*Source: Researcher, 2021)*

4.2.2 Digital librarians' Academic qualifications

The library staff members were also asked to indicate their academic qualifications. Figure 4.4 below indicated that 40.9% (N=9) had diploma level qualifications, 4.5% (N=1) had higher diploma level qualifications, 31.8% (N=7) had degree level qualifications, and 22.7% (N=5) had post-graduate level qualifications. This finding suggests that a larger percentage of librarians in academic libraries have diploma level of education (40.9%), followed by degree (31.8%), and then masters with 22.7%.
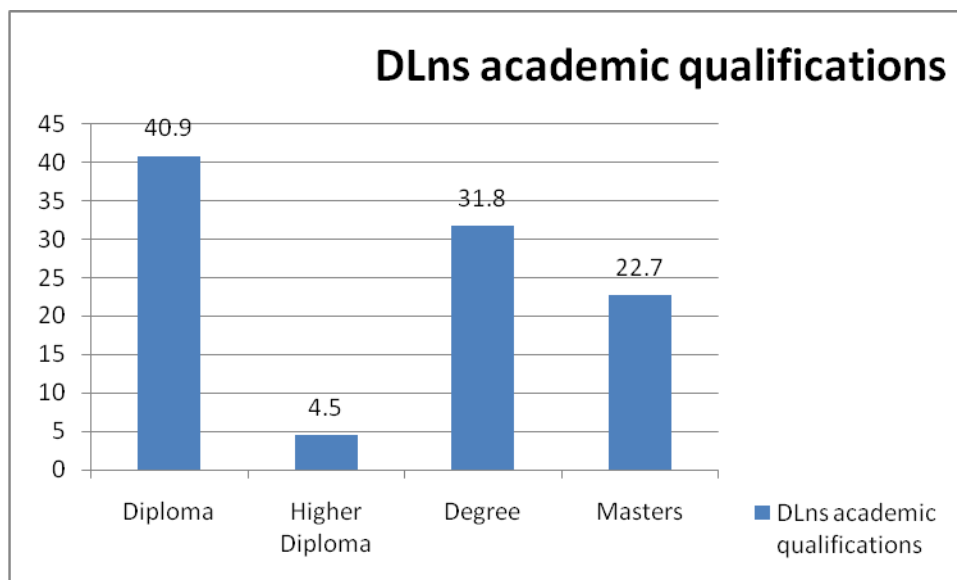
Figure 4.4: *DLns Academic Qualifications (Source: Researcher, 2021)*

4.2.3 Type of DIRs in the libraries

When library staffs were asked to indicate the type of DIRs provided by the libraries, the findings in Table 4.2 below showed that 40.9% (N= 9) indicated e-books, e-journals & Online Public Access Catalogue (OPAC), 54.5% (N= 12) indicated e-books, e-journals & institutional repository, while 4.5% (N=1) had no idea.

Table 4.2: Type of DIRs in the libraries

DIRs	Frequency (n)	Percentage (%)
e-books, e-journals & online public access catalogue (OPAC)	9	40.9
e-books, e-journals & Institutional repository (IP)	12	54.5
No idea	1	4.5
Total	**22**	**100.0**

Source: Researcher, 2021

4.2.4 Period of Interaction with DIRs

Work experience can be an asset about interacting with digital information resources and services (DIRs) at the workplace. This study sought to establish how long library staffs have interacted with DIRs from the three selected academic institutional libraries. Table 4.3 below indicated that 9.1% (N=2) had interacted for less than 5 years, 63.6% (N=14) for between 5-10 years, 22.7% (N=5) indicated 10-15 years, and 4.5% (N=1) indicated 15-20 years.

Table 4.3: Period of Interaction with DIRs

Period of interaction with DIRs	Frequency (n)	Percentage (%)
Less than 5 years	2	9.1
5-10 years	14	63.6
10-15 years	5	22.7
15-20 years	1	4.5
Total	**22**	**100.0**

Source: Researcher, 2021

4.2.5 Work experience with DIRs

When library staffs were asked to state their work experience with DIRs, Figure 4.5 below showed that 22.7% (N= 5) indicated less than 5 years, 36.4% (N= 8) indicated 5-10 years, 27.3% (N=6) indicated 10-15 years, while 13.6% (N=3) indicated 15-20 years.
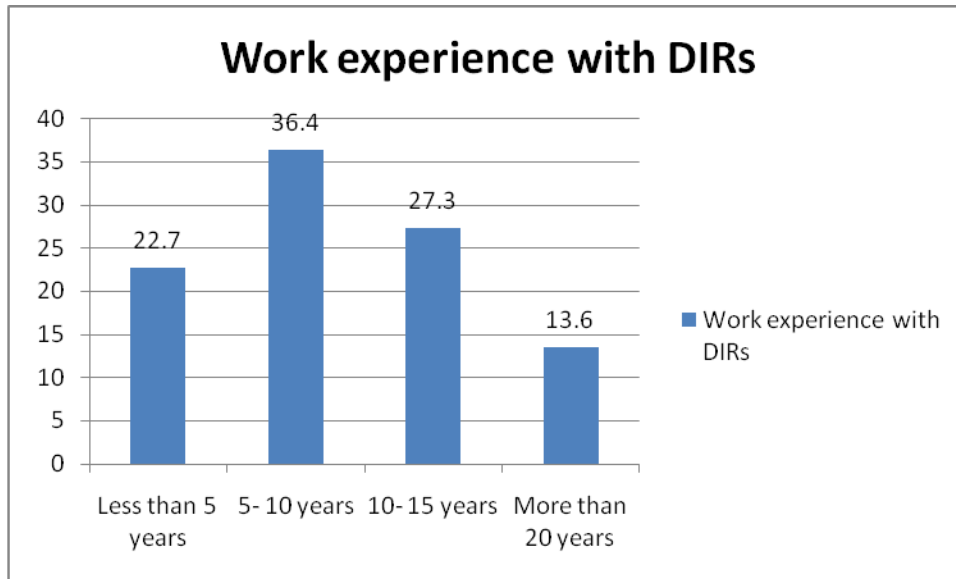
Figure 4.5: *Work experience with DIRs (Source: Researcher, 2021)*

