

**PROMOTING ACCESS AND USE OF THE INSTITUTIONAL
REPOSITORY BY ACADEMIC STAFF OF KENYATTA
UNIVERSITY, KENYA**

BY

KABERIA SHADRACK KALUNG'E

**A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTERS OF
SCIENCE IN LIBRARY AND INFORMATION STUDIES, DEPARTMENT OF
LIBRARY, RECORDS MANAGEMENT AND INFORMATION STUDIES,
SCHOOL OF INFORMATION SCIENCES**

**MOI UNIVERSITY
ELDORET**

2018

DECLARATION

DECLARATION BY CANDIDATE

This thesis is my original work and has not been presented for a degree award in any other university. No part of this thesis may be reproduced without the permission of the author and /or Moi University.

KABERIA SHADRACK KALUNG'E
IS/MPHIL/052/012	Signature	Date

DECLARATION BY THESIS SUPERVISORS

This thesis has been submitted for examination with our approval as university supervisors.

Dr. Damaris Odero
Department of Library, Records Management and Information studies	Signature	Date

Mr. Amoth Duncan
Department of Library, Records Management, and Information studies	Signature	Date

DEDICATION

To the Almighty God for everything belongs to him, my beloved wife and daughter.

ACKNOWLEDGEMENT

My heartfelt gratitude's to all who helped me in one way or the other throughout my study. I also wish to thank Moi University and especially my lectures who made it possible for me to complete my studies. Special thanks to my supervisors, Mr. Duncan Amoth and Dr. Damaris Odero for their advice, direction, inspiration and encouragement when things got tough. Thank You.

ABSTRACT

Institutional repositories are increasingly being fronted as a major way in which universities can disseminate research output globally. Despite the immense potential benefits they present to scholars, their use is significantly low. The aim of the study was to investigate access and use of the institutional repository by academic staff at Kenyatta University, Kenya with a view to recommending ways of improving access and use of the institutional repository. Specific objectives were to establish the types of content contributed by academic staff at Kenyatta University, examine access and use of institutional repository by academic staff at Kenyatta University, assess the infrastructure that has been put in place to support the access and use of institutional repository, establish the challenges encountered by academic staff at Kenyatta University in accessing and using the institutional repository, and propose solutions that can be used to promote the use of content by academic staff at Kenyatta University. The research was guided by Technology Acceptance Model by Davis Bagozi. Using a mixed method research paradigm, a sample size of 91 academic staff, was drawn using stratified random sampling method from a population of 972. Also an additional sample consisting of university librarian (1) and 3 institutional repository staff were drawn as key informants. Data was collected using interviews and questionnaires. Qualitative data was analyzed via content analysis while quantitative data was analyzed via frequency distribution and cross tabulation methods. Tables, charts, graphs and thematic discussions were used to present the data. Major findings indicate that academic staff contribute a range of content, albeit limited in number, into the institutional repository including; peer reviewed and non-peer reviewed articles, conference papers amongst others; the level of usage of the institutional repository is unsatisfactory and therefore need for improvement; to promote the access and usage of the institutional repository, Kenyatta University has put up a number of ICT infrastructures such as Wi-Fi hotspots, Ethernet access points, power backup generators; Academic staff face a number of access related challenges which include but not limited to, low internet bandwidth, institutional repository downtimes, and access barriers such as passwords; The profound barriers to effective usage of the institutional repository were: plagiarism, quality control, research impact, and long item submission procedure. The study concludes that access and use of content at the Kenyatta University institutional repository is unsatisfactory. Consequently, to promote the use of content by academic staff at Kenyatta University, the study proposes the following interventions: provision of full texts rather than abstracts, provision of online peer review, regular information literacy training on the institutional repository, increase of internet bandwidth, and use of the institutional repository content in research output assessment.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
TABLE OF CONTENTS	vi
LIST OF FIGURES	x
LIST OF TABLES	xi
LIST OF ABBREVIATIONS	xii
CHAPTER ONE	1
INTRODUCTION.....	1
1.0 Background Information	1
1.1 Institutional Repositories	1
1.1.1 Institutional Repositories in Kenya.....	2
1.2 Kenyatta University	3
1.2.1 Kenyatta University Institutional Repository	4
1.3 Statement of the Problem.....	6
1.4 Aim of the Study.....	8
1.5 Objectives of the Study.....	8
1.6 Research Questions.....	8
1.7 Significance of the Study	9
1.7.1 Theoretical Significance	9
1.7.2 Practical Significance.....	10
1.7.3 Policy Significance	10
1.8 Assumptions of the Study	10
1.9 Scope of the Study	11
1.10 Limitations of the Study.....	11
1.11 Definition of Terms.....	11
1.11.1 Institutional Repository.....	11
1.11.2 Open Access.....	11

1.11.3 Local Content.....	12
CHAPTER TWO	13
LITERATURE REVIEW	13
2.0 Introduction.....	13
2.1 Theoretical Framework.....	14
2.1 Technology Acceptance Model	14
2.2 General Review.....	17
2.2.1 Open Access.....	18
2.2.2 Open Access and Libraries	19
2.2.3 Institutional Repository.....	20
2.2.4 Institutional Repositories in Kenya.....	22
2.2.5 Kenyatta University Institutional Repository Content.....	23
2.3 Review of Related Literature	24
2.3.1 Types of Content Contributed by Academic Staff to the Institutional Repository.....	24
2.3.2 Access and use of Institutional Repositories by Academic Staff	25
2.3.3 ICT Infrastructure to Support Access and use of the Institutional Repository ...	31
2.3.4 Challenges Faced by Academic Staff in Using Content Via Institutional Repositories.....	32
CHAPTER THREE	36
RESEARCH METHODOLOGY	36
3.0 Introduction.....	36
3.1 Research Approach.....	36
3.3 Population of the Study.....	37
3.4 Sampling Procedure	39
3.5 Sample Size.....	39
3.6 Data Collection Instrument.....	41
3.6.1 Questionnaires.....	41
3.6.2 Interviews.....	41
3.7 Data Collection Procedure	42
3.8 Validity	43

3.9 Reliability.....	43
3.10 Data Analysis	44
3.10.1 Quntitative Analysis.....	44
3.10.2 Qualitative Analysis.....	45
3.11 Data Presentation	45
3.11.1 Ethical Issues	45
3.11.2 Ethical Issues In Research Problem.....	46
3.11.3 Ethical Issues In Data Collection.....	46
3.11.4 Ethical Issues in Data Analysis and Interpretation	46
3.11.5 Ethical Issues in Dissemination of Research	47
CHAPTER FOUR.....	48
DATA PRESENTATION, ANALYSIS AND INTERPRETATION	48
4.1 Introduction.....	48
4.2 Awareness of Kenyatta University Institutional Repository	48
4.3 Contribution of Content to the Institutional Repository	49
4.4 Types of Content Contributed to the Institutional Repository by Academic Staff.....	51
4.5 Motivations to Contribute Content to the Institutional Repository	53
4.6 Reasons For Non Usage of the Institutional Repository.....	55
4.7 Challenges in Accessing the Institutional Repository	57
4.8 ICT Infrastructure to Support Access and Use of Content Through Institutional Repository	60
4.8.1 Rating of the ICT Infrastructure at Kenyatta University	60
4.8.2 ICT Infrastructure Facilities available to facilitate Access and Use Content through Institutional Repository	61
4.9 Improvement on Kenyatta University Institutional Repository.....	62
CHAPTER FIVE	66
SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS	66
5.1 Introduction.....	66
5.2 Summary of Research Findings	66
5.3 Conclusions.....	73

5.4 Recommendations.....	74
5.5 Suggestions For Further Reserch	77
REFERENCES.....	78
APPENDIX 1: LETTER OF INTRODUCTION	82
APPENDIX 2: QUESTIONNAIRE	83
APPENDIX 3: INTERVIEW SCHEDULE.....	88
APPENDIX 4: RESEARCH PERMIT	90

LIST OF FIGURES

Figure 1: Technology Acceptance Model (Davis, 1989).....	16
Figure 2: Figure 2: Percentage Awareness of the Institutional Repository among Kenyatta University Academic Staff.....	49
Figure 3: Types of Local Contents Contributed by Academic Staff to the Institutional Repository	56
Figure 4: Motivations to Contribute Content into the Institutional Repository	54
Figure 5: Reasons for non-usage of the Institutional Repository	56
Figure 6: Academic Staff Rating of the ICT Infrastructure at Kenyatta University (n=84)..	61
Figure 7: ICT Facilities offer at Kenyatta University	62

LIST OF TABLES

Table 1: Population of the Library Staff Interviewed.....	37
Table 2: Population of Academic Staff under the Study	38
Table 3: Sample Size	40
Table 4: Awareness of the Institutional Repository and the Contribution to the Institutional Repository.....	50
Table 5: Challenges in Access and use of the Institutional Repository	58
Table 6: How Different Factors affect Usability of the Institutional Repository (n=84) ..	63

LIST OF ABBREVIATIONS

- INASP: International Network for Availability of Scientific Publications
- KLISC: Kenya Libraries and Information Services Consortium
- IR: Institutional Repository
- KU: Kenyatta University
- ISO: International Standards Organization
- ICT: Information and Communication Technology
- TAM: Technology Acceptance Model
- ATICS: Africa Tertiary Institutions Connectivity Survey
- IITA: International Institute of Tropical Agriculture
- OCLC: Online computer library center
- SPARC: Scholarly Publishing & Academic Resources Coalition

CHAPTER ONE

INTRODUCTION

1.0 Background Information

1.1 Institutional Repositories

Increase in the cost of publication, subscriptions to online journals and the growth in the scholarly output in digital format has become a major challenge to libraries and their users. This coupled with developments in Information and Communication Technologies has led libraries to developing alternative methods of disseminating research outputs.

Most academic institutions have developed institutional repositories using various software's such as D-space, Greenstone, IRplus among others to enable them disseminate research outputs and other publications to their users. These institutional repositories contain full text and abstracts of research output conducted within the universities as well as other unpublished publications that the universities feel appropriate to disseminate through open access.

Despite the success of institutional repositories in disseminating research outputs and other unpublished literature, a number of issues such as access and use of institutional repositories by their targeted users needs to be addressed. Headland (2008) observes non-use of information repositories calls for a deeper understanding of open access practice by understanding the main incentives and barriers regulating the acceptance and use of institutional repositories in disseminating the research output and other unpublished literature through open access.

More often than not the level of access and use of institutional repositories is significantly low. This has been contributed to a number of factors. Westell (2006) and Kingsley (2008) observed that even though institutional repositories has sprung up across academic institutions across the world, so far deposit of materials in institutional repositories has been slow due to poor contribution to the institutional repositories by the academic researchers. Most of the content in these institutional repositories are theses of which some of them provide only abstracts. The access and use of institutional repositories by academic staff has also been shown to be significantly low.

1.1.1 Institutional Repositories in Kenya

In 2009, International Network for the Availability of Scientific Publications (INASP) funded two Kenya Libraries and Information Services Consortium (KLISC) members to attend an open access (OA) workshop in South Africa, and later a week attachment at the University of Pretoria. This initiated a series of rigorous training in open access institutional repositories (IRs) to sensitize Kenya Libraries and Information Services Consortium (KLISC) members (Talam, 2014). KLISC in 2011 conducted a survey to assess the extent to which institutional repositories (IRs) have been established to capture content among member institutions, the role of KLISC in supporting the establishment, and the challenges and intervention measures required (Talam,2014). Out of 35 questionnaires distributed to respondents an impressive response rate 26 (74%) returned completed questionnaires, an indication of significant interest in developing IRs in Kenya. The results indicated that 17 (65%) institutions had embraced or were in the process of establishing IRs in their institutions, while 9 (35%) had not established IRs. Out of those that had established IR, 15 (57%) were using Dspace, 10 (38%) Greenstone

and the other 1(5%).In terms of content deposited in the IRs, the findings showed high preference for theses and dissertations suggesting that there is substantive content readily available at the institutional repositories.

1.2 Kenyatta University

Kenyatta University was converted from a colonial army barracks to a teacher training college in 1965. The college was initially divided into two: the secondary school division and the teacher education division which started by offering the three-year post-ordinary level Secondary teachers certificate. In 1978, the faculty of Education was moved from the University of Nairobi to Kenyatta University college campus and thus making it the only institution offering teacher training for both undergraduate and postgraduate levels. The campus gained the status of university in 1985 when Kenyatta University Act became operational. Kenyatta University then immediately established new faculties and constituent colleges.

Although the University initially specialized in education courses, it has witnessed rapid expansion in the last few years in terms of enrolment, courses offered and new campuses. For instance, the university has recently introduced course in law, engineering, medicine, visual and performing arts among other. Kenyatta University has been accredited by Kenya Commission for Higher Education, interuniversity council of East Africa, Africa Association of Universities, International Association of Universities, and Commonwealth Universities. The University offers bachelor, masters and doctoral degrees. The university has open-learning, e-learning, school-based, part-time and Full-time teaching.

The university has the following schools: School of humanities and social sciences', School of visual and performing arts, School of education, School of pure and applied sciences, School of engineering and technology, School of environmental studies, School of applied human sciences, School of business, School of economics, School of agriculture and enterprise development, School of law, School of hospitality and tourism, School of public health and Graduate school (Kenyatta University, www.ku.ac.ke)

Mission, Vision and Core Values

According to Kenyatta University website (www.ku.ac.ke), the vision of the university is to be a dynamic, inclusive, and competitive centre of excellence in teaching, learning, research and service to humanity. Its mission is to provide quality education and training, promote scholarship, service innovation and creativity and in calculate moral values, sustained individual and societal development. Kenyatta University is founded on the philosophy of sensitivity and responsiveness to social needs and right of every person to knowledge. Statistics indicate that that the students' population has more than doubled in the last ten years. In 1997, the enrolment stood at 8,000 students but rose to about 21,500 students in the year 2007 and 31,000 in 2012. The University is also ISO 9001:2008 Certified.

1.2.1 Kenyatta University Institutional Repository

Kenyatta university Post Modern library (PML) has implemented Dspace as their institutional repository software accessible at <http://ir-library.ku.ac.ke/ir> and also through common search engines facilities like Google Scholar, DOAJ and OAIster. The

institutional repository provides either abstract or full text depending on the type of documents.

The institutional repository has seven communities (sub-divisions) namely:

- Book chapters
- Conference/workshop/seminar papers
- Doctor of philosophy theses and dissertations
- Kenyatta university publications
- Masters theses and dissertations
- Ongoing PHD and Masters research
- Research papers

All of these communities contain sub-communities, which in turn contain various collections.

