ADOPTION OF INSTITUTIONAL REPOSITORIES IN DISSEMINATION OF SCHOLARLY INFORMATION IN UNIVERSITIES IN KENYA WITH REFERENCE TO UNITED STATES INTERNATIONAL UNIVERSITY-AFRICA

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DECLARATION

This research project is my original work and has not been submitted for examination to any other university.

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This research project has been submitted for examination with our approval as the university supervisors.

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DEDICATION

I dedicate this project to both my Father and Mother whose constant encouragement have motivated me to complete

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LIST OF ABBREVIATIONS AND ACRONYMS

ARL   Association of Research Libraries
BOAI   Budapest Open Access Initiative
CUE   Commission of University Education
CSIR   Council for Scientific Research and Industrial Research
DL   Digital Libraries
EU   Egerton University
ICT   Information Communication Technology
ILRI   International Livestock Research Institute
INASP   International Network for the Availability of Scientific publication
IR   Institutional Repository
JKUAT   Jomo Kenyatta University of Agriculture and Technology
KARI   Kenya Agricultural Research Institute
KEMU   Kenya Methodist University
KENET   Kenya Education Network
KLISC   Kenya Library and Information Services Consortium
KU   Kenyatta University
MU   Moi University
OA   Open Access
OAI   Open Archive Initiative
OAI-PMH   Open Archive Protocol for Metadata Harvesting
OSS   Open Source Software
PERI   Programme for Enhancement of Research
SPSS   Statistical Package for Social Sciences
TUK   Technical University of Kenya
UoN   University of Nairobi
USIU-A   United States International University-Africa
WASC   Western Association of Schools and College

ABSTRACT

World over universities and colleges are increasingly adopting institutional repositories in order to effectively communicate scholarly output. The aim of this study was to assess the effects of adoption of institutional repositories in dissemination of scholarly information in universities in Kenya with reference to United States International University Africa. Objectives of the study were to: find out factors that influence the adoption of institutional repository at the university, examine the perceptions of users concerning the adoption of institutional repository at the university, assess the extent to which the university management supports the adoption of institutional repository at the university, establish the degree of awareness of availability of institutional repository at the university, determine the strategies applied by the university in relation to use of institutional repository at the university. The study used both qualitative and quantitative methods. Stratified random sampling was used to collect data from postgraduate students and academic staff. Purposive sampling was used to collect data from the library staff. The study used structured questionnaires and interview schedule to collect data from 150 graduate students, 25 academic staff and 25 library staff. The study used content analysis to analyze qualitative data for the study. Statistical Package for Social Sciences was used to analyze quantitative data collected and represented the same into percentages, pie charts, graphs and tables for better interpretation. Findings from this study revealed that although institutional repositories are very significant in addressing challenges users face in relation to access and use of repository resources, the library staff lacks the necessary skills to manage the repository effectively; findings also revealed that the management has not put up policies with regards to access and use of the repository resources. The study recommends that the library management needs to organize training for the staff to manage the repository effectively; in addition, the library management should come up with policy guidelines to guide users on access and use of the repository resources.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter presents the background information of the study, statement of the problem, objectives of the study and the research questions. In addition, the study gives the significance of the study together with the scope and limitations as well as operational concepts and terms used.

1.2 Background to the Study

Information sharing is *sine qua non* for the literacy of a particular group of people (Uhegbu, 2007). Economists have agreed that literacy of the nation is not only the indicator of economic development, but also prediction of nationwide progress that cuts across human capital development, social well-being of the people, environmental sustainability, heath safety and entrepreneurial success, and since literacy of the nation is dependent on the kind of information shared among them, developmental success economically, politically, socially, culturally and vice versa is therefore rooted on quality information provision (Uzuegbu, 2012). Authors further added that academic and research institutions as centers of intellectual and scholarly research, are involved in creation and dissemination as well as preservation of knowledge, through development of institutional repositories. Knowledge is increasingly important in the third world context and this call for establishment of viable structures and medium Crow (2002) states that, every academic and research institutions has natural responsibility of primary research, to preserve and leverage constituents by means of sharing scholarly activities. Earlier, the trend of preservation and dissemination of scholarly knowledge were solely trusted in the confines of institutional libraries and scholarly publishing respectively.