4.2.6 Challenges encountered when interacting with DIRs

The respondents were asked to indicate the prevailing challenges encountered when interacting with the DIRs. Figure 4.6 below showed that the majority, 59.09% (N= 13) indicated Slow internet and systems failure as the major challenge encountered. 9.09% (N=2) indicated late subscriptions, while other 4.55% (N=1) indicated lack of motivation, poor staffing, inadequate training, financial constraints, inadequate information resources, evolving digital landscape and plagiarism of DIRs as the challenges. The other 4.55% (N=1) did not indicate the existence of any challenge.
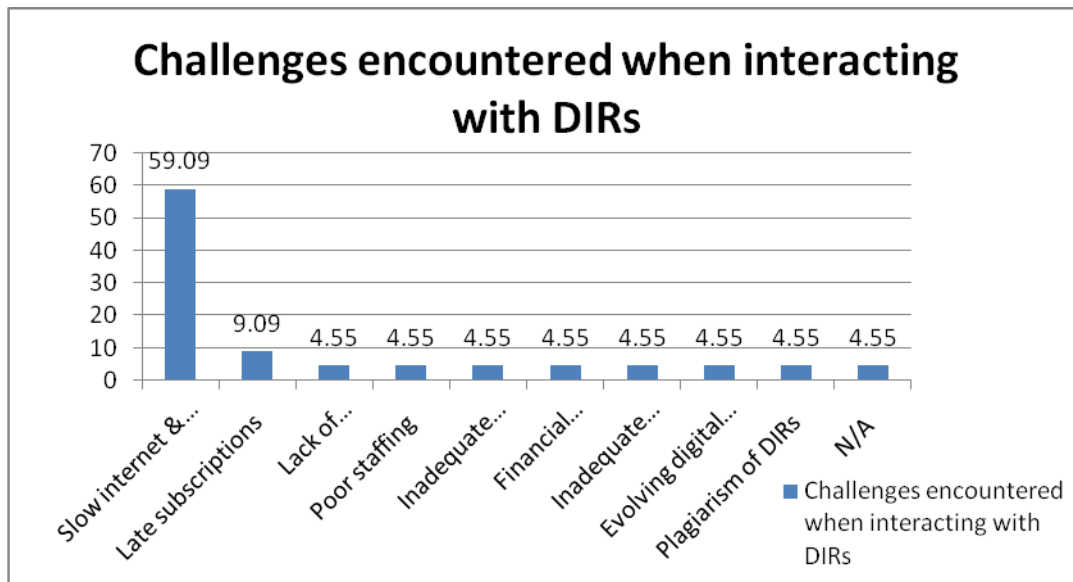
Figure 4.6: *Challenges encountered by DLns when interacting with DIRs (Source: Researcher, 2021)*

4.2.7 How challenges encountered by digital librarians can be addressed

The respondents were asked to indicate the various possible solutions in addressing the prevailing challenges encountered. Table 4.4 below showed that 27.27% (N=6) indicated that there should be strong internet connectivity in academic libraries, 22.73% (N=5) indicated that there should be free access to e-resources, 13.64% (N=3) indicated that Information Literacy trainings should be conducted in the university's academic libraries, while adequate budgeting and sound management were represented by 9.09% (N=2) each. Others indicated that librarians' motivation should be conducted and that there should be power back-up to solve power outage as indicated with 4.55% (N=1) each. 9.09% (N=2) did not provide any solutions to the challenges faced.

Table 4.4: How challenges encountered by DLns can be addressed

How Challenges can be addressed	Frequency (n)	Percentage (%)
Strong internet connectivity	6	27.27
Free access to E-resources	5	22.73
IL training	3	13.64
Budgeting	2	9.09
Sound management	2	9.09
Power back-up	1	4.55
Motivation	1	4.55
N/A	2	9.09
Total	**22**	**100.0**

Sources: *Researcher, 2021*

4.3 Job Descriptions (JDs) of DLns in Academic Libraries in Kenya

The second objective of this study was to establish job descriptions of digital librarians' (DLns) in various academic libraries in Kenya. This was determined by asking questions related to job description (JD) and whether the library staffs performed any other tasks or roles other than those that are described in their job descriptions (JDs) on daily basis when interacting with digital information resources and services (DIRs). Table 4.5 below indicated that the majority 95% (N= 21) of library staffs were found to have JDs while 5% (N= 1) had no JD.

Table 4.5: Job Descriptions (JDs)

Respondents	**Frequency (n)**	**Percentage (%)**
Yes	21	95.5
No	1	4.5
Total	**22**	**100.0**

Sources: *Researcher, 2021*

4.3.1 Roles other than those described in their JDs

When asked whether they perform any other tasks or roles other than those that are described in their JDs, Table 4.6 below indicated that 81.8% (N= 18) of library staffs responded yes, while 18.2% (N= 4) responded No. 81.8% of respondents indicated tasks such as shelving books and dusting the shelves, conducting information literacy (IL) trainings, management of library social media and websites, administrative and supervisory role among others.