All materials in the institutional repository contain bibliographic details (metadata) such as author, title, subject, description, publisher, date, language and description which are made available for harvesting by most common search engines.

The university allows members of the university or their designated agents to deposit materials provided they meet the stipulated content and submission policy. According to Kenyatta University IR policy, by creating an institutional repository (IR), the University is hoping to archive the intellectual products created by faculties, research staff, conferences and students of the University. These materials will then be made accessible to end users both within and outside the institution through the KU-Portal.

The aim of the repository is to promote the university's research profile by exposing KU research outputs online. The repository contributes to the commitment of the University to support research activities. It also serves to preserve Kenyatta University's legacy, facilitate digital preservation and scholarly communication. It provides an open access platform to capture, store, index, and distribute globally a wide range of research outputs, including master's and doctoral theses, produced by the University's researchers and postgraduate students. Most other types of research output can also be archived, including data and other digital objects (according to KU IR policy).

Through the KU IR-Portal multiple users are able to search simultaneously from within an easy to use interface. From the list of search results a simple click will enable them to either access the information electronically in full text or find out where a printed copy is available.]

1.3 Statement of the Problem

Institutional repositories have become a core means in which Universities are disseminating research output through open access. They have become a tool for promoting academic research work by providing open access to the academic community. Jones (2009) notes that Institutional repository is now regarded by many organizations as a new and important method in disseminating research work.

Kenyatta University institutional repository is used to disseminate research works such as theses, dissertations, research papers, seminar papers among others. These publications are an important component of content produced at Kenyatta University. Academic staff at Kenyatta University just like any other university plays a critical role in generation,

dissemination and consumption of content generated through their research activities. This makes academic staff critical players in of access and use of content at Kenyatta University. The Kenyatta University institutional repository plays a crucial role in providing academic staff an opportunity to have their works exposed to a wider audience in the world of academia through its open access capabilities', a service that is beyond reach to many.

However, despite the immense benefits the institutional repository presents to academic staff at Kenyatta University, it has been observed that the institutional repository suffers from underutilization by academic staff who are supposed to be the biggest beneficiaries of the institutional repository. A preview at the Kenyatta University institutional repository shows that most of the content is either students theses/dissertations, seminar papers and other university publications with only a few academic papers by members of academic staff. This means that few academic members of staff have taken full advantage of the institutional repository as most of them opt for other alternative methods of disseminating research works. Considering the significant role of academic staff in generation, dissemination and consumption of content, low access and use of the institutional repository by academic staff means that there is need for a study to evaluate the access and use of content by academic staff at Kenyatta University and propose ways of improving the same.

1.4 Aim of the Study

The aim of the study was to investigate access and use of the institutional repository by academic staff at Kenyatta University, Kenya with a view to recommending ways of improving access and use of the institutional repository by academic staff

1.5 Objectives of the Study

The objectives of the study were to:

1. Determine the types of content contributed to the institutional repository by academic staff of Kenyatta University.
2. Examine access and use of the institutional repository by academic staff at Kenyatta University.
3. Assess the ICT infrastructure that has been put in place to support the access and use of the institutional repository.
4. Identify factors that influence academic staff to contribute content to the institutional repository
5. Establish the challenges encountered by academic staff at Kenyatta University in accessing and using the institutional repository.
6. Propose solutions that can be used to promote access and use of the institutional repository by academic staff at Kenyatta University.

1.6 Research Questions

The research focused on answering the following questions;

1. What content do academic staff at Kenyatta University contribute to the Institutional repository?

2. What is the level of access and use of the institutional repository by academic staff at Kenyatta University?
3. How adequate and appropriate is the ICT infrastructure that has been put in place to facilitate access and use of the institutional repository?
4. What challenges do academic staffs encounter in accessing and using the institutional repository?
5. How can access and use of content by academic staff at Kenyatta University be improved?

1.7 Significance of the Study

The study findings have multifaceted significance which include: theoretical significance, practical significance and policy significance as discussed in the subheadings that follow.

1.7.1 Theoretical Significance

The findings of this study may be useful to researchers who are interested in the area of institutional repositories. This is because the research has yielded findings that can be relied upon for research purposes such as challenges users face in accessing the institutional repository. The findings of the study will also contribute to the existing knowledge in the field of institutional repositories by providing more insight on the role of institutional repositories in promoting access and use of content by academic staff and therefore may be important to academicians seeking to add to their knowledge of institutional repositories.

1.7.2 Practical Significance

The findings of this study can be of practical significance as they can be applied by Kenyatta University in enabling it to improve access and usage of content available through the institutional repository. For example, the findings on the challenges experienced by academic staff in accessing and using of the IR may be useful in developing interventions to address the identified challenges.

The findings will also be useful to academic staff at Kenyatta University as recommendations with an intention of improving their access and use of the universities' institutional repository will be made.

1.7.3 Policy Significance

The findings of this study can be significant to policy makers at the Kenyatta University in making decisions regarding ways of improving access and use of content at the institutional repository. This study suggests solutions that can be used to address the problem of access and use of content in the institutional repository.

1.8 Assumptions of the Study

The study was based on the assumptions that:

1. The respondents were honest and truthful in their responses.
2. That academic staff at Kenyatta University are not restricted in accessing and using the content in the institutional repository.

1.9 Scope of the Study

This study focuses on the teaching members of staff at Kenyatta University, the university librarian as well as the institutional repository manager and institutional repository staff at Kenyatta University. The study also focuses on access and use of content available at institutional repository by academic staff at Kenyatta University.

1.10 Limitations of the Study

The study was limited by the Fact that Kenyatta University is expansive with campuses spread across the country and therefore reaching every campus was difficult.

1.11 Definition of Terms

1.11.1 Institutional Repository

This study adopted the definition by Crown (2002), which defines institutional repositories as “digital collections capturing and preserving the intellectual output of a single or multi-university community that have several important defining characteristics; institutionally defined, scholarly, cumulative and perpetual, open access and interoperable”.

1.11.2 Open Access

Jones (2007) defined open access as the concept of making publically funded research freely available to all at the point of use. Hanard (2010) defined open access as free, immediate, permanent online access to full text research articles to everyone on the World Wide Web. For the Purposes of this study the latter will be adopted.

1.11.3 Local Content

Uzuegbu (2012), defines local content as an expression and communication of community's locally generated, owned and adapted knowledge and experience that is relevant to the community's situation.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

With the advancements in Information and Communication Technology, increasing publishing cost, and increase in research output, institution repositories have emerged as the contemporary method for easy and quick dissemination of research output. These accounts for recent increased efforts by universities to develop their own institutional repositories in order to reap from the immense benefit arising from these institutional repositories.

However, despite the huge amount of benefit arising from institutional repositories in terms of promoting research work, institutional repositories are facing a number of challenges such as acceptability, access and use. This Chapter therefore seeks to review literature regarding access and use of content in institutional repositories in-order to provide an insight of issues around access and use of content by academic staff and the role of institutional repositories in the same. This study has adopted thematic literature review therefore grouping literature into thematic areas. The literature review structured as follows:

1. Theoretical Framework

This discusses the relevant theories which include diffusion of innovation theory and technology acceptance model. The study is informed by technology acceptance Model.

2. General Background Information

This section gives a global view by reviewing general literature related to access and use of the institutional repositories.

3. Review Related to the Objectives

This section reviews literature related to the objectives of the study.

2.1 Theoretical Framework

A theoretical framework is a collection of interrelated concepts. It is simply a structure of the idea or concept and how it is put together. Typically, a theoretical framework defines the kinds of variables that will be looked at. The study focused on access and use of institutional repository by academic staff. It drew upon information systems theory specifically diffusion of innovation theory and technology acceptance model. These theories help to explain acceptance of technology (institutional repository) by academic staff.

2.1.1. Technology Acceptance Model

Information and Communication Technology has transformed access to and delivery of broad range of information. Electronic resources are richer in content and are accessible over the internet. As these resources become more popular there is need to identify the factors that can increase user acceptance of these resources and therefore this study will be based on Technology Acceptance Model of Davis (1986).

One of the well-known models of technology acceptance and use is the Technology Acceptance Model (TAM), originally proposed by Davis in 1986. TAM has proven to be a theoretical model in helping to explain and predict the user behavior of Information

Technology. TAM is considered an influential extension of Theory of Reasoned Action (TRA) (Ajzen&Fishbein 1980). [Davis (1989), Davis Bagozzi and Warshaw (1989) proposed TAM proposed TAM to explain why a user accepts or rejects information technology by adopting TRA. TAM provides basis for tracing how external variables influence belief, attitude and intention to use. Two cognitive believes are posited by TAM: perceived usefulness and perceived ease of use. According to TAM one's actual use of technology system is influenced directly or indirectly by the users' behavioral intentions, attitude, perceived usefulness of the system and perceived ease of use of the system.

TAM also proposes external factors that affect intention and actual usage through mediated effects on perceived usefulness and perceived ease of use.

Davis developed Technology Acceptance Model (TAM) to provide means for predicting acceptance and discretionary use of information systems and technologies. TAM incorporates beliefs specific to technology adoption and generalizes to different computer systems and user populations. It is a widely cited and validated approach for predicting user acceptance of information systems and has produced consistently reliable research results over time. The model allows researchers not only predict but also explain why a particular system may or may not be acceptable to users (Davis et.al, 1989). It is important to note that TAM is useful in determining pre-implementation attitudes towards information systems in environments where system use is discretionary rather than mandatory.

TAM hypothesizes that two beliefs, perceived ease of use and perceived usefulness are the primary determinants of user acceptance. Perceived usefulness is the degree in which an individual believes a new information system will improve his or her job performance. Perceived ease of use is the degree to which an individual believes the system will be effortless and easy to use. TAM suggests that external variables indirectly determine the individuals' attitude towards technology acceptance by influencing perceived usefulness and perceived ease of use. External variables might include individual user attributes or those relating to their job tasks. Other external influences may relate to the system development and implementation process, system design characteristics or adequate training and user support. Political influences or those relating to the organizational environment may also affect the individuals' attitudes towards perceived usefulness and ease of use (Davis et al.1989)

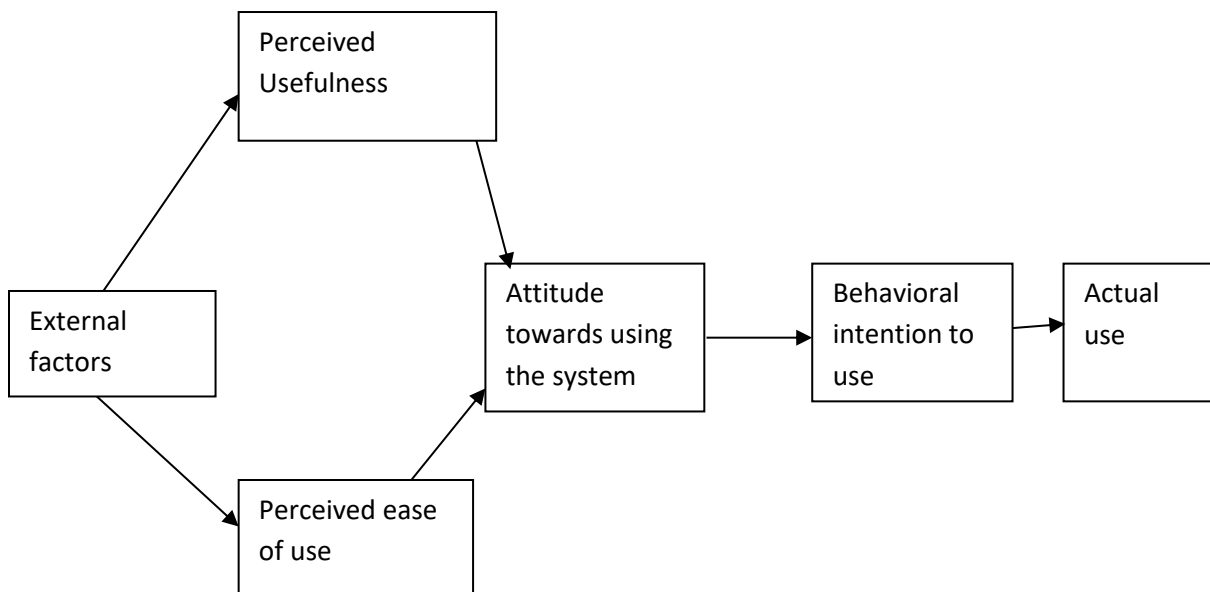


Figure 1: Technology Acceptance Model (Davis, 1989)

Applicability of TAM

This study was based on Technology Acceptance Model (TAM) because of its ability to explain factors that determine use of content via institutional repository by academic staff, such as perceived usefulness of the institutional repository (benefit that the academic staff will derive from using content in the institutional repository and therefore contributing to their increased/decreased access and use of the institutional repository), and perceived ease of use of the institutional repository which is determined by factors like the ICT infrastructure in place. If the user of an institutional repository perceives the ICT infrastructure in place as good enough, then the usefulness of the institutional repository is increase. Also there are other external factors determine the academic staff usage of content in the institutional repository. These are addressed by the objectives that seek to identify the challenges academic staff at Kenyatta University face in accessing and using the institutional repository. The type of content contributed by the academic staff to the institutional repository is another external factor that may affect access and use of the institutional repository by academic staff. By examining access and use of the institutional repository by academic staff at Kenyatta University, the actual use of the institutional repository will be established.

2.2 General Review

This section focuses on the general aspects of institutional repositories and its ability to promote the use of content through its open access capabilities. This is in order to give a global view of the factors affecting access and use of institutional repositories among academic staff.

2.2.1 Open Access

The proliferation of digital documents and the need to access these documents through the World Wide Web has led to new techniques of disseminating information. Technological advancement and other issues related to web publishing have led to a movement called “open access” that is opined on the idea of sharing information for common good.

Jones (2007) defined open access as the concept of making publicly-funded research freely available to all at the point of use. Harnand (2010) described open access as free, immediate, permanent online access to the full text of research articles for anyone, on the World Wide Web. Both definitions emphasize on unrestricted access to information. The movement traces its origin in the 1960’s and became much more popular in the 1990’s with the advent of the digital age. Since then academic institutions have been the main advocates for the open access with a goal of sharing information for common good. Arunachalam (2008) warns though that open access can only be the best alternative to disseminate information when researchers, scholars, institutions and administrators are willing to share their research outputs. He adds that scholars and researcher’s willingness to share knowledge, and advances in technology will enable opening up free access to information.