Institutional library particularly has always served as access points for information starting from the era of closed stacks, through shelf reading and card catalogues and to the online public access catalogues systems (Christian, 2008).

In recent times, the trend has been modified as a result of the birth of the technology-driven society against the previous analogue one referred to as the overthrow of industrial information economyö by the networked information economyö (Berker, 2006). First seeds of institutional repository happened through seminal articles by William Gardener and Steven Hanard in 1990, when networked electronic communication was starting to become the viable tool for the dissemination of scholarly literature. In addition, Hanard (1990) states that, the process of scholarly communication is currently undergoing a revolution comparable to one occasioned by the invention of printing

The first scholarly recoded proposal for the institutional archive started in 1994, in response to Hanardøs subversive proposal for electronic publishing. Okerson and OøDonnell (1995) states that, for centuries it was only out of reluctant necessary that authors of esoteric publications entered into Faustian bargain of allowing the price tag to be erected as the barrier between information and intended readership, for that was the only way they could make information public at all during the age when paper publication was entirely the only option. Uzuegbu (2012:6) argues that a number of authors agree that information drives development.

As a result of information dissemination medium, institutional repositories consists of formally organized and managed collections of digital content created by faculty, staff and students of an institution. Lynch (2003) argues that, the perfection of teaching, learning and research lies on availability of publication and other research models. While Uzuegbu (2012:6) notes that as a matter of fact, the concepts of education, information and knowledge in general requires that

both the actor be trained to act and the spectator be taught to watch beneficially, so that the availability of publications and scholarly research of various kinds which cuts across diverse fields and disciplines be made available for public use and reuse. The plight that will increase the transfer of information needed by the teacher to teach, the researcher to come up with new research, the information user to use it without limits, the planner to plan based on new realities and, the government to govern under emerging policies economically, politically and otherwise.

Developments of information and communication technology systems are rapidly becoming the vital and core components for conducting and transacting business in organizations. At present, business organization including universities are increasingly going for information communication technology based solutions so as to provide and improve delivery of quality services to customers. Institutions of higher learning are adopting and implementing intensive information communication technology-based solutions to manage and handle information processes and services. Knowledge is considered as the strategic resource and therefore it is inevitable that libraries create, store and transfer information and knowledge in a continuous flow and for the advancement of society.

Universities all over the world are adopting and implementing digital libraries. Mutula (2004:282) roots that, developments in information technology have enhanced openness of the library systems to internet and occasioned evolution of digital libraries across the world similarly, Vran (2011:57) explains that, digital institutional repository is a digital archive of the intellectual product created by the faculty, research, staff and student of the institution and accessible to end users both within and outside of the institution with few if any barrier to access. Libraries have traditionally been part of the global information infrastructure and an ideological and cultural force with far reaching implications in society (Kavulya, 2007:303). Kavulya further

stresses that over centuries libraries have collected, maintained, organized and provide access to information and knowledge resources that enable individuals, organization and communities to achieve own goals.

Libraries continue to mobilize and provide access to local and global knowledge for social, political and economic development, in doing so libraries act as gateway for information and tools for bridging the information divide within countries and between countries. With the emergence of digital libraries and the second generation of internet based services like web 2.0 with enhanced interactivity is argued by authors as old wine in new bottles. Shah (2011:704) point out that, since digital libraries has revolutionized whole of the global community, it can be correctly termed as a social revolution. Author further explains that libraries, archives, databases, digital libraries and now open access repositories have switched on to web 2.0 as it has become a trendy marketing concept.