Table 4.6: Tasks other than those in JDs

Respondents	Frequency (n)	Percentage (%)
Yes	18	81.8
No	4	18.2
Total	**22**	**100.0**

 Source: *Researcher, 2021*

4.3.2 Tasks Conducted but not in Job Description

The respondents were asked to indicate the tasks they undertake in the academic libraries but not included in their job descriptions. Figure 4.7 below indicated that the majority 18.2% (N=4) were involved with charging and discharging of information materials. Others engaged in information literacy trainings and cataloguing and classification, as presented by 13.6% (N=3) respectively. 9.2% (N=2) indicated shelving, administrative and supervisory task. The others were engaged with social media management, patron's orientation, and conservation of information materials, represented by 4.5% (N=1) respectively. The other 18.2% (N=4) did not indicate any tasks undertaken outside those in the job descriptions.
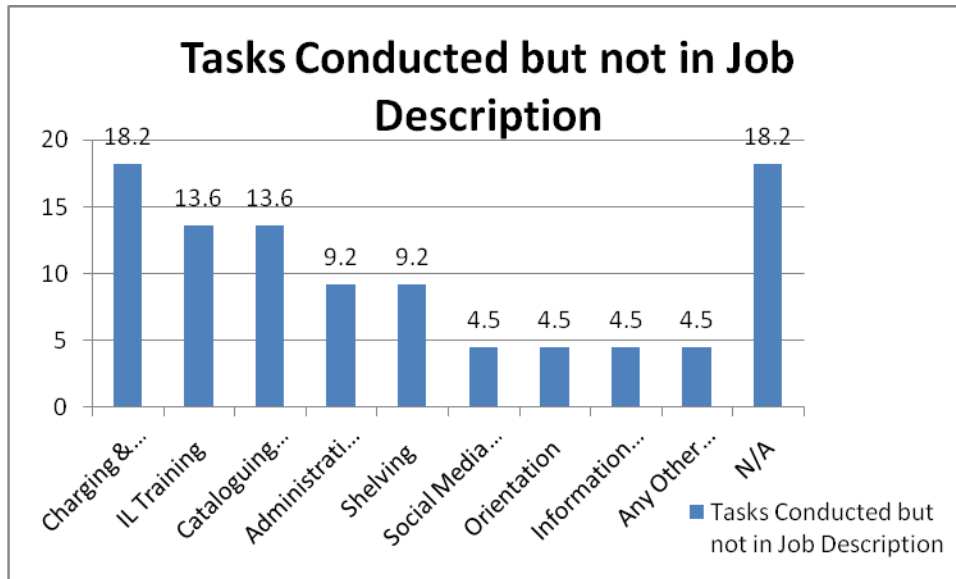
Figure 4.7: *Tasks not in the Job Description (JD) (Source: Researcher, 2021)*

4.3.3 Disconnect between Digital Librarians (DLns) roles & their Job Description (JDs)

The study sought to establish if there existed any disconnect between DLns roles and the JDs. Figure 4.8 below indicated that 59.1% (N= 13) showed that there existed a disconnect between DLns' roles and the JDs, whereas the remaining 40.9% (N=9) indicated lack thereof.
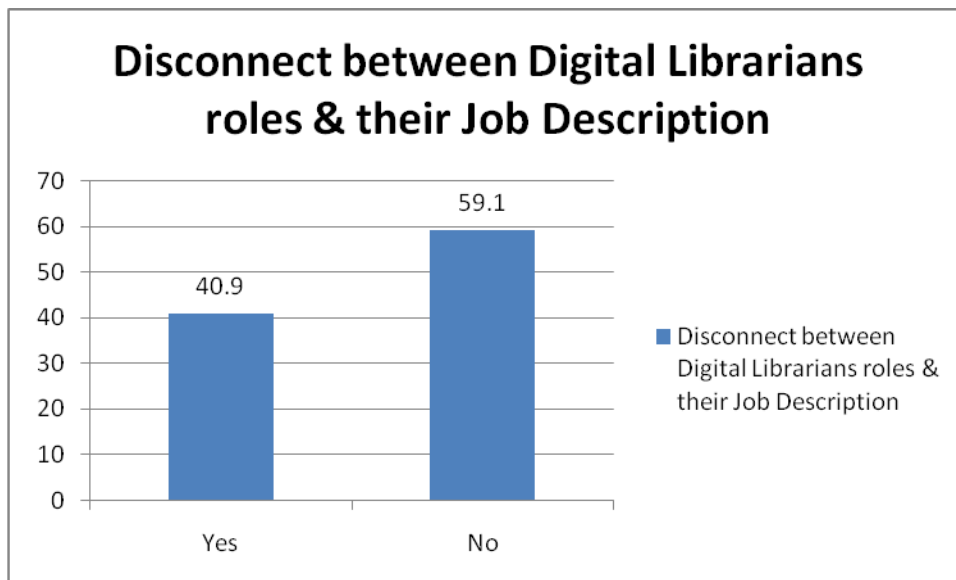
Figure 4.8: *Disconnect between DLns' roles and their JDs (Source: Researcher, 2021)*

4.4 Digital Librarians (DLns) Best Practices in academic libraries

This objective sought to ascertain DLns' Best Practices. Best Practices are standards that are accepted across the industry and exceed the industry standards wherever possible. When library staffs from three selected public institutional library were asked to state the best practices that they applied when interacting with DIRs, Table 4.7 below 9.09% (N= 2) indicated Local Area Networks, 13.64% (N=3) indicated OPAC, 9.09% (N=2) indicated early subscription of e-resources, 9.09% (N=2) indicated information security, 4.55% (N=1) indicated information management, 18.18% (N=4) indicated IL trainings, 4.55% (N=1) indicated working systems, statistics, professionalism, e-resources administration, system maintenance and copyright management respectively. The other 9.09% (N=2) did not indicate existence of best practices.

Table 4.7: DLns Best Practices in academic libraries

Best Practices	Frequency (n)	Percentage (%)
LAN	2	9.09
Working System	1	4.55
OPAC	3	13.64
Early Subscription	2	9.09
Information Security	2	9.09
Information Management	1	4.55
IL Training	4	18.18
Statistics	1	4.55
Professionalism	1	4.55
E-Resources Administration	1	4.55
System Maintenance	1	4.55
Copyright management	1	4.55
N/A	2	9.09
TOTAL	**22**	**100.0**