Open access is becoming a topic of discussion among different professionals, research groups and organizations including, academics, librarians, funding agencies, government officials, commercial publishers, and academic institutions amongst others. The discussion mainly focuses on two basic different but complementary concepts: which is

the best method of sharing information for the common good - “gold” or “green” models to open access.

2.2.2 Open Access and Libraries

Despite open access facing strong resistance from scholars group who argue that the idea of providing free access to research reports might have a negative impact on research communities, libraries have, and stand to, benefit most in achieving their goal through the open access technologies and ideas. Buher and Boateng (2005) observed that institutional repositories (IRs) allow libraries to provide direct access to scholarly materials instead of through the systems of serial publishers and vendors. Furthermore, the coming of open access has opened new communication ways between the research communities, publishing agencies and libraries as Jone.at al., (2006) explains: the marriage of generation by academics, with output management by librarian has created new form of publication, with open values, which presents a growing challenge to the commercial publishers who have controlled research publications for many decades. Hence, libraries are now in momentum in adopting new technologies in its physical collections and collection types. Resounding the same sentiments, Buehler and Boateng (2005, p. 25), adds that “throughout the twentieth century libraries have evolved from totally physical spaces to blend of physical and virtual environments”. This implies that libraries have started reconsidering their service for information dissemination according to the collection and the space they already have.

According to Chan (2004) and Harnard et al. (2008), the reason that open access initiatives are being widely accepted by the libraries, is that libraries budget are

decreasing over time, and even from the small available budget the lion share is being taken by the subscription of periodicals and research journals. Hernard et al. (2008), explained that because libraries cannot afford to buy all published articles through subscribed journals, much of the potential research impact of those inaccessible articles is lost. McCormick (2006) observes that “The fundamental role of university library is to provide intellectual resources to support research and teaching needs of its faculty and staff”. Therefore, it is not surprising that the academic libraries have taken the initiative to build Institutional Repositories to support teaching, learning and research activities with minimum cost as well as introducing a different approach to disseminate and preserve research results. As Buehler and Boateng (2005), notes that academic libraries wish to establish institutional repositories is consistent with education milieu that contains an existing complex suite of information resources required to support a research and learning environment. They further explain that institutional repositories also foster the reform of the scholarly publishing system by supporting the open access movement, which advocates free online access to scholarly materials with minimal restrictions on their use. Basfsky (2009) argues that this will enhance and stimulate study in the research community and scholarship, thus libraries would benefit from it.

2.2.3 Institutional Repository

Johnson (2002) notes that institutional repositories first appeared in 2002 as an institutional response to the increasing trend for scholars to post research online, usually on their home pages but also in subject based repositories. Institutional repositories are associated with a number of different scholars’ initiatives. There are two approaches to

open access as described by open access movement. These are the “Green” and the “Gold” road models to open access. According to Basefsky (2009), the institutional repository (IR) concept was born out of competition for who was going to be responsible for dissemination of institutions intellectual product via the internet. McClendon (as cited in McCormick, 2006), observes that institutional repository concept gained momentum as universities began to question the logic of buying back (their) research. Lynch (2003) further predicted repositories will succeed precisely because they are responsive to the needs of the campus communities and advance the interest of the campus communities and scholarship broadly. Alternatively, Jones (2007) providing an alternative opinion, observes that the information environment is undergoing a period of change, from the delivery mechanism of materials to the expectations of information service, thus institutional repositories are only responding to these changes.

Access and use of content via institutional repositories by academic staff faces a number of challenges. Basefsky (2009) cites copyright issues, institutional branding, peer review, faculty compliance and other challenges making the implementation difficult and costly.

However, despite the challenges facing institutional repositories, many scholars still believe that institutional repositories have a vital role to play in scientific community if they are properly managed and taken as one of the means of dissemination and preservation for scholarly output. The Berlin declaration of open access has also explained that establishing open access as a worthy while procedure ideally requires the active commitment of each and every individual producer of scientific knowledge and holder of cultural heritage. Hence Antelman (2004) identified that although debate swirls

around questions of copyright, peer review, and publishing costs, individual authors are taking action in this area by posting their articles to personal or institutional Webpages and to disciplinary repositories.

2.2.4 Institutional Repositories in Kenya

Kenya, just like many other developing nations is still facing challenges in its attempts to establish and publish its repositories to the world. Policy issues, staffing, infrastructure, promotion and sustainability are some of the challenges facing Kenya (Otando, 2011). Despite the challenges, studies conducted in Kenya indicate that, development and implementation of IRs is increasingly gaining momentum in institutions of higher learning. Gichiri et.al, (2017) surveyed the status of institutional repositories of the Kenya Library and Information Service Consortium (KLISC) member libraries. The survey established that a majority of surveyed libraries had a functioning repository. However, the repository managers did not have a clear designation and professional status. Milimo (2012), points out that, research output should be available, accessible and applicable as the only way to impact on the lives of the millions of Kenyans, and contribute to global innovation systems. In particular, one of the pathways being used to enhance the visibility and accessibility of content from Kenya is through open access to information resources stored in digital institutional repositories, adds Milimo. Similarly, it is important for academic libraries in Kenya to integrate technological solutions into mainstream information products and services such as integrated information systems, digital information systems, computing, and local area and wide area networks. Several initiatives are underway in universities and research organizations although institutions

face a variety of challenges such as lack of motivation and incentives, absence of institutional policies and strategies to support open sharing of information resources. A number of institutions have established or are in the initial stage of developing IRs as exemplified through; University of Nairobi (UoN), Strathmore University (SU), International Livestock Research Institute (ILRI), Kenyatta University (KU), Pwani University (PU), Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya Human Rights Commission (KHRC), Lake Victoria Basin Commission (LVBC), Rift Valley Technical Institute (RVTI) and Dedan Kimathi University (DKU) (OpenDOAR, 2014).

2.2.5 Kenyatta University Institutional Repository Content

Kenyatta university Post Modern library (PML) has implemented Dspace as their institutional repository software accessible through the following url: (<http://ir-library.ku.ac.ke/ir>) and also through common search engines facilities like Google Scholar, DOAJ and OAIster. The institutional repository provides either abstract or full text depending on the type of

documents. All materials in the institutional repository contain bibliographic details (metadata) such as an author, title, e.tc which is made available for harvesting by most common search engines. The university allows members of the university or their designated agents to deposit materials provided they meet the stipulated content and submission policy.

2.3 Review of Related Literature

This section focuses on reviewing literature specifically related to the study objectives in order to give a deeper understanding of the problem under study from other researchers' perspective.

2.3.1 Types of Content Contributed by Academic Staff to the Institutional Repository

Academic staff forms the major contributors of content into the institutional repositories. According to Scholarly Publishing & Academic Resources Coalition (2012), an increasing number of academic staff are beginning to recognize that repository postings will not jeopardize the prestige, impact or economic health of their publications and therefore more and more of academic staff are willing to deposit their content into the institutional repository. SPARC (2012), list the following as content contributed by academic staff to the institutional repositories.

Grey Literature

This refers to unpublished literature. They include; preprints, working papers, theses and dissertations, research and technical reports, conference proceedings, statistical reports, departmental and research newsletters. Such grey literature is considered informal scholarly communication. They are sometimes followed by formal publication.

Pre prints

Academic staff sometimes prefers to avail pre-print versions of their work into the institutional repositories. They serve the following purposes:

- 1) They establish intellectual priority in fast moving fields.

- 2) They attract response and comment that allow the paper to be refined and revised for formal publication in a journal

Curriculum Support and Teaching Materials

Academic staff can use institutional repositories to deliver their teaching content to students. This makes institutional repositories as a resource supporting classroom teaching.

Electronic Theses and Dissertations

Academic staff theses and dissertations also are a major logical content to be captured by the institutional repositories.

2.3.2 Access and use of Institutional Repositories by Academic Staff

Heerry and Anderson (2005) identify potential users of institutional repositories as learners, teachers and researchers. In the case of institutional repositories for academic users, he differentiates between the two types of users: academics as creators of resources and academics as readers of electronic resources. He suggests that most scholars will belong to both types, but their motivations, priorities and needs are very different. These two groups may lead to conflicting interests or contradictory behavior in their attitudes towards using content and making content available.

Academics as Creators (Depositors) of IR

According to Mugambi et al., (2016), institutional repositories form as an avenue where researchers can post their grey literature and get views from other researchers in the same field thus enriching their output, hence refinement. It can also be used to knowledge sharing where lecturers can post knowledge materials and where the university scholars

can intentionally search for knowledge. However this is largely influenced by self-archiving policy in the institution. Sale (2006) observes that institutions with self-archiving mandates will significantly increase the number of articles deposited. He argues that institutional repositories will only be successful if the community opts and uses them voluntarily and not because they are obligated. On the other hand, 95% of researchers would archive if required to do so.

Davis and Connolly (2007) interviewed academic staff in a study to establish the reasons for non-use of the cornel institution repository. Their findings established the main reasons as: redundancy with other modes of disseminating information, copyright, fear of plagiarism, inconsistent quality, and concerns of whether or not posting manuscripts amounts to “publishing”. Many academics were already making their work available through their webpage or a disciplinary repository and therefore did not see the need to use institutional repository. The study concluded that the crisis in scholarly publishing, acutely perceived by the library community, is regarded as a non-issue by most members of academic staff. This probably explains the apparently inexplicable attitude of academics to self –archive their articles despite some evidence to suggest that it increases the visibility of their research. It is quite likely that the academics are satisfied with the status quo.

In another study on depositors by Thomas and McDonald (2007), participation patterns in repositories were measured and compared by looking at how many items were deposited by the author in a particular repository. Their findings found that author participation as a depositor is generally widespread but shallow. Repositories tended to have a large

number of authors that deposited only one item. There is little evidence to suggest that self-archiving is popular and anecdotal experience seems to imply that a great deal of material in institutional repositories has been deposited by mediated self-archiving (usually done by library staff).

Academics as Readers (Users) of IR

The main driver of institutional repository has been to make academic research output available to much larger community by eliminating access barriers and thereby increasing visibility and impact. As earlier noted, repositories offer the service to store, organize and maintain the institutions digital research output. In addition, repositories aid online discovery of digital materials by assigning standardized metadata to items, thereby facilitating resource discovery by search engines and users.

Institutional repositories have emerged as a favorable means for disseminating research output my many academic researchers today. Van de Sompel (as cited in Jones, Andrew and MacColl,2006) says that scholars deserves an innately digital scholarly communication system that is able to capture the digital scholarly record, make it accessible, and preserve it overtime.

Wise et al. (2007) on his part explained that as organizations and universities adopt institutional repositories to archive and access scholarly papers, new and expanded usage are found for these powerful tools. They not only disseminate born digital documents from researchers but also help them to self-archive digitized materials such as books, book chapters, and other course materials for their students and for their future use.

Westell (2006) however points out that this new culture need some to be of use by the researchers and academic institutions as, the changing the culture of scholarly communications is not an easy job and uptake remains slow in many institutions. Beers (2009) attributes the greatest barriers that open access repository managers encounter to researchers and their work habits are. Hedlund (2008) has raised the question regarding non-use of institutional repositories. Even though the concept of open access is well known among academic researchers their research and publishing practices still have not undergone a radical change. However, as Kim (2007), in his study on non-use of the institutional repositories identified that even though the participation of researchers to the institutional repository is still in its low level, faculty contribution can also be considered as one of the factors for an institutional repository.

Most academic authors perceive institutional repositories as a means of preservation more than means of disseminating their research output and this has had a negative impact on their participation to collaborate with the institutional repository. Foster and Gibbons (2005) reckons that researchers worry about copyright infringement and disciplinary work practices (such as co-authoring or versioning) when they publish their work in institutional repositories as contributing factor to low level of participation to the institutional repository. He also cites low citation impact of research published in the institutional repositories as one of the factors contributing to low academic researchers' participation in contributing content into the institutional repositories. Contrary to this, Jones et al. (2004) observes that a large number of studies are showing that article and research results disseminated and published at institutional repository have got more citations than other publishing methods, which means that the open access articles have

significantly higher citation impact than non-open access articles. On the same subject, Kingsley (2008, p,17) states if one moves from scholarly communication and turns to open access, the audience becomes considerably broader. However, there are a few challenges associated with open access scholarly communication. A study of the web linked citations of scholarly articles by Carlson (2005) identified that approximately one third was no longer active and a further third no longer pointed to information pertinent to the citation.

Lynch (2003) argued that the free access to scholarly publication has changed scholarly communication as, the development of free, publicly accessible journal article collections in disciplines such as high energy physics has demonstrated ways in which networks can change scholarly communication by altering dissemination and access patterns. Separately, the development of a series of extraordinary digital works suggests the potential of creative authorship specifically for the digital medium to transform the presentation and transmission of scholarship.

This means that the low level of collaboration between the institutional repositories and researchers should be mediated in many ways such as presenting the success stories about the achievements of the institutional repositories for them. The institutional repositories cannot be separated from academic institutions especially in today's world of e-prints dissemination and preservation of research output. Lynch (2006), pointed out the significant role that institutional repositories play to academic institutions as the development of institutional repositories emerged as a new strategy that allows universities to apply serious, systematic leverage to accelerate changes taking place in

scholarship and scholarly communication. Jones, Andrew and MacColl (2006), explained that “the faster the research is known and understood, the faster we all benefited”. Hence, the institutional repository can play effective communication tool role with remarkable speed. Alternatively, institutional repositories can preserve and provide access to university unpublished material, establish alternatives to high cost of traditional publications and contribute to a university prestige. According to Jones (2007), institutional repositories can serve two basic purposes which include serving as a method of disseminating research output and secondly helping as a central location and focus for the collection and output of the organizations research output.

Westell (2006) on his part observed that “the institutional repository can provide excellent examples of initiatives that speak directly to research and scholarship. It can also provide a rich set of data to illustrate the breadth and the depth of the research being carried out at the institution. Hence according to Lynch (2006) institutional repositories can enhance access to traditional scholarly content by empowering faculty to effectively use the new dissemination capabilities offered by the network.

Lynch (2003) noted that institutional repositories are facilitating changes not so much in the existing system of scholarly publishing but by opening up the entire forms of scholarly communication that will need to be legitimized and nurtured with guarantees of both short and long term accessibility. Lynch (2003) further expressed his view of university-based institutional repository as a set a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members.