Open access is defined as free access and use of research output available on the public internet, permitting any user to read, download, copy, distribute, print, search or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself (Ezema, 2011:477).In addition, Odongo (2012:1) argues that there has been gradual increase in the use of Open source software to access scholarly information among libraries and scholars and many academic libraries are seeking for visibility of information materials and creating awareness of the importance of accessibility to knowledge. Krishnamurthy (2008:48) argues that, digital libraries (DLs) have become the major part of mainstream library and landscape while open source software (OSS) has become the worldwide phenomenon. Biswas and Paul (2010:1) states that, open source software (OSS) is software for

which the source code is freely available for anyone to see and manipulate, the license may not restrict any party from selling or giving away the software as component of an aggregate software distribution containing programs. Uzuegbu (2012:5) asserts that academic and research institutions, as centers for intellectual and scholarly research, are now taking interest in creation, dissemination as well as preservation of knowledge. This global initiative is pursued through the creation of institutional repositories. In order to develop interoperability among institutional repositories, the open archive initiative (OAI) has developed interoperability standards known as open archive initiative the protocol for Meta data harvesting initiative (OAI-PMH).

Many of open source software have been developed for capturing, preserving and distributing digital content. DSpace, Fedora and Greenstone are the most commonly used software platforms for this purpose (Cherukodan, 2011:219). Author further states that, among the various open source systems, Greenstone and DSpace are the most widely used software for digital library systems available in the open source domain. Biswas and Paul (2010:9) add that, since DSpace is fairly powerful software it has widely adopted including various institutions of higher learning in Kenya such as Kenyatta University, Kabarak University, Meru University, Strathmore, Moi, and University of Nairobi. Cullen (2010:133) argues that, the concept of the institutional repository has appealed to professional librarians and university administrators. Setting up the repository is a major undertaking for academic institutions of higher learning that requires a commitment of financial and staff resources for both establishment and maintenance.

1.2.1 Context of the Study

Unites States International University-Africa as the private, independent, non-profit university accredited by the commission for University education (CUE) in 1999. The University has a total number of 5,500 students who come from 65 Nationalities. About fifteen percent of total

enrollments are international students. The University's vision is to be the premier institution of academic excellence with global perspective, whose mission is to promote the discovery and application of knowledge, the acquisition of skills and the development of intellect and character in a manner which prepares students to contribute effectively and ethically as citizens of a changing and increasing technological world. The mission is achieved through selected high quality undergraduate and graduate academic programs which results in high order thinking, literacy, global understanding and multicultural perspective, preparedness for career, leadership and ethics, community service and development. The University has three schools that offer various undergraduate and graduate degree programs including Chandaria School of Business, School of Humanities & Social Sciences, School of Science and Technology.

The University library and information center is an ultramodern facility which provides information resources necessary to support teaching, learning and research, making it the intellectual hub of the University, the library accommodate over 300,000 volumes of books and presents a vision for the 21st century through the integration of books and information technology as well as inviting space that encourage collaboration learning.

1.3 Statement of the Research Problem

Development of information and communication technology systems have greatly changed the transaction of business in organizations, organizations including institutions of higher learning are increasingly adopting technology-based solution so as to provide improve and provide quality services to customers. Kavulya (2007:303) points out that, the library has traditionally been part of the global information infrastructure and ideological and cultural force with far reaching implication in society. Digital libraries have become a major part of mainstream library landscape with open source software being a worldwide phenomenon (Krishnamurthy, 2008:48). The emergence of digital libraries and the availability of open source software solutions such as

DSpace enabled several institutions of higher learning in Kenya to embark on building institutional repositories (Odongo, 2012:1)

Proliferation of digital scholarship raises serious and pressing issues about how to organize, access, and preserve it in perpetuity. Digital scholarship may be perceived as networked scholarly or academic environment with pervasive integration of digital technologies in everyday learning and research (Mutula, 2011:262). The necessary physical infrastructure both on and outside campus for access, integration of University information systems such as institutional repositories, online public access catalogues and content management systems, must allow seamless access to content needed for research, publication and scholarly communication.