Source: *Researcher, 2021*

4.4.1 Existence of DIRs policy in academic libraries

The study sought to establish whether the academic libraries had DIRs policy. Figure 4.9 below showed that 63.6% (N=14) indicated the existence of DIRs policy, while 36.4% (N=8) indicated that there was no DIRs policy in the academic libraries.
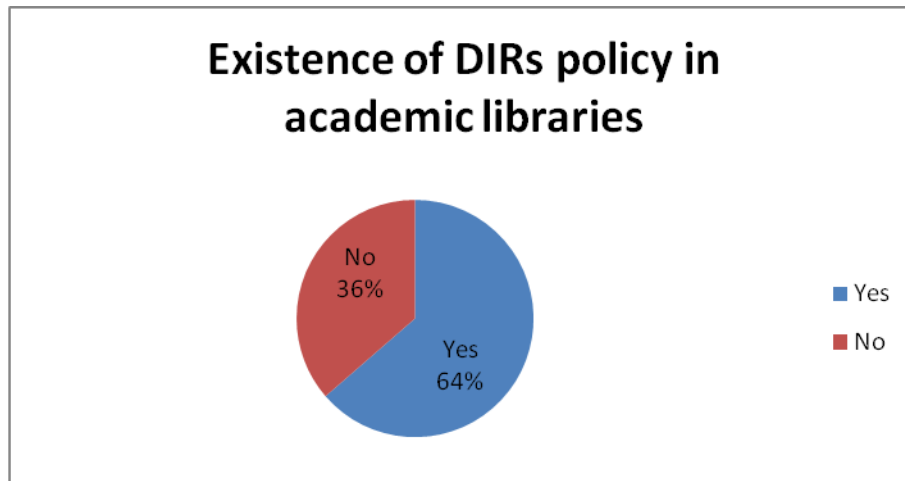
Figure 4.9: *DIRs Policy in Academic libraries (Source: Researcher, 2021)*

4.4.2 Elements in the DIRs policy

The study also sought to find out what the DIRs policy covered, Table 4.9 below showed that 59.1% (N= 13) indicated access and use, whereas 40.9% (N= 9) did not indicate any.

Table 4.8: Elements in the DIRs policy

Policy cover	Frequency (n)	Percentage (%)
Access and use	13	59.1
N/A	9	40.9
Total	**22**	**100.0**

Source: *Researcher, 2021*

4.5   A Proposed Framework for Digital Librarianship in academic libraries in Kenya

The primary objective of this study was to develop a proposed framework for digital librarianship. Table 4.9 below showed that most of the respondents 72.73% (N=16) indicated that there was no formal framework for digital librarianship (DLns) roles. However, 13.64% (N=3) suggested that E-resources management should be incorporated in the framework. Others suggested that job descriptions, policies and strategic planning should be incorporated in the framework, represented by 4.55% (N=1) respectively.

Table 4.9: Framework for DLns' role

Conceptual Framework for DLns' role	Frequency (n)	Percentage (%)
E-resources management	3	13.64
JDs	1	4.55
Policies	1	4.55
Strategic planning	1	4.55
N/A	16	72.73
Total	**22**	**100.0**

Source: *Researcher, 2021*

Electronic resources management (ERM) is a vital component in academic digital library today. The digital landscape changed the way in which content is made available to library users. In the recent past, libraries are acquiring more and more e-resources due to easy access to information and its comprehensiveness. Due to the influx of e-resources in libraries, the collection, acquisition, and maintenance of these resources have become complicated issue to deal with especially the digital librarians entitled to manage the content. As a result digital libraries are forced to devise strategies to manage and deliver e-resources conveniently. To meet these prevailing challenges, there is need for this study to develop a framework for digital librarianship to curb the menace. From the study the respondents (13.64%) indicated that E resources management should be incorporated in the framework for digital librarianship.

From the literature Job description (JD) identifies the relevant education, training, skills required by a potential employer and outlines specific duties, roles, and responsibilities of the job. Several previous literatures and studies have found that none has fully identified digital librarians JD and none give up to date and conclusive information on their specific roles and skills. The findings from the study established that 4.55% indicated that Ds should be incorporated in the framework

for digital librarianship. The literature affirms that the nature of DLns JDs in Kenya differs depending on the nature of the job they perform and the size of the institution in terms of population and coverage.

Policies. The study established that 4.55% of the respondents indicated that Policies should be incorporated in the framework for digital librarianship. Kenya publicized a National ICT policy in January 2006 that incorporated ICTs in education to be applied across sectors. The policy provided guidelines for transformation of Kenya into a digital society by recognizing that an ICT literate workforce is the foundation on which the nation becomes a knowledge-based economy (Kenyas ICT policy, 2006). The Kenyan government's Jubilee manifesto and Vision 2030, advocates for the integration of ICT into education as part of a long-term quality improvement strategy. When the ICT DIRs policy is adopted and incorporated help in addressing the severe scarcity of adequate trained and experienced digital librarians, adhere to best practices and policies, By adopting ICT DIRs policy helps in improving the quality of service in academic libraries in Kenya, provide a cost effective ICT facilities and services, improve on customer satisfaction, identify priority areas for ICT development, encourage innovations in technology development; help clients to adapt to new circumstances and provide tools and models to respond rationally to challenges posed by ICT; promote information sharing, transparency and accountability and reduced bureaucracy in operations.

Strategic Planning. The study established that 4.55% of the respondents indicated that strategic planning should be incorporated in the framework for digital librarianship as it plays a fundamental role in establishing and operationalizing digital libraries. It will determine goals, objectives, and priorities and contribute to benchmarking, financial planning, long-term and short term strategies, among others.

Once the framework for digital librarianship is developed and adopted will lead to the following output:- designation of DLns to specific roles, duties & responsibilities; recruitment of DLns with mixed backgrounds to meet the diverse information needs; restructured LIS curriculum that is uniform & consistent to reflect international standard requirements; the LIS syllabus and library services become adaptive to the constantly changing contemporary library landscape; adoption of hybrid curriculum; CBT to equip DLns with IT skills; CPD equips Lbns with required skills to meet the dynamic needs of different users across all generations; ICT DIRs

policy enhancing and promoting human development through guiding procedures and Training to provide relevant skills to DLns to enable them perform their tasks efficiently and effectively.