2.3.3 ICT Infrastructure to Support Access and Use of the Institutional Repository

For effective access and use of institutional repository, ICT infrastructure is critical. However, it has been noted that most of third world countries lack effective ICT infrastructure, a factor that makes adoption of digital institutional repositories difficult. Arunachalam (2003), notes that development of institutional repository in developing countries is much a capital intensive project than in developed countries. This is because academic and research institutions in developed countries already have a well-established state-of-the-art ICT infrastructure to build on whereas developing countries, this infrastructure is largely inadequate.

Development, access, use and maintenance of an institutional digital repository require internet fast and reliable internet connection. Universities in Kenya, just like in other developing countries, face serious challenge of insufficient bandwidth. According to Jensen (2006), “bandwidth is the life-blood of world’s knowledge economy, but it is scarcest where it is most needed in developing nations of Africa which require low cost communications to accelerate their social economic development”. A survey for Africa Tertiary Institutions Connectivity Survey (ATICS) carried out by the Africa Virtual University in 2005 showed that the average African University has a bandwidth capacity equivalent to a broadband residential connection available in Europe, pays 50 times more for their bandwidth than their educational counterparts in the rest of the world and fails to monitor, let alone manage, the existing bandwidth (ATICS, 2005). As a result, what little bandwidth that is available becomes even less useful for research and scholarship

purposes. A study on internet usage by Jagboro (2003), shows that 45.2 percent of the respondents access the internet through cafes.

Electricity supply is also another major problem in developing countries and this makes the development of projects like digital institutional repositories much difficult and expensive. Fatunde (2008) observed that poor electricity supply is a major impediment to the operation and growth of Information and Communication Technology in Nigerian universities, and that's why International Institute of Tropical Agriculture (IITA) in its final stages of developing its institutional repository had to locate its servers to the United Kingdom (UK) mainly due to the incessant problem of power supply in Nigeria.

2.3.4 Challenges Faced by Academic Staff in Using Content Via Institutional Repositories

Lagzian et. Al, (2015) explored the critical factors that contribute to the success of institutional repositories implementation worldwide. The web-based survey of 322 institutional repository managers identified six factors being important for the success of institutional repository implementation. These six factors are "Management", "Services", "Technology", "Self-archive Practices", "People" and "Resources". Academic staff face a number of these challenges. These challenges are diverse ranging from infrastructural, legal as well as skills gap as discussed in the paragraphs that follow.

Awareness of Open Access Institutional Repository

Ignorance or lack of knowledge of open access institutional repository seems to be one major issue to the development, access and use of open access institutional repository in developing countries. Moseti, (2016) studied institutional repositories of six universities

in Kenya. The study found that the scholars rarely used the university's repositories to preserve their research because they were not aware of the role of the repositories in the preservation of research output. Ratanya (2017) conducted a case study of access and use of Egerton University's institutional repository by academic staff. The findings of study showed that the majority of the respondents were not aware of the existence of the repository while those who were aware faced myriad challenges in accessing and using the repository content.

Fatunde (2008) adds open access software and other issues related to the establishment of institutional repository such as copyright, metadata, policies, populating and marketing of institutional repositories, as other major issues that Institutions should focus on in order to create awareness of their institutional repositories.

Inadequate ICT Connectivity and Infrastructure

Open access institutional repositories require a reasonably fast and reliable internet connection for maximum benefit. According to Jensen (2006, p.12), "bandwidth is the life-blood of the world's knowledge economy, but it is scarcest where it is most needed in the developing nations of Africa which require low cost communications to accelerate their socio-economic development. Few schools and public libraries on the continent have internet access." Whereas not much is needed by way of infrastructure to set up a repository, much more is required to access the full benefit. Accessibility requirements include a network coverage of the entire institution, provision of access points, network equipment and other accessories which are too high for some institutions to deploy even as an internal service (intranet).

The availability of an efficient telecommunication service is the most important prerequisite for electronic networking which affects the open access institutional repository. The telecommunications infrastructures in most countries in the Sub-Saharan Africa still remain underdeveloped

Unreliable Power Supply

Another challenge associated with internet connectivity in academic and research institution is the problem of electrical power supply. Fatunde (2008) notes that an institutional repository should be openly accessible to every user at all times (that is, 24 hours a day within the week) and this will therefore require a sustained and regular electricity supply to power the ICT facilities. This however is not always the case in most developing countries.

Copyright

Another challenge that affects institutional repository users is copyright. Jensen (2006) notes that legal barriers arise from copyright law and licensing agreements that determine how a person can deal with a published work such as a journal article or a research paper, or whether the work shall be available in a closed or open access format. Faculty copyright retention is a necessary precondition for libraries to help disseminate their institutions scholarly output. Also, some copyright laws ask authors to transfer their copyright to them before their papers are published. In such a case, the publisher's consent would have to be sought before such research works could be posted into the institutional repository.

Institutional Culture and Politics

The most significant challenge facing academic libraries undertaking these institutional repository projects is not technical but rather cultural. According to the online computer library centre (OCLC, 2003), “the technical issues involved in creating institutional repositories are not necessarily difficult, but the developers of a repository will more likely face challenges related to the politics and culture of an institution from the stakeholders, namely the faculty, library staff, IT staff and instructional designers”. In the view of OCLC (2003), there is no common view of what an institutional repository is, what it contains and what its governance structure should be.

Any single institutional failure can cause more damage to the viability of the institutional repository. An institutional repository can fail over time for many reasons: policy (for example, if the institution chooses to stop funding it), management failure or incompetence, or technical problems. Any of these failures can result in the disruption of access, or worse, total and permanent loss of material stored in the institutional repository.

Reward Systems in some Institutions

Fatunde (2008) notes that the non-use of articles submitted to institutional repositories in assessing and promoting authors makes them reluctant in freely contributing to institutional repository platform. This consequently affects the content of materials that are posted to the institutional repositories.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

Research methodology is a way to find out the results of a given problem that is also referred to as the research problem; it is the way of searching or solving research problem. This chapter presents the methodology that aided the researcher to meet the aim and objectives of the study as well as the research design, target population, sampling method, data collection methods and ethical issues observed by the researcher while conducting the study

3.1 Research Approach

This study adopted a mixed method research design. Research design is the structure that holds together the research and enables one to address research questions in ways that are appropriate, efficient and effective. Both quantitative and qualitative approaches were used to collect and analyze data. The design was complementary with qualitative method being used to clarify results obtained from the quantitative method.

This research design was preferred due to its advantages such as its ability to capture diverse views on access and use of content by academic staff. It was also preferred because it allows the researcher to look at the research questions from different angles and clarify unexpected finding and /or potential contradictions.

In this research, the researcher started with a survey in order to generalize results to a population and then embarked on qualitative open-ended interview to collect in-depth information from the participants. This was necessary in order to allow the researcher to

orient his questions according to the predetermined objectives. This method guided the study in gathering the opinion of the librarian, institutional repository manager and staff on the role of institutional repository in promoting access and use of the content to academic staff at Kenyatta University.

3.2 Research Method

Research methods are different ways in which people gather information. They include; observation, survey, case studies among others. In this study, the research methods used is a survey within a case study because the researcher wanted to get data that is explanatory and can be generalized in other cases. The case study was Kenyatta University academic staff while a survey was used in collecting data from the respondents.

3.3 Population of the Study

A research population is the entire set of individuals about which inferences will be made. It is the group of respondents, objects or items from which samples are taken for measurement. The target population of this study was the 972 comprising of 967 academic staff and 5 library staff. Library staff was categorized as follows;

Table 1: Population of the Library Staff Interviewed

Category	Total Number
University Librarian	1
Institutional repository manager	1
Institutional repository staff	2

Table 2: Population of Academic Staff under the Study

School	Total Number of academic staff
Education	100
Agriculture	50
Applied Human Sciences	73
Business	92
Engineering	64
Economics	83
Environmental Studies	79
Human and Social Sciences	75
Medicine	86
Public Health	90
Pure and Applied sciences	83
Visual and Performing Arts	92
TOTAL	967

Source: Kenyatta University human resources department.

3.4 Sampling Procedure

The sampling procedure refers to the technique or design the researcher adopts in selecting items for the sample. It is the process of laying down the number of items to be included in the sample, for instance, the size of the sample. This research employs stratified proportionate random sampling. The population under study (academic staff in Kenyatta university) was first grouped into different strata according to their common characteristics which is the school they are based (i.e., school of Education, School of Agriculture, School of Applied Human sciences, School of Business, School of engineering and technology, school of Economics, school of Environmental studies, school of Humanities and Social sciences ,school of medicine, School of Public Health, School of Pure and applied Sciences and School of Visual and Performing Arts) and then a random sample was selected from each strata taking into consideration the size of the strata to constitute the sample size.

3.5 Sample Size

The sample size of this study constitutes of 91 respondents which was arrived at by applying Yamane's (1967) formula:

N =number of total population=967

Where e =10% which is the level of precision

n =is the sample size which is representative of the group

$$n = \frac{N}{1+N(e)^2}$$

$$91=967/ \{1+967(0.1)^2\}$$

Table 3: Sample Size

School	Total number of academic staff	Sample size
Education	100	9
Agriculture	50	5
Applied and Human Sciences	73	7
Business	92	9
Engineering	64	6
Economics	83	8
Environmental studies	79	7
Human and Social Sciences	75	7
Medicine	86	8
Public Health	90	8
Pure and Applied sciences	83	8
Visual and Performing Arts	92	9
TOTAL	967	91

In addition, interviews were conducted for the institutional repository manager (1) and the institutional repository staff (3) as well as the university librarian (1) on the role of institutional repository in promoting access and use of content by academic staff at Kenyatta University.

3.6 Data Collection Instrument

Generally, there are various instruments used in collecting data. According to Zohrabi (2013), the main instruments used in mixed method researches include; closed ended questionnaires, open ended questionnaires, interviews and observations. The following instruments were used to collect data from the respondents for the purposes of this study:

3.6.1 Questionnaires

In mixed method, questionnaires form a good tool for collecting quantitative data. This study relied on semi-structured questionnaires to collect data from the respondents. Semi-structured questionnaires were preferred because of the need to give the respondents an opportunity to write their own thoughts in addition to the options given, ease of administration, their ability to collect more information rather than interviewing a few members of academic staff and also because of their tight schedule of the respondents' other methods of collecting data like interviews would be inappropriate.

3.6.2 Interviews

Apart from the questionnaires, interviews are a major tool of collecting data in mixed method research. They are best suited in collecting qualitative data. Interview is the most frequent method used to collect primary data because it is easy to get accurate information and immediate feedback. It is one way of getting clarification and explanation for parties involved. It is the most productive fact-finding technique. In the case of this study, interview was used to collect data from the institutional repository manager, institutional repository staff as well as the librarian as some of the facts that were sought could not be fully addressed by other methods of collecting data. The

thematic areas addressed by the interview included; usage of the institutional repository by academic staff, challenges facing academic staff in accessing the IR and content contributed to the institutional repository by academic staff.

3.7 Data Collection Procedure

Mixed method research involves collection of both quantitative and qualitative data. The first step involved design of questionnaires and then interview schedule which were to be used in collecting data. Aim, objectives and the research questions formed the basis of the interview schedules and the questionnaires.

After designing the questionnaire and interview schedule, the researcher reviewed them with a group of experts to ensure clarity of the questions and also make sure the right information was to be captured.

Then, the researcher obtained a research permit from the National Commission for Science, Technology and Innovation and thereafter, proceeds to seek permission from Kenyatta University to allow the collection of data. The researcher then visited the respondents at their places of work and with the help of the school administrators distributed the questionnaires to the selected respondents. This ensured that most of the questionnaires were returned as the administrators helped in collection of the questionnaires. The researcher then collected the filled questionnaires from the respondents, interviewed the librarian, institutional repository manager and staff.

3.8 Validity

Mugenda and Mugenda (2003) define validity as the accuracy and meaningfulness of the inferences which are based on the research results. It is the degree to which the results obtained from analysis of the data actually represent the phenomenon under study. Mixed method research requires validity of the instruments in order to ensure the data collected represent the actual phenomenon under study.

To ensure content validity of the instruments the researcher engaged a group of experts who assisted to improve the instruments. Among the issues they were considering include; academic staff contribution of content into the institutional repository, ICT infrastructure and use of the institutional repository and challenges in access and use of the institutional repository. The use of different data collection methods (questionnaire, interview) ensures that construct validity is ensured.

3.9 Reliability

Mugenda and Mugenda (2003) refer to reliability as the degree to which a research instrument yields consistent results or data after repeated trials. It is influenced by random error, as the random error increases reliability decreases and vice versa. In order to access reliability of the instrument, a pilot study was carried out; by use of the test re-test method to a similar group of respondents at Mount Kenya University.

The pilot study was meant to achieve the following; discard all unnecessary or ambiguous questions, access whether each question gives an adequate range of responses, establish that the replies can be interpreted in terms of information that is required, check

that all questions are answered, re-word or revise any questions that were not answered as expected,

3.10 Data Analysis

Data analysis was meant to examine critically what had been gathered in a study and generate results. Data analysis is the procedure of examining what has been collected in a survey or experiment and make inferences. This involves extracting important variables, detecting any anomalies and testing any underlying assumptions. In mixed method research, both qualitative and quantitative methods are used in data analysis.

3.10.1 Quantitative Analysis

A quantitative analysis is the way to analyze data when quantitative methods are used.

The researcher followed the following steps during quantitative data analysis:

1. Data preparation where the researcher checked data accuracy, entered the data in the computer, transformed the data, developed and built database structure which contained the measures.
2. Descriptive statistics were used to analyze quantitative data. They included frequencies and percentages. The simple summaries about the sample and the measures are provided.

In this study SPSS software has been used in data analysis and provided the results in different forms such as graphics

3.10.2 Qualitative Analysis

Mixed method research involves collection of qualitative and quantitative data. Qualitative data is analyzed via various qualitative data analysis techniques. For the purposes of this study, thematic analysis was used in analyzing qualitative data. Braun and Clarke (2006), define thematic analysis as qualitative method for identifying, analyzing patterns (themes) within data. It minimally organizes and describes your data set in (rich) detail. However frequently it goes further than this, and interprets various aspects of the research topic. Thematic discussion emphasizes on pinpointing, examining and recording patterns (themes) within data.