The response of academic institutions has been to build and deploy institutional repositories to manage the digital scholarship their learning communities produce and to enhance scholarly communication among the University community and the world at large. Scholarly communication in this paper refers to the communication practices of scholars and researchers in the production and consumption of information, and ongoing conversations and cooperative endeavors that are essential to research. Practice scholarly communication incorporates both the formal and informal communication practices of scholarship and incorporates scholarly publishing. United States International University-Africa has a well-deserved reputation for excellence in research in a wide range of disciplines, as well as demonstrated commitment to fostering innovative interdisciplinary research. USIU-A being one of the oldest private universities in East Africa that promotes teaching, learning and research whose mission is pegged on being Africa's premier institution of education with global perspective, despite the effort made by the university to produce quality research output both by the faculty and post-graduate student these research output are only accessed and used in print, the institution as already implemented an institutional that would make research outputs accessible not only

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locally but also globally. Despite the adoption of institutional repository at the university there is still low access and use of the repository, students and faculty are still using the print copies of research outputs created by both faculty and postgraduate students.

1.4 Aim of the Study

The aim of this study is to assess the effects of adoption of institutional repository in dissemination of scholarly information in Universities in Kenya with reference to United States International University-Africa

1.4.1 Objectives of the Study

The study will be guided by the following specific objectives to;

1. Find out factors that influence the adoption of institutional repository at the selected university.

2. Examine the perceptions of users concerning the adoption of institutional repository at the university.

3. Assess the extent to which the university management supports the adoption of institutional repository at the university.

4. Establish the degree of awareness of availability of institutional repository at the university

5. Determine the strategies applied by the university in relation to use of institutional repository at the university

1.5 Research Questions

1. Which factors influence the adoption of institutional repository at the selected university?

2. What are the perceptions of users towards adoption of institutional repository?

3. How does the university management supports the adoption of institutional repository at the university?

4. How adequate are the methods used by the library to promote and market the repository at the university?

5. What strategies are applied by the university in relation to use of institutional repository?

1.6 Assumptions of the Study

i) Despite the adoption of institutional repository at the university users have not maximized the use of available resources in the repository.

ii) Lack of awareness of the existence of a repository has led to low access and use of the repository resources.

1.7 Scope of the Study

The study is based on institutions of higher learning in Kenya with reference to United States international university-Africa. The aim of the research is to assess the effects adopting and implementing institutional repositories in promoting scholarly information and communication at united states international university-Africa, the research findings were generalized to institutions of higher learning in Kenya and is expected to help both private and public institutions of higher learning to address the challenges facing adoption and implementation of institutional repositories. Research findings were obtained from sample from members of the faculty, post graduate students and the library to represent the intended population since it was

not be possible to include all faculties in the research due to time constraints and financial challenges. The research was based on the specific objectives of the study.

1.8 Limitations of the Study

The study was conducted at United States International University-Africa which is in initial process of building institutional repository. The outcomes of the study may not necessarily reveal the true situation in other institutions of higher learning in Kenya.

1.9 Significance of the Study

Study serves as useful guide for institutions of higher learning administrators and librarians in Kenya who are interested in developing institutional repositories, it hope to enlighten and influence key decision and policy makers and also serve as a reference point to researchers, it is envisioned that the study be used as a blue print for management matters pertaining to institutional repositories in order to encourage their promotion and utilization, the study also lays foundation for other organizations that intend to evaluate their institutional repositories in order to realize their value to the community.

1.10 Operational Terms and Concepts

Digital Libraries

Collection of electronic resources accessible through the World Wide Web. It often contains electronic versions of books, photographs and videos

Digital Institutional Repository

Digital institutional repository is the digital archive of the intellectual product created by the faculty, research, staff, and students of an institution and accessible to end users both within and outside the institution with few if any barrier to access.

Digital Scholarship

Digital scholarship is the networked scholarship or academic environment with pervasive integration of digital technologies in everyday learning and research.

Scholarly Communication

Scholarly communication refers to the communication practices of scholars and researchers in the production and consumption of information, and also to the ongoing conversations and cooperative endeavors that are essential to research. That is, scholarly communication incorporates both the formal and informal communication practices of scholarship and incorporates scholarly publishing.