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┌─────────────┐      ┌──────────────────────────┐      ┌──────────────────────────────┐
│             │      │ ICT DIRs policy          │      │ Job Description              │
│             │      │                          │      │                              │
│ Need for    │────▶ │  • ETD policy            │────▶ │  • New Roles that include    │
│ Digital     │      │                          │      │    Electronic publishing, IL │
│ library     │      │  • IROA policy           │      │    Trainings, Teaching,      │
│             │      │                          │      │    learning and research     │
│             │      │  • Acquisition policy    │      │                              │
│             │      │                          │      │                              │
│             │      │  • E-resources management│      │                              │
│             │      │    policy                │      │                              │
└─────────────┘      └──────────────────────────┘      └──────────────┬───────────────┘
                                                                       │
                                                                       ▼
                                                        ┌──────────────────────────────┐
                                                        │ Best practices               │
                                                        │                              │
                                                        │  • E resources               │
                                                        │                              │
                                                        │  • OPAC                      │
                                                        │                              │
                                                        │  • IR                        │
                                                        │                              │
                                                        │  • Information Literacy       │
                                                        └──────────────┬───────────────┘
                                                                       │
                                                                       ▼
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Output

- Designate DLns to specific **roles**, duties & responsibilities

- Recruit DLns with mixed backgrounds to meet the diverse information needs

- Restructured LIS curriculum that is uniform & consistent to reflect international standard requirements.

- The LIS syllabus and library services become adaptive to the constantly changing contemporary library landscape.

- Adoption of hybrid curriculum

- CBT to equip DLns with IT skills & allow trained communities to create, develop, & refine training needs for definite types of job

- CPD equips Lbns with required skills to meet the dynamic needs of different users across all generations

- ICT DIRs policy that enhance & promote human devt thro' guiding procedures & other alternative ways when recruiting DLns for A-Libs to improve service delivery.

- Training to provide relevant skills to DLns to enable them perform their tasks efficiently and effectively.
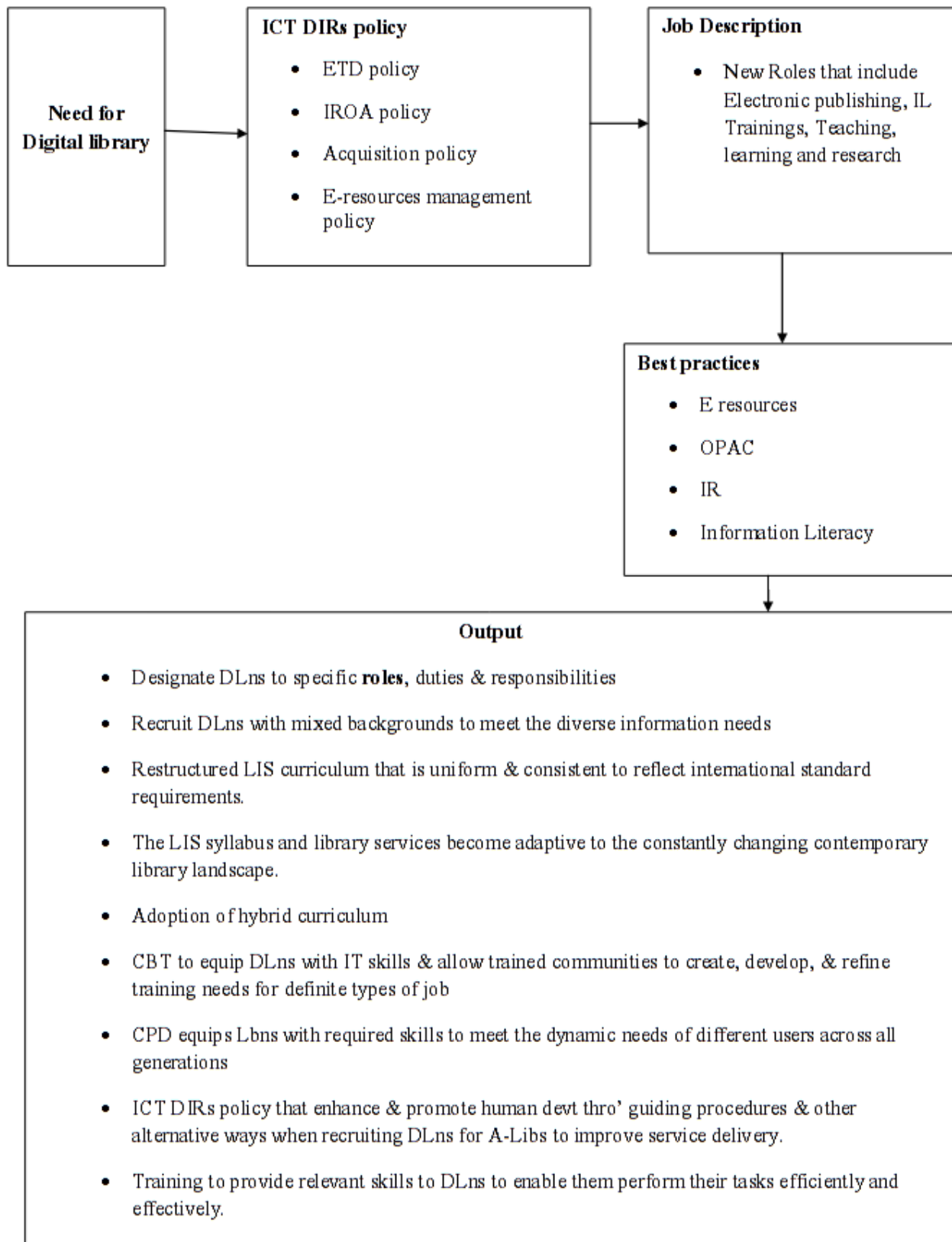
Figure 4.10: framework for digital librarianship. Source: researcher, 2021

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter focuses on the summary of the study's key findings from chapter four, the conclusions and recommendations based on the objectives of the study. The aim of this study was to develop a proposed framework for digital librarianship in Kenya's academic libraries with special emphasis to three selected academic institutional libraries that is: the University of Nairobi Jomo Kenyatta Memorial Library (JKML), Technical University of Kenya Library (TUKL) and Multimedia University of Kenya Library (MMUL). The specific objectives of this study were to examine the role (s) played by the current digital librarians in academic libraries, to establish job descriptions of digital librarians in various academic libraries in Kenya, to ascertain digital librarians' best practices, and to develop a proposed framework for digital librarianship.