3.11 Data Presentation

The interpretation of data is the essence of research and the resolution of the research problem or its sub-problem is impossible without inquiring into intrinsic meaning of the data. This study being a mixed method study, uses both qualitative and quantitative methods of presenting data. Quantitative data is presented using tables charts and graphs. Qualitative data on the other end is presented using thematic discussions and in some instances direct quotations from the respondents.

3.11.1 Ethical Issues

When carrying out a research, it is important that various ethical issues are observed. It is also important that they are addressed before the researcher embarks on the research process. The researcher has a responsibility to protect the research participants; develop trust with them, promote integrity, guard against misconduct and impropriety that might reflect wrongly on the organization and challenging problems.

3.11.2 Ethical Issues In Research Problem

The research problem is an important part of any research, it is important that the researcher and the respondents all are made aware of the research problem and why the research is necessary. The respondents were explained of the aim of the aim of the study in order to acquaint them with the research problem under investigation, and why the research was necessary.

3.11.3 Ethical Issues In Data Collection

Data collection comes with a wide range of ethical issues. The researcher ensured participants were duly informed of the intentions of the research. An opportunity was accorded to them to decide whether to participate or not. The researcher also made sure that the confidentiality of the respondents is not exposed by not requiring them to fill personal information that may identify them.

3.11.4 Ethical Issues in Data Analysis and Interpretation

This calls for the researcher to be objective when analyzing and interpreting the findings as lack of objectivity by making sure that the opinions of the researcher does not influence the outcome of the study. In mixed method data analysis and presentation, both quantitative and qualitative techniques are used and each present their own ethical challenges that are addressed separately. In quantitative analysis aggregation of data in tables, charts and graphs ensured issues of objectivity and anonymity are dealt with. In qualitative analysis, participants were asked to clarify the responses after they were recorded.

3.11.5 Ethical Issues in Dissemination of Research

This calls for the researcher to, adhere to principles of confidentiality and anonymity, use of appropriate language, presentation of data as it is without any manipulation. To ensure this the researcher made sure that confidentiality of the respondents is guarded by ensuring no detail identified them, appropriate language was used when compiling the report and ensuring presentation of data is devoid of any manipulation by presenting the facts as collected from the respondents.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents an analysis of data collected as per and research questions. The study was about promoting access and use of content by academic staff of Kenyatta University, Kenya: the role of institutional repository. The study sample consisted of 91 academic staff, the university librarian (1), the institutional repository manager (1), and institutional repository staff (3). The primary data has been collected mainly through questionnaires and interviews. The findings of this study have been integrated, that is both qualitative and quantitative data have been discussed together in relation to research questions. Quantitative data has been tabulated, analyzed, and recorded as frequencies and percentages where applicable while qualitative data presented and analyzed inform of thematic discussions.

4.2 Awareness of Kenyatta University Institutional Repository

This section sought to collect data on the awareness of the institutional repository among Kenyatta University academic staff. This is because the level of awareness of the institutional repository determines the access and use of content by the users. The data collected is represented in figure 2.

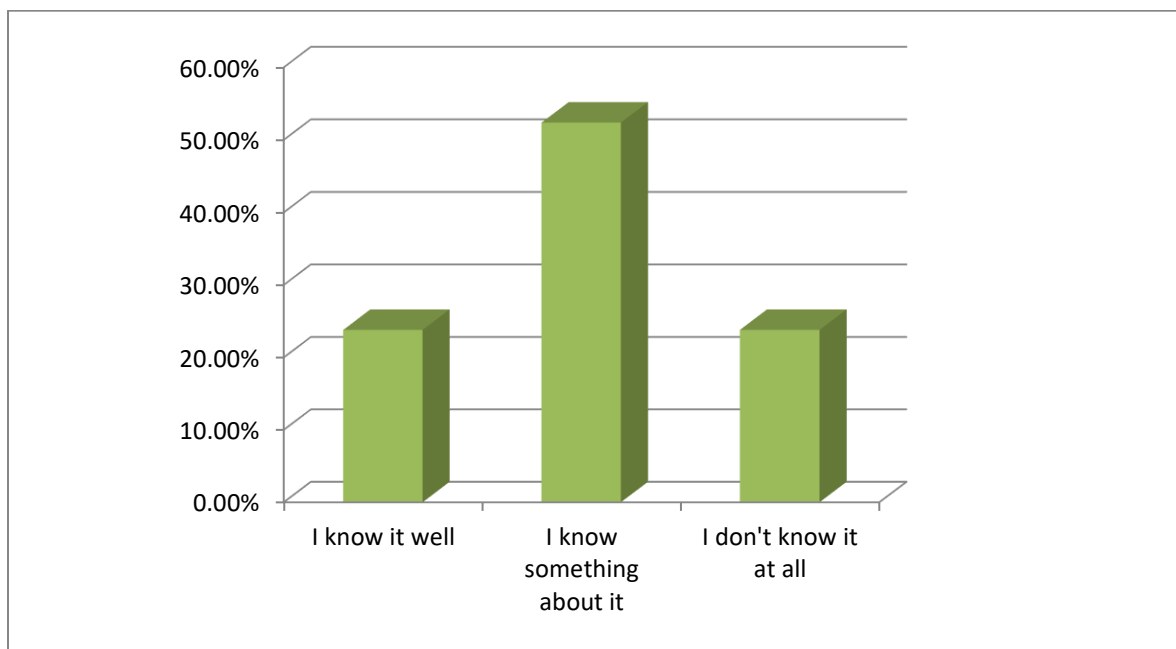


Figure 2: Percentage Awareness of the Institutional Repository among Kenyatta University Academic Staff

The main purpose of the institutional repository is to enable user's access and use content available. This means user's knowledge of the institutional repository is critical. The findings in figure 2 show that the percentage of academic staff who knew nothing or little about the institutional repository is way higher than those who knew the institutional repository well.

4.3 Contribution of Content to the Institutional Repository

This section sought to assess the use of institutional repository in terms of contribution of content to the institutional repository by academic staff at Kenyatta University. The findings showed that most of the respondents, who at least knew something about the institutional repository, make their publications available in the institutional repository. However, none of the respondents who didn't know anything about the institutional repository contributes content to the I.R.

Table 4: Awareness of the Institutional Repository and the Contribution to the Institutional Repository

Awareness of the IR	Total	Contributes/d publications to the IR	Did not contribute Publications to the IR
I know it well	20	15	5
I know Something about it	44	30	14
I don't know it at all	20	0	20
Total	84	45	39

The data represented in table 6 shows the usage of the institutional repository in terms of contribution of content into the institutional repository by academic staff. Although the usage of the institutional repository in terms of percentage is fair, this is unsatisfactory. For the institutional repository to have an impact in providing access and use of content there is need to ensure more academic staff are encouraged to make use of the institutional repository. This is also backed up by the information obtained from the interview with the institutional repository manager and staff. They indicated although the institutional repository has attracted significant interest from academic staff, its usage is still unsatisfactory. They felt there is need for more academic staff to contribute their content into the institutional repository.

4.4 Types of Content Contributed to the Institutional Repository by Academic Staff

This section sought to establish the type of content contributed to the institutional repository by academic staff at Kenyatta University. Type meant the kinds of intellectual output in terms of document academic staff are willing to avail to the institutional repository. This was necessary in order to establish the content academic staff prefer to contribute to the institutional repository and why. The respondents who indicated that they would contribute content into the institutional repository were asked what type of work they would deposit. They were allowed to select all the types of contents they would contribute. The findings are represented in figure 3 and shows peer reviewed articles; conference papers and thesis are the most likely documents to be availed to the institutional repository compared to datasets and teaching materials which are the least likely.

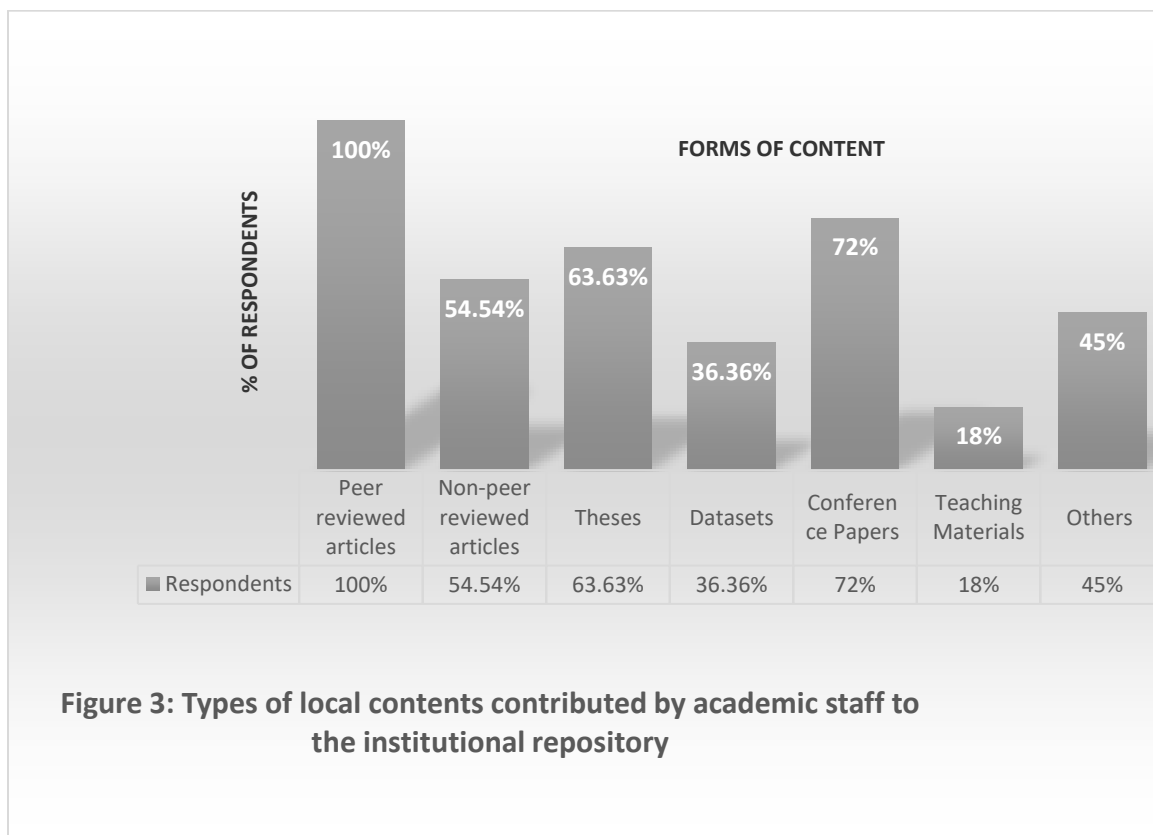
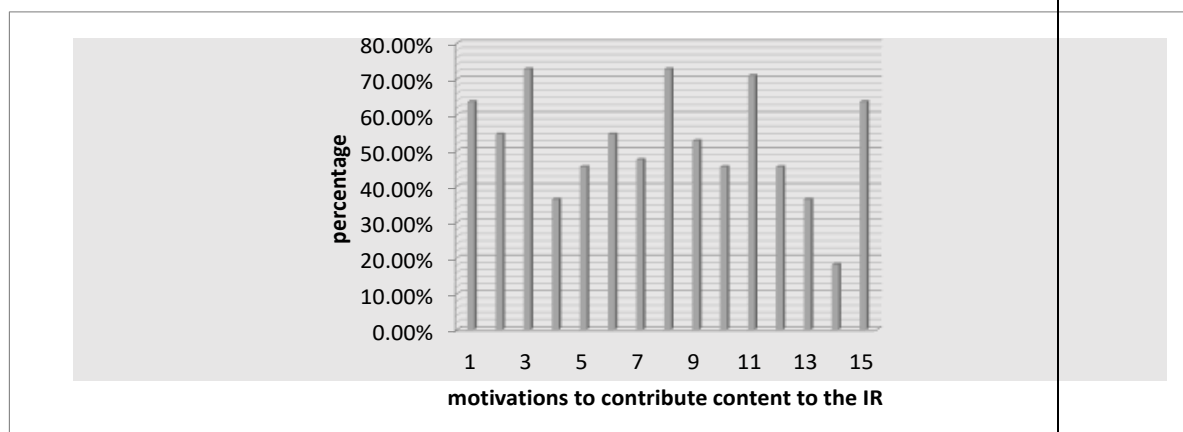


Figure 3: Types of Local CONTENTS Contributed by Academic Staff to the Institutional Repository
 (*respondents were allowed to select more than one response)

The data above is reflective of the findings from the interview with the institutional repository staff and the librarian who indicated that although the academic staffs are allowed to contribute a number of contents into the institutional repository, most of them prefer to avail peer reviewed articles. This can be attributed to academic staff concern about the quality of the work they avail to the public through the institutional repository and therefore preference to avail peer reviewed articles as their quality is already assured through peer review process.

4.5 Motivations to Contribute Content to the Institutional Repository

This section aimed at establishing the factors that motivate academic staff at Kenyatta University to contribute content into the institutional repository. It asked those who contributed to the institutional repository the factors that motivated them to contribute their publications to the institutional repository. The findings revealed that accessibility of the work, permanent archiving and availability, increased number of citations, and increased chances of promotion were among the major motivating factors. Others include; university saving money, the institutional repository is well indexed and archived, ease of use of the institutional repository, the work getting published among other high quality research, ease of dissemination of the work, protection from plagiarism among others.