5.1 Summary of the Findings

These findings were guided by the study's research objectives.

5.1.1 The role(s) undertaken by digital librarians' in academic libraries

The findings found out that digital librarians (DLns) had different roles in three selected public institutional libraries that is: the University of Nairobi JKML, TUKL and MMUL. Those roles include digital librarians, systems librarians, data librarians and the remaining undertook other roles in academic libraries. The findings also showed that a bigger percentage of the respondents had served between 5-10 years (36.4%), whereas a small percentage of the respondents had served for more than 20 years (13.6%). Further, it was established that a bigger percentage of the respondents had interacted with DIRs between 5-10 years (63.6%), as compared to 4.5% of the respondents who interacted with DIRs between 15-20 years. Likewise, a slightly higher proportion of DLns (36.4%) had job experience of 5-10 years. Further, 40.9% of the DLns indicated to have interacted with e-books, e-journals & Online Public Access Catalogue (OPAC), whereas 54.5% indicated e-books, e-journals & institutional repository. The remaining 4.5% did not indicate any type of DIRs. The findings further demonstrated that a slightly higher proportion of the respondents had diploma level of education (40.9%) as compared to 22.7% who had postgraduate training. The study established that the major challenges faced by digital librarians

(DLns) when interacting with DIRs were slow internet & systems failure (59.1%), late subscriptions (9.1%), poor staffing, inadequate training, financial constraints, inadequate information resources, evolving digital landscape and plagiarism, represented by 4.5% each.

On the posible solutions to the prevailing challenges faced by the DLns, a majority of the respondents (27.3%) indicated that there should be strong internet connectivity in the libraries, 22.7% indicated that there should be free access to e-resources, 13.6% indicated that IL trainings should be conducted in the academic libraries, 9.1% indicated sound management of DIRs and adequate budgeting respectively. A modest 4.5% however suggested that librarians should be motivated adequately, and power back-up enhanced.

5.1.2 The Job Descriptions of DLns' in various Academic Libraries in Kenya

The findings showed almost all the respondents (95.5%) had job descriptions (JDs) whereas a small number of the respondents (4.5%) had no JD. Nevertheless, a bigger percentage of the respondents (81.8%) undertook tasks not described in their JD whereas a small number of the respondents (18.2%) never undertook tasks not described in their JD. On conducting roles other than those in JD, majority of the DLns (18.2%) were involved with charging and discharging of information materials, 13.6% engaged in IL trainings, cataloguing and classification, 9.2% vindicated shelving, administrative and supervisory tasks. The others were engaged with social media management, patrons' orientation and conservation of information materials, represented by 4.5% each. The other 18.2% did not indicate any tasks undertaken outside those in the JDs. It is evident from the study that there exists a disconnect between DLns and their JDs, whereby (59.1%) showed that there existed a disconnect between DLns' roles and the JDs. while the remaining 40.9% indicated existence of harmony between DLns' roles and the JDs.

5.1.3 Digital Librarians (DLns) Best Practices

The study revealed that the best practices employed by DLns in academic libraries are as follows: local area network (LAN), Online Public Access Catalogue (OPAC), early subscriptions, information security, IL trainings, working systems, statistics, e-resources administration, systems maintenance, copyright management, and professionalism, among others. On policy awareness, the study found that academic libraries had DIRs policy (63.6%) while 36.4% reported not being aware of the existence of any policy. The findings showed that majority of respondents (59.1%) indicated that the DIRs policy covered access and use, whereas

40.9% did not indicate existence of any policy. In conclusion, the study revealed that majority of the academic libraries had DIRs policy (59.1%) whereas 40.9% had no idea of the existence of any policy.

5.1.4 A Proposed conceptual Framework for Digital Librarianship

The study findings revealed that there is currently no conceptual framework for DLns' role, as indicated by 72.7% of the respondents.

5.2 Conclusion

It is evident from the findings that, only one-fifth of digital librarians (DLns) are serving in academic libraries and that this could be the reason as to why services in academic libraries are regressing. Moreover, the specific roles of the few DLns that are serving in academic libraries are not clear or not known and what is described in their job descriptions (JDs) is not what they do in their daily tasks. Ideally, academic libraries should designate DLns to specific roles, duties and responsibilities which should also form part of their job. This level of specificity would significantly improve service delivery in academic libraries. Policy development should be incorporated into conceptual framework to enhance and promote human development through guiding procedures and other alternative ways to be adopted when recruiting DLns for academic libraries to improve service delivery in academic libraries. More attention should be given to the training of DLns especially on both hard skills and soft skills to alleviate the challenge of inadequate supply of DLns in academic institutions in Kenya. This kind of training would update DLns skills and knowledge to carry out tasks to the best of their abilities.

5.3 Recommendations
Given the findings highlighted in this study, the researcher recommends the following steps:

5.3.1 Digital Librarians (DLns)
Academic libraries need to designate DLns to specific roles, duties and responsibilities and that their JDs should be well defined so as to significantly improve service delivery.

There is need to recruit DLns with mixed backgrounds to meet the diverse information needs of patrons

5.3.2 Curriculum

Adoption of a restructured LIS curriculum that is uniform and consistent in the names of courses and study's length and content standards to bring rich collective experiences and abilities that address DLns LIS job market requirements to reflect international standard. The LIS syllabus and library services need to be adaptive to the constantly changing contemporary library landscape. The LIS curriculum stakeholders should be involved in the development of syllabus that takes cognizance of evolving societal needs including the mastery and appreciation of skills needed in the 21st century.

Adoption of a hybrid curriculum that is more calibrated to bring together ICTs, knowledge organization, technical infrastructure, collection development and maintenance, and information access and utilization of DLs. This will empower DLns to create future expanding new roles. This is because DLns need to remain relevant in their occupations not only to provide the specified services to academic libraries but also to bridge the gap between the library and users.

Competency-based training (CBT) that equips DLns with IT related skills that are lacking and allow trained communities to create, develop, and refine training needs for definite types of job. There is need to develop proper training for local DLns that is in tandem with national and international professional standards in order to strengthen skills, knowledge, attitude, and values needed for the service alignment of a given profession.

Continuing professional development (CPD) that equips librarians with required skills to meet the dynamic needs of different users across all generations. DLns need to be equipped with adequate skills, knowledge, and competencies necessary to meet the diverse needs of community users across all generations.

Library associations, non-governmental institutions and government organizations need to continue organizing seminars and workshops to provide relevant skills to DLns to enable them perform their tasks efficiently and effectively.

ICT DIRs policy that enhances and promotes human development through guiding procedures and other alternative ways when recruiting DLns for academic libraries to improve service delivery.

5.3.3   Digital Librarianship Framework

The study therefore proposed a framework for digital librarianship that depicts the best practices to be adopted in the academic libraries in Kenya. This regulatory framework should be used in recognizing DLns and in the reward and remuneration. The conceptual framework should contain elements such as ICT DIRs policy, job descriptions, academic qualifications, hard and soft skills and the respective specific roles of DLns that enhance and promote human development through guiding procedures and other alternative ways when recruiting DLns for academic libraries to improve service delivery.

Kenya publicized a National ICT policy in January 2006 that incorporated ICTs in education to be applied across sectors. The policy provided guidelines for transformation of the Kenyan into a digital society by recognizing that an ICT literate workforce is the foundation on which the nation becomes a knowledge-based economy. The Kenyan government's Jubilee manifesto and Vision 2030, advocates for the integration of ICT into education as part of a long-term quality improvement strategy (Kenyas ICT policy, 2006).

The ICT DIRs policy help in addressing the severe scarcity of adequate trained and experienced digital librarians, adhere to best practices and policies, aid in planning due to rapidly changing technologies to avoid hardware and software incompatibility and inaccessibility, enhance optimum utilization of DIRs, integrate the ICT DIRs policy to be in line with the National ICT Policy, sustaining the expansion, effective management, provide guidance in acquisition, development, administration, maintenance and usage of the ICT facilities. The ICT DIRs policy will further support the strategic vision of the university by improving operational efficiency and exchange of information so as to maintain a competitive edge.

By adopting ICT DIRs policy helps in improving the quality of service in academic libraries in Kenya, provide a cost effective ICT facilities and services, improve on customer satisfaction, identify priority areas for ICT development, encourage innovations in technology development; help clients to adapt to new circumstances and provide tools and models to respond rationally to challenges posed by ICT; promote information sharing, transparency and accountability and reduced bureaucracy in operations.

5.4   Suggested Areas of Further Research

The researcher identified various areas that could be researched on by academicians.

Firstly, the ever- changing technological advancements have had a tremendous impact on our daily lives. Digital libraries have been keen to adopt these new technologies in service delivery across the globe. It would be prudent to understand how the new technologies have impacted on service delivery in the academic libraries in Kenya.

This study only focused on three academic institutional libraries in Nairobi County-Kenya. Other studies could replicate this study, enlarging their scope to include other digital libraries in Kenya, specifically those in tertiary institutions of learning. This will assist in broadening the knowledge and assist in identifying the gaps existing in the digital libraries in Kenya.

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APPENDICES

Appendix i: Introduction Letter

27th April 2021

The Librarian

Multimedia University of Kenya Library

P.O. BOX 15653-00503,

Nairobi

Dear Sir/Madam

RE: REQUEST TO CARRY OUT RESEARCH AT MULTIMEDIA UNIVERSITY OF

KENYA LIBRARY

I am a Master's student of library and Information Science in the Faculty of Arts, at the University of Nairobi. I am conducting research on Digital Information Services. The aim of the study will be to develop a proposed conceptual framework for digital librarianship. The specific objectives of the study will be to examine the role played by current digital librarians in academic libraries in Kenya; establish job description of digital librarian in various academic libraries; ascertain digital librarian best practices and develop a conceptual framework for digital librarianship. The study will serve as partial fulfillment of the requirements of a Master's degree at the University of Nairobi.

I therefore seek authorization to carry out my research in your institution. The study is scheduled to take place on 30th April 2021. Participation in the study will be on a voluntary basis and all data collected will be treated confidentially. The findings and conclusions of the study will be made available to the Multimedia University of Kenya Library. Thank you for your cooperation.

Yours Faithfully,

Daniel Vaati Nzioka,

Cell 0710544833,

e-mail: dnzioka@mmu.ac.ke:

Alt: nziokad0@gmail.com

Appendix ii: Introduction Letter

27th April 2021

The Librarian

Technical University of Kenya Library

P.O. BOX 52428-00200,

Nairobi

Dear Sir/Madam

RE: REQUEST TO CARRY OUT RESEARCH AT MULTIMEDIA UNIVERSITY OF

KENYA LIBRARY

I am a Master's student of library and Information Science in the Faculty of Arts, at the University of Nairobi. I am conducting research on Digital Information Services. The aim of the study will be to develop a proposed conceptual framework for digital librarianship. The specific objectives of the study will be to examine the role played by current digital librarians in academic libraries in Kenya; establish job description of digital librarian in various academic libraries; ascertain digital librarian best practices and develop a conceptual framework for digital librarianship. The study will serve as partial fulfillment of the requirements of a Master's degree at the University of Nairobi.

I therefore seek authorization to carry out my research in your institution. The study is scheduled to take place on 30th April 2021. Participation in the study will be on a voluntary basis and all data collected will be treated confidentially. The findings and conclusions of the study will be made available to the Multimedia University of Kenya Library.

Thank you for your cooperation.