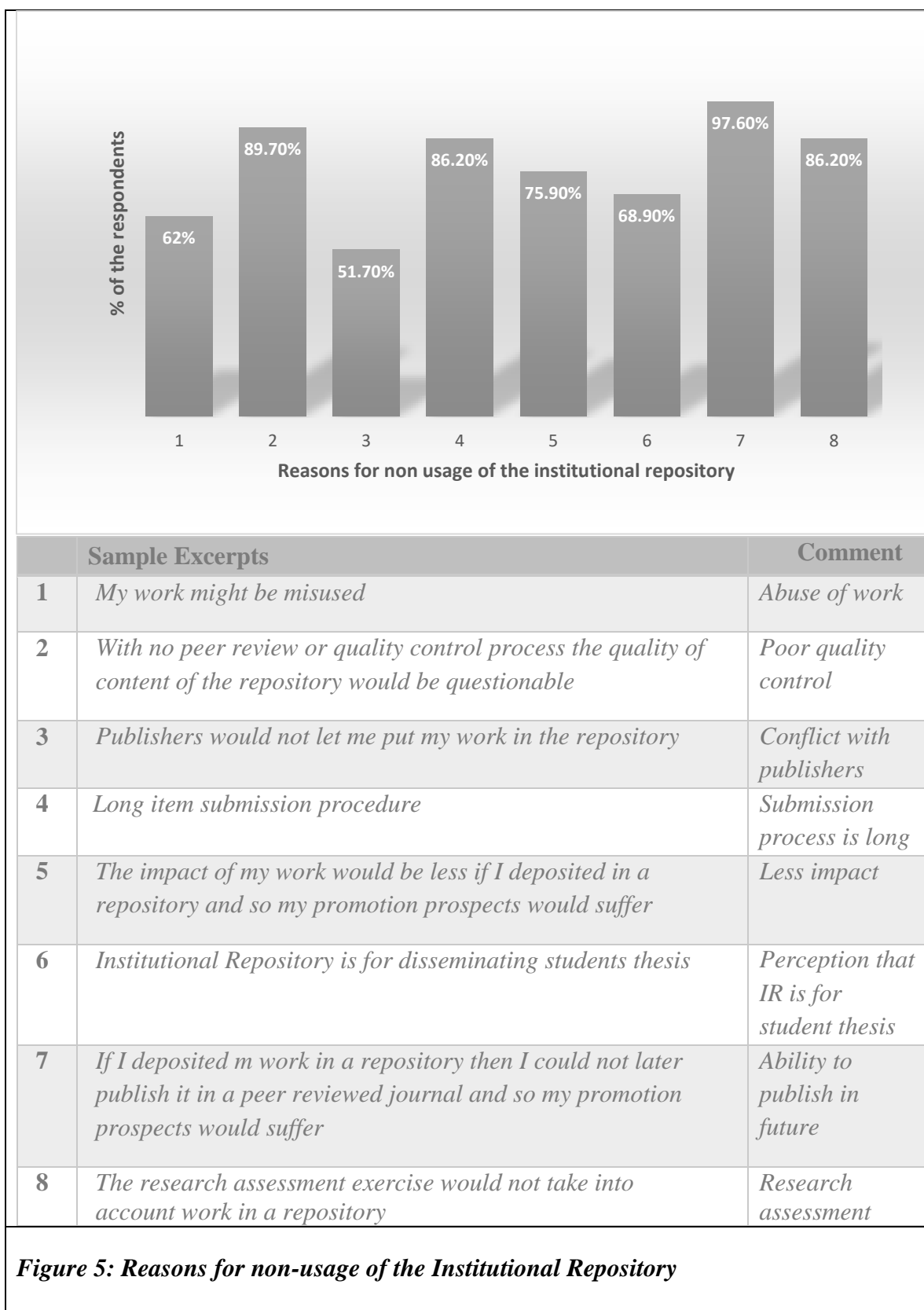
	Sample Excerpts	Comment
1	<i>Accessibility of my work is increased</i>	<i>Increased citation</i>
2	<i>The Impact of my work is increased.</i>	<i>Increased Impact</i>
3	<i>My work will be permanently archived</i>	<i>Permanent archiving</i>
4	<i>Access to my work is cheaper for others</i>	<i>Increased access</i>
5	<i>My published work is easy to use</i>	<i>Ease of use</i>
6	<i>Ease of dissemination of my work</i>	<i>Ease of dissemination</i>
7	<i>I retain the copyright</i>	<i>Copyright ownership</i>
8	<i>The number of citations of my work increases</i>	<i>Increased citations</i>
9	<i>I can add extra data to the work such as photos, video, audio and datasets</i>	<i>Ability to incorporate various formats</i>
10	<i>My work is protected from plagiarism</i>	<i>Protection from plagiarism</i>
11	<i>My work is published along other high quality research</i>	<i>High quality research</i>
12	<i>The repository is easy to use</i>	<i>Ease of use</i>
13	<i>The repository is well indexed and archived</i>	<i>Repository index</i>
14	<i>The university saves money</i>	<i>Saving</i>
15	<i>My chances of promotion are increased</i>	<i>promotion</i>

Figure 4: Motivations to Contribute Content into the Institutional Repository

From the figures above, factors that have a direct benefit to the academic staff and their research were rated highest. They include increased impact of their research work, increased citations of their research work, their work getting published along other high quality works, increased accessibility and increased chances of promotion. Factors that were deemed to have little direct impact to academic staff such as; the university saving money, the repository being well indexed and archived and the work being cheaper for others to access were rated lowest.

4.6 Reasons For Non Usage of the Institutional Repository

The study sought to establish from the non-users the factors that hinder them from making use of the institutional repository. This data was necessary in order to find out factors that hinder usage of the institutional repository and therefore recommend remedial measures. The findings are represented in the figure 6 and sample extract for the reasons given Table in 6.



Ability to publish the work already in the institutional repository, questionable quality of content in absence of peer review, less impact of work in the institutional repository and assessment exercise not incorporating the content in the institutional repository were rated highest among the factors discouraging non-users among academic staff from availing their content into the institutional repository. Others include, long item submission procedure, concerns on copyright, misuse of their work and institutional repository being for depositing student's theses were also mentioned. Although some of the concerns may not be genuine, there is need for the management of the institutional repository to address the concerns of the academic which will lead to increased usage.

4.7 Challenges in Accessing the Institutional Repository

The research sought to establish from the users of the institutional repository the challenges they face in making use of the institutional repository. This was necessary in order to identify the challenges facing academic staff when accessing the institutional repository and therefore come up with measures to overcome the said challenges. The findings show that a huge segment of the respondents who contributed content to the institutional repository 73 % (n=45) had faced access related problem at one time or the other. However, a significant number (27.27%) reported having not faced any access related problem.

This study also went ahead to identify from the respondents who had indicated having faced some challenges the type of challenged they had faced in accessing the institutional repository. The findings established that access barriers such as passwords, low internet

bandwidth were top of the list, unavailability of the institutional repository were among the challenges users face in assessing the institutional repository as shown in table 7

Table 5: Challenges in Access and use of the Institutional Repository

Challenge	Number of respondents	Percentage (%) (n=45)
Low internet bandwidth	30	66.6%
Institutional Repository downtimes	10	22%
Access barriers such as passwords	35	77.7%
Unavailability of the institutional repository outside the University intranet	10	22%
Lack of a dedicated computer facility to operate from	20	44.4%

***Respondents were allowed multiple responses**

From the table above access barriers such as passwords was cited as the biggest challenge that academic researchers face in their efforts to access and make use of the institutional repository. This is because D-space institutional repository system requires one to first

log-in as a user before making any submission to the system. Low internet bandwidth also follows closely as one of the challenges they face in accessing and making use of the institutional repository. This is important especially bearing in mind that internet connectivity is a pre-requisite for one to access the institutional repository from a remote location. Lack of a dedicated computer facility to operate from was cited also cited by half of the respondents meaning that this group felt there ought to be a staff computer facility to facilitate access and use of the institution repository. Others included institutional repository downtimes and unavailability of the institutional repository outside the university intranet which were cited by 10 % of the respondents.

The interview with the librarian and the institutional repository staff also confirmed some of the challenges cited by the respondents. The interview confirmed that indeed, there is no dedicated computer lab to enhance access and use of the institutional repository by the academic staff. On the issue of downtimes, the librarian confirmed that the university was working on solving the problem by having a dedicated server for the institutional repository. However, the data obtained from the interview differed with the one obtained from the respondents on the issue of unavailability of the IR outside the university intranet. The institutional repository manager indicated that the institutional repository is readily available on the internet via a public IP address. He indicated that the users complain about unavailability of the institutional repository outside the university intranet may be as a result of the internet settings on their browsers.

4.8 ICT Infrastructure to Support Access and Use of Content Through Institutional Repository

ICT infrastructure is critical for effective access and use of content in institutional repository. This section aimed at identifying the ICT infrastructure at Kenyatta University that would facilitate the access and use of content in the institutional repository. This was necessitated by the need to identify the ICT facilities to be adopted in order to improve access and use of content by academic staff at Kenyatta University.

4.8.1 Rating of the ICT Infrastructure at Kenyatta University

The study sought to establish how the academic staffs rate the available ICT infrastructure. This was to establish whether the respondents were satisfied with the available ICT infrastructure. Figure 6 shows that most of the respondents rated the ICT infrastructure as unsatisfactory, with only small percentage rating it as very good and good respectively.

This is an indication that most of the respondents were not very satisfied by the ICT infrastructure at Kenyatta University. Poor confidence with the ICT infrastructure will affects academic staff ability to access and use the content in the institutional repository.

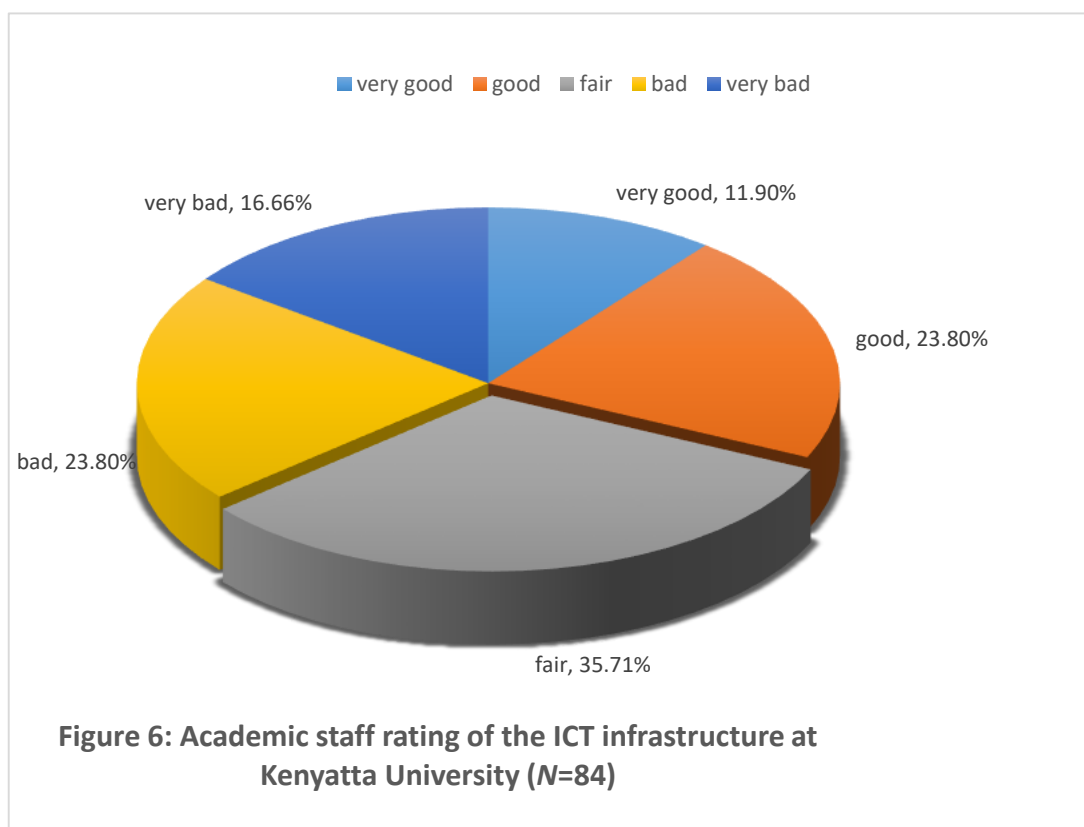


Figure 6: Academic Staff Rating of the ICT Infrastructure at Kenyatta University (n=84)

4.8.2 ICT Infrastructure Facilities available to facilitate Access and Use Content through Institutional Repository

This section aimed at collecting data on the ICT infrastructure available at Kenyatta University. This was important because access and use of content in the institutional repository is highly dependent on the ICT infrastructure. The study found out that Kenyatta University has put in place a number of ICT infrastructure geared towards facilitating access and use of content in the Institutional repository. Most the respondents who responded cited Wi-Fi hotspots, Ethernet access points among the facilities that the University has put in place to improve connectivity. However, none of the respondents

cited staff computer labs among the facilities offered to facilitate access and use of content by academic staff at Kenyatta University.

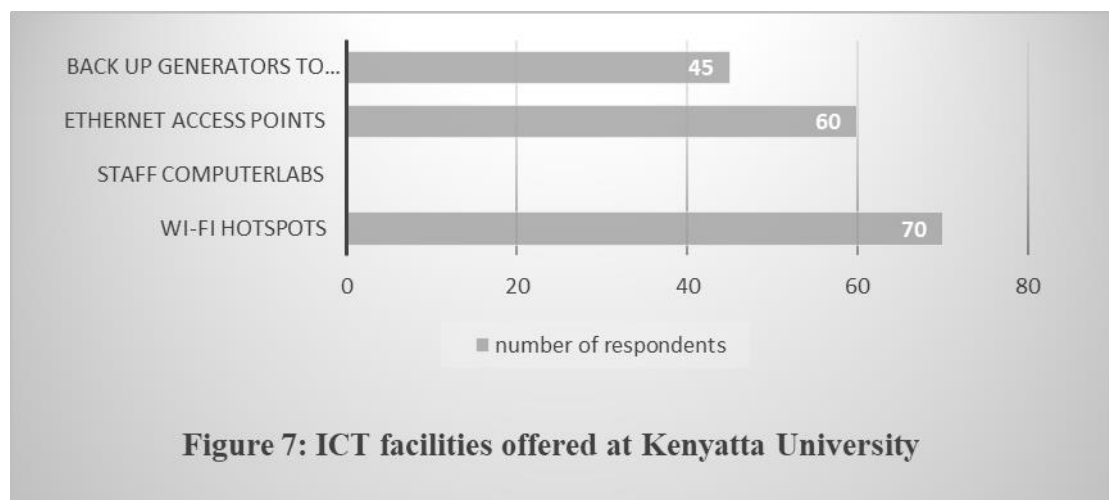


Figure 7: ICT Facilities offer at Kenyatta University

****Respondents were allowed more than one response (n=84)***

The findings above are confirmed by the information obtained from the interview with the librarian, who indicated that the university has emphasized on internet penetration by offering Wi-Fi hotspots and Ethernet access points at designated points to improve access. It is important to note that wi-fi hotspots are meant to facilitate wireless connection to devices while Ethernet is for facilitating connection to wired devices. The interview also established that the library is on the process of developing dedicated computer labs for the academic staff who may feel uneasy to use student's computer labs.

4.9 Improvement on Kenyatta University Institutional Repository

This section sought to establish from the respondents' ways of making the institutional repository more useful to the academic staff at Kenyatta University. It also sought to establish from the repository manager measures put in place to ensure improved access

and use of the content in the institutional repository. The findings from the academic staff are represented in the table that follows.

Table 6: How Different Factors affect Usability of the Institutional Repository (n=84)

Factor	Very important	Important	Moderately important	Little importance	Un important	Total
Provide full text rather than abstracts	65.5%	11.90%	11.90%	5.96%	4.76%	100%
Make pre-print versions available to worldwide audience	23.8%	11.9%	5.96%	23.8%	34.5%	100%
Provide a way to create online peer reviews	59.5%	17.9%	11.9%	5.96%	4.8%	100%
Show the number of times the document has been viewed and downloaded	83.3%	11.9%	5.96%	0%	0%	100%
The library to offer regular training on	100%	0	0	0	0	100%

The findings in the table 10 have been interpreted below:

a) Provision of full text rather than abstracts

From the above findings it is clear that most academic staff regard availability of full text articles on the institutional repository rather than abstracts of importance to them (see table 10). This is consistent with principles of open access where access barriers of access to information are bridged by provision of full text documents. This means that academic staffs at Kenyatta University deem it important to avail the whole document to their online audience.

b) Making pre-print versions of the work available to a worldwide audience

The study found out that most of the respondents considered this factor of little or no importance to them (refer to table 10). The findings above is attributed to the concerns on copyright because as noted in this study earlier the respondents had concerns with publishers letting them publish their works after they have appeared on the institutional repository. Also this concern could also arise due to the respondents 'fear' that their work could be plagiarized if it is availed to a worldwide audience.

c) Provision of online peer review

The study found out that most respondents prefer the institutional repository to provide a forum for online peer review (refer to table 9). This data shows the amount of importance academic staff at Kenyatta University attach to online peer reviewing of the documents in the institution Repository. Most of them feel that if the institutional repository provided online peer review it would be more useful. This means that the respondents would like the institutional repository to give them an online platform to learn and interact with their peers.

d) Showing the number of time the document has been viewed or downloaded

The study established most respondents consider this factor as important in improving the institutional repository (refer to table 9). Ability to show the number of times a document has been viewed helps researchers to gauge the impact of their articles/documents and therefore the reason why most respondents felt this fact was important.

e) Regular training on the institutional repository by the library

The findings of the study also revealed that most respondents consider regular information literacy training on institutional repository as important (see table 9). Training on institutional repository is important to make sure that users are impacted with the necessary skills to make use of the content in the institutional repository and also enabled to deposit content into the Institutional Repository.

The interview revealed that the library has put up a number of measures to encourage academic staff to access and use the institutional repository. They include, organizing regular training on the use of the institutional repository, establishing an institutional repository team to handle issues relating to access and use of the institutional repository, ensuring that academic staff are provided with user name and passwords to make it easy to submit content into the institutional repository among others.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of findings of the study in relation to the research questions with a view to reaching a sound conclusion. Based on the findings of the study, it offers recommendations that can help improve access and use of content through the institutional repository.

5.2 Summary of Research Findings

In relation to the research questions, the findings can be summarized as follows:

Research Question One: What content do academic staff at Kenyatta University contribute to the institutional repository?

The findings revealed that the institutional repository allows academic staffs at Kenyatta University contribute a number of contents. They include:

- a) **Peer reviewed articles:** The research found out that all of the respondents who contribute in the institutional repository, would contribute their peer reviewed articles. This is because of the level of confidence accorded to peer-reviewed articles arising from their high quality.
- b) **Non-peer reviewed articles:** the study also found out that some of the users (academic staff) of the institutional repository contribute non peer reviewed articles.

- c) **Theses:** the study found out that a significant segment of the users (academic staff) of the institutional repository contribute/would contribute theses to the institutional repository.
- d) **Conference papers:** Among the major publications in academia are conference papers. These are papers that are presented in conferences. It was found out that most of the respondents contribute/would contribute conference papers to the institutional repository.
- e) **Data sets:** Data set is a collection of data. The research established that some academic staff would be willing to contribute data sets to the institutional repository.
- f) **Teaching materials:** This refers to materials used by academic staff for teaching purposes. It was found out that a sizeable number of academic staff were found willing to contribute their teaching materials to the institutional repository.
- g) **Others:** Some academic staff indicated they were willing to contribute other contents apart from what was listed. This may include but not limited to technical papers, scholarly books among others.

Research question 2: What is the level of access and use of institutional repository by academic staff at Kenyatta University?

a) Awareness of the institutional repository

The study found out that the institutional repository is well known by academic staff at Kenyatta University (figure 2).

b) Access and use of the institutional repository

The study found out the usage of the institutional repository is unsatisfactory with only 54% (45/84) of the respondents indicating they make use of the institutional repository. Majority of this category are those who had at least some knowledge of the institutional repository. Those who didn't know anything about the repository registered zero usage.

c) barriers to usage of Kenyatta University institutional repository

The research established a number of barriers to effective usage of the institutional repository. They include:

- 1) Fear of plagiarism:** It was found out that some of the non-users cited fear of plagiarism as one of the barrier to their usage of the institutional repository.
- 2) Lack of quality control:** The research found out that a segment of the non-users of the institutional repository expressed concerns that with no peer review or quality control process, the quality of the repository would be questionable. This means they have serious reservations on the quality of the content in the institutional repository.
- 3) Conflict with the publishers.** The study established that conflict between the researchers and publishers is also a barrier to use of the institutional repository by academic staff at Kenyatta University.
- 4) Less impact of the research.** This study found out that some of the non-users indicated that the impact of their work in the institutional repository would be less and therefore damaging their prospects of promotion.

- 5) **Long item submission procedure.** It was also found out that the long procedure of submitting the items into the institutional repository was a barrier to a number of academic staff.
- 6) **Institutional repository as a place for disseminating students' theses.** A number of academic staff among the non-users felt the institutional repository is a place for disseminating students' theses only and therefore does not concern them.
- 7) **Need to publish the same document in a peer reviewed journal.** The study found out that of the academic staff that does not use the institutional repository, 96.55% of them thought that if they deposited their documents in the institutional repository, then they could not later publish it in a peer reviewed journal and so their promotion prospects would suffer.
- 8) **Research assessment doesn't include the works published in the institutional repository.**

Failure to incorporate content deposited into the institutional repository in research assessment was cited by a large segment of non-users as the main hindrance of their usage of the institutional repository.

Research question 4: Is there ICT infrastructure in place to facilitate access and use content on the institutional repository by academic staff?

The research established that Kenyatta University has put a number of ICT infrastructure to facilitate access and use of the institutional repository. They include:

- a) **WI-FI hotspots:** The University has availed Wi-Fi hotspots to facilitate access and use of the institutional repository. Wi-fi access points allows the institutional

repository users access the institutional repository through Wi-fi enabled devices like smart phones, tablets, computers among others.

- b) **Ethernet access points.** According to a huge segment of academic staff at Kenyatta University provides Ethernet access points at certain designated places to enhance access and use of the institutional repository. Ethernet access point's helps users located without the reach of Wi-Fi network or those whose devices cannot access the Wi-Fi connection access the institutional repository through a cabled connection.
- c) **Power back-up generators.** The research established that Kenyatta University has put a stand-by backup generator to cushion from power loses. This ensures that even when there are power surges, users can still be able to access and use the institutional repository.

Research Question 5: What are the access challenges encountered by academic staff at Kenyatta University?

The study found out that institutional repository users face a number of access related challenges. Some of the challenges noted include:

a) Low internet bandwidth.

Internet connectivity is crucial for effective access and use of content in the institutional repository access and usage. The study found out a sizeable proportion of academic staff reported having experience low internet connectivity.

b) Institutional repository downtimes.

This is inaccessibility of the institutional repository due to factors like low internet connectivity, power surges, among others. The study established that academic staff at Kenyatta University is sometimes faced with the challenge of unavailability of the institutional repository. Despite it not being very common (only 11.9% cited it as a challenge) institutional repository downtimes can be a serious challenge with potential to negatively affect the access and use of the institutional repository by the academic staff.

c) Access barriers such as passwords

D-space institutional repository requires the user to first log in before submitting items into the repository. This seems to be a big challenge to most of the academic staff at Kenyatta University with 41.66% of citing it as one of the challenge they face.

d) Unavailability of the institutional repository outside the university intranet.

This study found out that some respondents reported having experienced the challenge of un-availability of the institutional repository outside the university intranet. However, this is not a major challenge as the institutional repository is now on a public IP address that can be accessed from any location.

e) Lack of staff computers to operate from.

The research found out that the university lacks computer labs specifically dedicated to academic staff. This is important because academic staff need a dedicated computer lab where they can access the institutional repository from.

Research Question 5: What solutions can be employed to promote the use of content by academic at Kenyatta University?

a) Provision of full texts rather than abstracts.

Most academic staff favored provision of full texts documents through the institutional repository rather than provision of abstracts only. This shows the importance academic staff attach to ability to get a full text document from the institutional repository.

b) Provide online peer review.

The research also found out that most respondents (59.5%) indicated online peer review as very important to them. Therefore, if the institutional repository can provide an opportunity to create online peer review, it would improve the usage of the institutional repository.

c) Showing the number of times, the document has been viewed and downloaded.

Ability of the institutional repository to show the number of times a document has been downloaded, viewed or cited is very important to researchers as it helps them to gauge the impact of their research. Most of the academic staff stated this factor as very important to them. This means if the institutional repository provided this service it will be more useful to them.

d) **Regular training on the institutional repository**

Users can only make use of content in the institutional repository only if they have the requisite information literacy. It is important that academic staff are given the training required to make use of the institutional repository. Majority of the academic staff considered this factor as important.

5.3 Conclusions

This study investigated access and use of the institutional repository by academic staff at Kenyatta University, Kenya. To achieve this study went ahead to establish the types of content contributed to the institutional repository by academic staff at Kenyatta University, examine access and use of the institutional repository by academic staff at Kenyatta University, assess the ICT infrastructure that has been put in place to support the access and use of the institutional repository, establish the access challenges encountered by academic staff at Kenyatta University in accessing and using institutional repository and establish the strategies that can be used to promote the use of content by academic staff at Kenyatta university.

Access and use of the institutional repository by academic staff at Kenyatta University, Kenya was found to be unsatisfactory. A number of contributing factors were established, they include, low internet bandwidth, Institutional repository downtimes, Access barriers such as passwords, Unavailability of the institutional repository outside the university intranet, Lack of a computer lab to operate from among others.

Academic staff at Kenyatta University contribute various contents into the institutional repository. They include; peer reviewed articles, non-peer reviewed articles, theses, data sets, teaching materials, conference papers among others. A number of ICT infrastructures are in place to encourage access and use of the institutional repository. They include: Wi-Fi hotspots, Ethernet access points, as well as provision of backup generators to cushion from power loses.

Although the use of the institutional repository is fair it is not satisfactory. A good proportion of academic staff do not know anything about the institutional repository and even those who knew some do not contribute content to the institutional repository. It is therefore important for the management of the institutional repository to put up strategies that will encourage academic staff to increase their access and use of the institutional repository. Some of these strategies include; provision of full texts rather than abstracts, provision of online review mechanism, showing the number of times the document has been downloaded and information literacy training on access and use of the institutional repository.

5.4 Recommendations

After analyzing the findings of the study in line with the aim and objectives, this study makes the following recommendations;

1. Information literacy training on the institutional repository.

Information literacy is important because it equips academic staff with the necessary skills and knowledge to enable them make good use of content in the institutional repository. Kenyatta University library should endeavor to ensure that all the

academic staff are equipped with the necessary skills to make use of the institutional repository by offering regular information literacy trainings. This can be achieved by organizing sensitization workshop about content available through the institutional repository to the academic staff. increase internet bandwidth in order to facilitate access and use of content available through institutional repository. Stable internet connectivity is important for the utilization of content in the institutional repository. This is because the D-space system being web-based requires internet connectivity to be accessed remotely. A good internet connectivity is critical especially when uploading or downloading content from the institutional repository.

2. Login credentials.

This study recommends all academic staff be issued with necessary credentials and user rights to enable them submit content into the institutional repository. This is because D-space institutional repository requires one to sign in, in order to submit an item into the collection. This makes it very difficult for the academic staff that may be willing to submit their works into the collection and they do not have the requisite sign in credentials. This can be achieved by ensuring that academic staffs are registered into the institutional repository the moment they register in the library.

3. Provision of staff computer labs

Access to ICT is very important to enable users make use of content in the institutional repository. Since the respondents indicated the lack of a computer lab specifically dedicated to academic staff and therefore this study recommends establishment of academic staff friendly computer labs that will aid academic staff in access and use of the institutional repository.

4. Provision of full texts documents.

This study found out that the respondents preferred provision of full texts documents as opposed to abstracts. This study recommends that Kenyatta University institutional repository ensure that all the documents deposited into the institutional repository are in full text. This will make sure that Kenyatta University institutional repository is inconsistent with the principles of open access repositories of offering content with minimal restrictions.

5. The institutional repository should provide statistics on the number of times a particular document has been downloaded, viewed or referenced.

This study recommends that the institutional repository should provide statistics on the number of times the document has been downloaded, viewed or referenced. This will help researchers gauge the impact of their work deposited into the institutional repository. Such statistics can be achieved by upgrading Dspace into the latest version that supports such statistics.

6. Research output assessment exercise should involve those uploaded into the institutional repository.

This study recommends that assessment of research output consider those uploaded into the institutional repository. This will serve to encourage academic staff to avail their work into the institutional repository because they know it will be considered when their research output is being accessed.

5.5 Suggestions For Further Reserch

This study proposes the following areas for further research:

- 1) Further studies should be conducted to establish the impact of access and use of content in the institutional repository by academic staff at Kenyatta University.
- 2) Further studies should be carried to determine academic staff attitude towards access and use of content into the institutional repository.