Yours Faithfully,

Daniel Vaati Nzioka,

Cell 0710544833,

e-mail: dnzioka@mmu.ac.ke:

Alt: nziokad0@gmail.com

Appendix iii: Introduction Letter

27th April 2021

The Director,

Jomo Kenyatta Memorial Library,

P.O. BOX 30197-00100,

Nairobi

Dear Sir/Madam

RE: REQUEST TO CARRY OUT RESEARCH AT MULTIMEDIA UNIVERSITY OF

KENYA LIBRARY

I am a Master's student of library and Information Science in the Faculty of Arts, at the University of Nairobi. I am conducting research on Digital Information Services. The aim of the study will be to develop a proposed conceptual framework for digital librarianship. The specific objectives of the study will be to examine the role played by current digital librarians in academic libraries in Kenya; establish job description of digital librarian in various academic libraries; ascertain digital librarian best practices and develop a conceptual framework for digital librarianship. The study will serve as partial fulfillment of the requirements of a Master's degree at the University of Nairobi.

I therefore seek authorization to carry out my research in your institution. The study is scheduled to take place on 30th April 2021. Participation in the study will be on a voluntary basis and all data collected will be treated confidentially. The findings and conclusions of the study will be made available to the Multimedia University of Kenya Library. Thank you for your cooperation.

Yours Faithfully,

Daniel Vaati Nzioka,

Cell 0710544833,

e-mail: dnzioka@mmu.ac.ke:

Alt: nziokad0@gmail.com

Appendix iv: Transmittal Letter

UNIVERSITY OF NAIROBI

FACULTY OF ARTS

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

Telephone: +254 20 318262, Ext. 28095
Telegram: Varsity
Fax: +254 20 2245566

P.O. Box 30197- 00100 GPO
Nairobi, Kenya.
dnjiraine@uonbi.ac.ke

Our Ref: UON/CHSS/DLIS/303/ C54/6592/2017

Date 24ᵗʰ March 2021

Director General,
National Commission for science, Technology & Innovation_
P. O. Box 30623-00100, Nairobi

Dear Sir/Madam,

RE: RECOMMENDATION FOR NZIOKA, DANIEL VAATI: REG NO: C54/6592/2017

The above named is a bonafide student at the University of Nairobi undertaking a Master of Library and Information Science (MLIS). He is currently in the process of collecting data as part of the requirements for the course.

His topic is *"A proposed framework for digital librarianship in academic libraries in Kenya".*

Any assistance accorded to him will highly be appreciated.

Regards,

Dr. Dorothy Njiraine
Chairperson, Department of Library & Information Science (DLIS)

Appendix v: NACOSTI Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 696181

Date of Issue: 29/April/2021

RESEARCH LICENSE

This is to Certify that Mr.. Daniel Vaati Nzioka of University of Nairobi, has been licensed to conduct research in Nairobi on the topic: A proposed framework for digital librarianship in academic libraries in Kenya for the period ending : 29/April/2022.

License No: NACOSTI/P/21/10107

696181

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Appendix vi: Questionnaire For Librarians

This is a study on digital information services in academic libraries in Kenya. The study aims to examine the role played by current librarians in academic libraries in Kenya. Kindly tick and fill the blank spaces provided as appropriate.

SECTION A: WORK DETAILS

1. What is your current job?

   (i) Digital Librarian ☐   (ii) Systems Librarian ☐

   (iii) Data Librarian ☐   (iv). Any other ☐

2. How long have you been in this position?

   (i) Less than 5yrs ☐   (ii) 5-10yrs ☐   (iii) 10-15yrs ☐

   (iv) 15-20 yrs. ☐   (v) More than 20yrs ☐

3. What is your highest academic qualification?

   (i) Diploma ☐   (ii). Higher Diploma ☐   (iii) Degree ☐

   (iv) Masters ☐   (v). PhD ☐

SECTION B: EXPERIENCE WITH DIGITAL INFORMATION RESOURCES AND SERVICES

4. How long have you interacted with DIRs

   (i) Less than 5yrs ☐   (ii) 5-10yrs ☐   (iii) 10-15yrs ☐

   (iv) 15-20yrs ☐   (v) More than 20yrs ☐

Appendix vii: Interview Schedule for Librarians

1. What role(s) do you play in this academic library?

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2. What type of DIRs does the library provide?

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3. Do you have a job description (JD)?

(i) Yes ☐   (ii) No ☐

4a. If yes, do you perform any other task other than those described in your JD?

(i) Yes ☐   (ii) No ☐

4b. If yes, which one?

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5. Which Best practices do you apply when interacting with DIRs?

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6a. Does the library have a DIRs policy?

       (i) Yes ☐   (ii) No ☐

6b. If yes, what does the policy cover?

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SECTION B

BARRIER TO LIBRARIAN'S ROLES

7. Is there disconnect between the specific role (s) of digital librarians and their job description?

8a). What major challenges do you encounter when interacting with DIRs?

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8b). How can the challenges be improved?

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9). What is the appropriate conceptual framework for digital librarians' role?

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Thank you for your time and enormous contribution to this research.

Appendix viii: Work Plan

OUTLINE OF PROJECT ACTIVITIES				
ACTIVITY	**OCT 2020 - FEB 2021**	**MAR- MAY 2021**	**JUNE- AUGUST 2021**	**SEPTEMBER -OCTOBER 2021**
Proposal development	■			
Proposal presentation	■			
Corrections, Pilot study and Data collection		■		
Data analysis and interpretation			■	
Conclusion and recommendation			■	
Report compiling and presentation			■	
Correction and final report submission				■

Appendix ix: Budget Plan

N0.	ITEMS	SPECIFICATIONS	QUANTITY	UNIT	TOTA(Kshs)
1.	Proposal devt & presentation -printing papers -Internet -Airtime -Transport	Quality A4	8 Reams	500.00	3000 4000 7000 5000 8000
2.	Proposal correction -Printing expenses -Transport - Lunch & Breakfast	Quality A4	Reams	500.00	 3000 9000 15000
3.	Data analysis, interpretation, conclusion & recommendation, report compiling & presentation -Printing -Stationery -Airtime -Lunch & Breakfast	Quality A4	Reams	500.00	 4000 3000 4000 5000
4.	Correction & report submission -Stationery -Printing - Lunch & Breakfast	Quality A4	Reams	500.00	 5000 4000 9000
TOTAL					**Kshs. 88,000**