REFERENCES

- Allen, J. (2005). Interdisciplinary differences in attitudes towards deposit in institutional repositories. Retrieved October 11, 2014 from <<http://eprints.rclis.org/6957/1/FULLTEXT.pdf>>.
- Antelman, K. (2004). Do Open-Access Articles Have a Greater Research Impact? Retrieved from http://www.lib.ncsu.edu/staff/kaantelm/do_open_access_CRL.pdf retrieved on 6th June 2014
- Arunachalam, S. (2002). *Reaching the unreached: what role can ICTs play in rural development?* Presented at the Asian Regional Conference of UN ICT Task Force Media Lab Asia, New Delhi, 2002. Retrieved from <https://arxiv.org/pdf/1002.2134> on 5th May 2015
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Davis, F. D. (1989). *Perceived usefulness, perceived ease of use, and user acceptance of information technology*, *MIS Quarterly* (13:3), 1989, pp. 319-339. Retrieved from <http://www.llrx.com/features/socialacademicresearch.html> on 25th June 2015
- Beers, S. (2009). Open access: green and gold. Retrieved from <http://eclecticlibrarian.net/blog/2009/03/cil-2009-open-access-green-and-gold/> retrieved on 17th January 2015
- Braun, V. and Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2). pp. 77-101. ISSN 1478-0887 Available from <http://eprints.uwe.ac.uk/11735>.
- Buehler, M. A. & Boateng, A. (2005). The evolving impact of institutional repositories on reference librarians. Retrieved from <http://www.emeraldinsight.com/Insight/viewContentItem.do?contentType=Article&contented=1513181> on 19th June 2016
- Chan, L. (2004). Supporting and enhancing scholarship in the digital age: The role of open- access institutional repositories. *Canadian Journal of Communication*, Vol. 29, 277-300. Retrieved from <https://www.cjc-online.ca/index.php/journal/article/view/1455/1579> on 1st July 2017
- Crown, R. (2002). "The Case for Institutional Repositories: A SPARC Position Paper, *ARL Bimonthly Report* 223 (August 2002). Retrieved from <http://www.arl.org/sparc/IR/ir.html> on 22nd June 2017

- Davis, P. M. and M. J. L. Connolly (2007). Institutional repositories - evaluating the reasons for non-use of Cornell University's Installation of DSpace. *D-Lib Magazine* 13(3/4). Retrieved from <http://www.dlib.org/dlib/march07/davis/03davis.html> on 20th June 2016
- Fatunde, F. (2008). University World News (African Edition) Nigeria: poor electricity supply hits ICT growth Retrieved from <http://www.universityworldnews.com/article.php?story=20080424153055598> on 2nd August 2015
- Foster, N. F., & Gibbons, S. (2005). Understanding faculty to improve content recruitment for institutional repositories. *D-Lib Magazine*, 11 (1). Retrieved from <http://www.dlib.org/dlib/january05/foster/01foster.html>. on 8th March 2014
- Gichiri, P. M., Ng'etich, F. K., Omwoha, J. N., & Maina, J. (2017). Institutional repositories in Kenya: The case of the Kenya Library and Information Services Consortium Member Libraries. *African Multidisciplinary Journal of Research*, 2(1). Retrieved from: rjkm.org/index.../component/.../1-journals?...12...institutional-repositories...kenya on 20/10/2018
- Hedlund, T. (2008). Researchers Attitudes Towards Open Access and Institutional Repositories: A Methodological Study for Developing a Survey Form Directed to Researchers in Business Schools. Retrieved from http://elpub.scix.net/data/works/att/015_elpub2008_content.pdf. on 29th April 2015
- Jagboro, K.O. (2007). *Digitization of library materials: the Obafemiawolowo University experience in compendium of papers*, presented at the national workshop on digitization of library materials: Processes and Tools held on 16th -20th July, 2007, University of Jos.
- Jensen, M. (2006). Open access: lowering the costs of international bandwidth in Africa, APC issue papers. Retrieved from http://www.researchictafrica.net/images/upload/open_access_EN.pdf on 3rd May 2015
- Jones, C. (2007). *Institutional Repositories: content and culture in an open access environment*. Chandos Publishing: Oxford, England.
- Jones, R., Andrew, T. & MacColl, J. (2006). *The Institutional Repository*. Chandos Publishing. Oxford, England.
- Kim, J. (2007). Motivating and impeding factors affecting faculty contribution to in repositories. *Journal of Digital Information*, Vol 8, No 2. Retrieved from <https://journals.tdl.org/jodi/index.php/jodi/article/view/193/177> on 12th April 2015

- Kingsley, D. (2008). Those who dont look dont find: disciplinary considerations in repository advocacy. Retrieved from [http://www.emeraldinsight.com/Insight/viewContentItem.do? contentType=Article &contentId=1747999](http://www.emeraldinsight.com/Insight/viewContentItem.do?contentType=Article&contentId=1747999). On 16th May 2015
- Lagzian, F. Abrizah, A., & Wee, M. C. (2015). Critical success factors for institutional repositories implementation. *The Electronic Library*, 33(2), 196–209. Retrieved from <https://doi.org/10.1108/EL-04-2013-0058> on 20/10/2018
- Lynch, C. A. (2003). Institutional repositories: essential infrastructure for scholarship in the digital age. *Libraries and the Academy*, Vol. 3, No. 2, pp. 327-336. Retrieved from <https://muse.jhu.edu/article/42865/> on 22nd April 2015
- McCormick, M. J. (2006). *Filling Institutional Repositories by Serving the University's Needs. A Master's paper for the M.S. in L.S.degree*. University of Nairobi: Nairobi. Retrieved from <http://etd.ils.unc.edu/dspace/bitstream/1901/327/1/monicamccormick.pdf> on 18th March 2014
- Milimo, J. (2013). An assessment of the status of open access resources in Kenyan university libraries. *Library Hi Tech News* Number 6 2013, pp. 17-21, Emerald Group Publishing Limited, 0741-9058. DOI 10.1108/LHTN-12-2012-0074
- Moseti, I. (2016). Digital preservation and institutional repositories: case study of universities in Kenya. Retrieved from: [https:// www.ajol.info/ index.php/jsasa /article/view/ 13 84 34/128001](https://www.ajol.info/index.php/jsasa/article/view/138434/128001) on 20/10/2018
- Mugambi, C. W., Ongus, R. W., Otike, F., Mwenda, A. K., Githiora, B., Kiplanga't, J., & Kiruki, B. (2016). Analysis of the Implementation of an Institutional Repository: A Case Study 26 of Dedan Kimathi University of Technology, Kenya. Retrieved from [https://www.iiardpub.org/get/RJMCIT/VOL.%202%20NO.%201%202016/ANALYSIS %20OF%20THE%20IMPLEMENTATION.pdf](https://www.iiardpub.org/get/RJMCIT/VOL.%202%20NO.%201%202016/ANALYSIS%20OF%20THE%20IMPLEMENTATION.pdf) on 20/10/2018
- Mugenda, O.M and Mugenda, A.G.(2003). *Research methods; quantitative and qualitative approaches*. Acts Press: Nairobi.
- Olaogun, J. A. & Adebayo, A.A., Oluyemo, C.A. (2015). Gender imbalance in the academia in Nigeria. Retrieved from <http://dx.doi.org/10.19044/esj.2015.v11n10p%25p> On 5th March 2015
- Otando, R. M. (2011). Building Institutional Repositories in KLISC Member Institutions in Kenya: Current Status and Emerging challenges. Retrieved from <http://turisticsnoroeste.com.mx/handle/123456789/25736> on 20/10/2018

- Ratanya, F. C. (2017). Institutional repository: access and use by academic staff at Egerton University, Kenya. Retrieved from: <https://www.emeraldinsight.com/doi/abs/10.1108/LM-02-2017-0018?mbSc=1&fullSc=1&journalCode=lm> on 20/10/2018
- Talam, P. (2014). *Integration of Institutional Repositories in Public Universities: The case of University of Nairobi (Masters Theses)*. University of Nairobi: Nairobi. Retrieved from <http://erepository.uonbi.ac.ke/bitstream/handle/11295/75210/Talam%20Integration%20And%20Use%20Of%20Institutional%20Repositories%20In%20Public%20Universities%20The%20Case%20Of%20The%20University%20Of%20Nairobi.pdf?sequence=3&isAllowed=y> on 6th April 2015
- Thomas, C. & McDonald, R. H. (2007). Measuring and comparing participation patterns in digital repositories - repositories by the numbers, Part 1. D-Lib Magazine, 13(9/10). Retrieved from <http://www.dlib.org/dlib/September/07/2015/mcdonald/09mcdonald.html>
- Uzuegbu C.P (2012), The Role of Academic Libraries in enhancing Local Content Availability in the Nigerian Community. Retrieved from https://www.researchgate.net/publication/230659382_The_Role_of_University_Libraries_in_Enhancing_Local_Content_Availability_in_the_Nigerian_Community
- Westell, M. (2006) "Institutional repositories: proposed indicators of success", *Library Hi Tech*, Vol. 24 Issue: 2, pp.211-226, <https://doi.org/10.1108/07378830610669583> on 16th March 2016
- Wise, M., Lisa, S., Geneva Henry, Sidney Byrd, (2007) "Expanding roles for the institutional repository", *OCLC Systems & Services: International digital library perspectives*, Vol. 23 Issue: 2, pp.216-223, <https://doi.org/10.1108/10650750710748522> on 2nd July 2015
- Yamane, Taro. 1967. *Statistics, An Introductory Analysis*, 2nd Ed., New York: Harper and Row.

APPENDIX 1: LETTER OF INTRODUCTION

Kaberia Shadrack Kalung'e,

P.O Box 54, Laare,

Meru.

Dear Respondent

RE: PROMOTING ACCESS AND USE OF THE INSTITUTIONAL REPOSITORY BY
ACADEMIC STAFF OF KENYATTA UNIVERSITY, KENYA.

I am a post graduate student at Moi University-School of Information sciences, in order to fulfill my degree requirements, I am undertaking a research on “Promoting Access and Use of the institutional repository by academic staff of Kenyatta University, Kenya”. This is to kindly request you to help me achieve the above by filling out the questionnaire attached.

Information provided will be used exclusively for academic purposes and will be treated with strict confidentiality and your name will not feature in my report.

I thank you in advance for your cooperation

Yours Faithfully

Kaberia Shadrack Kalunge

IS/MPHIL/052/012

APPENDIX 2: QUESTIONNAIRE

Disclaimer,

This questionnaire is to collect information on “Promoting Access and Use of the institutional repository by academic staff of Kenyatta University, Kenya”. Assurance is given that all information collected through this questionnaire will not be used for any other purpose other than academic research and will be accorded the utmost confidentiality it deserves.

1. What is your academic status in the university?
 - Professor []
 - Associate professor []
 - Senior lecturer []
 - Lecturer []
 - Assistant lecturer []
 - Other (specify).....
2. Gender
 - Male []
 - Female []
3. In which age group are you?
 - <30 []
 - 31-40 []
 - 41-50 []
 - >50 []
4. Kindly specify your department.....
5. Do you know about the Kenyatta University Institutional Repository?
 - I know it well []
 - I know something about it []
 - I don't know it at all []
6. Do you currently make any publication available in the Institutional Repository?
 - Yes []
 - No []

7. If you contribute, kind of materials have you contributed to the Institutional Repository?

Peer reviewed articles []

Non peer reviewed articles []

Theses []

Conference papers []

Data sets []

Other, if any.....

8. What motivates you to contribute to the Institutional Repository (Select all that apply)

Accessibility of my work is increased []

The impact of my work is increased []

My work will be permanently archived and increased []

Access to my work is cheaper for others []

My published work is easy to use []

Ease of dissemination of my work []

I retain the copyright of my work []

The number of citations of my work is increased []

I can add extra data to the work such as photos, video, audio, and datasets []

Depositing m work in the institutional repository protects it from plagiarism []

My work is published along other high quality research []

The institutional repository is easy to use []

The institutional repository is well indexed and archived []

The university saves money []

My chances of promotion are increased []

9. If you do not contribute to the Institutional Repository, what hinders you from contributing? (Select all that apply)

My work might be misused/ plagiarized []

With no peer review or quality control process the quality of content of the institutional repository is questionable []

Publishers would not let me put m work in the institutional repository []

The impact of my work would be less if I deposited in the institutional repository and so my promotion prospects would suffer []

Long item submission procedure []

Institutional repository is for disseminating student's thesis []

If I deposit my work in an institutional repository, then I could not later publish it in a peer reviewed journal and so m promotion prospects would suffer []

The research assessment exercise would not take account the work in the institutional repository []

Any other

10. Have you had challenges in accessing of Kenyatta University Institutional Repository?

Yes []

No []

11. If you have had challenges in accessing and using the Institutional Repository what are these challenges? (Select all that apply)

Low internet bandwidth []

Institutional Repository downtimes []

Access barriers such as passwords []

Unavailability of the Institutional Repository outside the University intranet []

Lack of a computer facility to operate from []

Other.....

12. How can you rate the ICT infrastructure at Kenyatta University in-terms of facilitating access and use of Institutional Repository?

Very good []

Good []

Fair []

Bad []

Very bad []

13. Which infrastructure facility has the University put in place to facilitate access and use of the content in the Kenyatta University Institutional Repository? (select all that apply)

Wi-Fi hotspots []

Staff Computer labs []

Provision of LAN access points []

Back-up generators to cushion from power shortages []

Others.....

14. Kenyatta university institutional Repository would be more useful if would (very important=5,important=4,moderately important=3,little importance=2,Unimportant=1)

5 4 3 2 1

- Provide full text rather than abstracts
- Make pre print versions for my work available to a worldwide audience
- Provide a way for me to create online peer reviewed journals
- Show the number of times my document has been viewed and downloaded
- The library would offer regular training on the Institutional Repository

Thank you*****

APPENDIX 3: INTERVIEW SCHEDULE

1. How can you describe the usage of the Institutional Repository by the academic staff at the university?

.....
.....
.....
.....
.....

2. What kind of materials are academic staff allowed to contribute directly to the Institutional Repository?

.....
.....
.....
.....
.....

3. What infrastructure is in place to facilitate access and use of the Institutional Repository by academic staff at Kenyatta University?

.....
.....
.....
.....
.....

4. What do you think are the main challenges hindering access and use of the Institutional Repository by academic staff at Kenyatta University?

.....
.....
.....
.....
.....
.....

5. What measures have you put in place to encourage academic staff to effectively utilize the Institutional Repository?

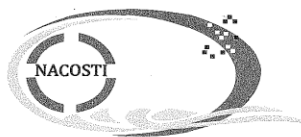
.....

.....

.....

.....

APPENDIX 4: RESEARCH PERMIT



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

Date:

17th December, 2015

NACOSTI/P/15/94431/9139

Kaberia Shadrack Kalunge
Moi University
P.O. Box 3900-30100
ELDORET.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“This is a research on access and use of local content by academic staff and in specific the role of institutional repository,”* I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for a period ending **17th December, 2016.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.


DR. M. K. RUGUTI, PHD, HSC.
DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.