Open Access

Open access is defined as free use of research output available on the public internet, permitting any user to read, download, copy, distribute, print, search or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself.

1.11 Chapter Summary

This chapter provides detailed information that includes the background of the study, place of study, statement of the research problem, purpose of the study, objectives of the study, research questions, assumption of the study, scope of the study, limitation of the study, significance of the study and the operational terms and concepts used

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of the literature related to the purpose of the study which is to assess the effects of institutional repositories in dissemination of scholarly information and communication in institutions of higher learning in Kenya. The chapter is organized into themes and sub-themes based on the objectives of the study.

2.2 Modern Information Environment

Automation in libraries first began in the 1960s and in 1970s libraries started adopting software applications and machine readable cataloguing. In the 1980s, networking technologies, optical discs, CD-ROMs and communication technologies were introduced. The primary objective of the early technology applications was to automate circulation, acquisition, and the catalogue to bring efficiency and effectiveness in library operations and services. The 1990s witnessed revolutionary changes in the application of information communication technology in libraries such as the internet, World Wide Web protocols, information retrieval standards, integrated library systems and online databases. The 2000s are an era of digital libraries, virtual collection, paperless environment and round the clock instant remote access to unlimited resources. The rapid advancement in computer and telecommunications, exponential growth of information and media, availability of online databases, reduction in hardware and software costs, passion of using the internet, provision of cost effective communication mechanism and growing user demands are major factors responsible for the increasing use of information technology in libraries around the world (McCallum, 2003; Moyo, 2004; Jain, & Babbar, 2006; EL-sharibini & Wilson, 2007)

Libraries of the twenty-first century have reached the point to where they should use educational technologies to maximize access to digital resources and reintroduce the need for teaching and research process in the nebulous information environment (Eke, 2009:275). Author further states that, E-learning has been made possible by the creation of digital library, virtual library or electronic library, in addition, e-learning has been recognized as learning via the internet an advanced form of distance education, and e-library or digital library is considered as organized collection of knowledge stored in digital or electronic interface technologies

The advent of internet and other digital reproduction and communication technology indicates that people are now able to access information far more easily than ever before (Pappalardo, 2007). Globally the developments of information and communication technology (ICT) systems are rapidly becoming the vital and core component for conducting and transacting business in organizations. Presently, business organizations including universities are increasingly going for information communication technology- based solutions so as to provide and improve on the delivery of quality services to customers (Makori, 2013:209). Internet services in Kenya have developed over the years since 1996 leading to the introduction of the fiber optic cable in 2009. Internet connectivity has also improved tremendously through initiatives supported by the Kenya Education Network (KENET) and mobile service providers (Safaricom and Airteil). (Makori, 2015:19)

The internet has removed many of the restrictions traditionally associated with access to knowledge, including geographical barriers, time restriction and delays in dissemination, and availability barriers that limited the range of sources that could be accessed by a single person (Rahman, 2012:47). Improved access has the benefit of enabling researchers to study context

more broadly, reducing the amount of duplicative research, and helping researchers to produce better informed and therefore quality research (Houghton et al, 2007).

2.3 Institutional Repositories in Global Academic Institutions

Several studies have been conducted addressing the deployment of institutional repositories. Repositories and the relationship with open access movement constitute new trend in scholarly communication worldwide, the need for wider access to scientific data with the objective of democratizing the dissemination of research results and the cost especially of scientific journals coupled with reduced library budgets has given rise to a strong movement that aims at free online access to research output. In USA, over 40% of higher education institutions have institutional repositories in operation, while 88% of non-deployment institutions have planned to establish one (Abrizah, 2010:55). Abrizah further notes that in European Union (EU), under the DRIVER 1 project, approximately 230 universities in European Union have deployed on or more institutional repositories in which textual materials are the dominant research output being deposited. A survey undertaken in 2005 at ten European countries Belgium, France, the United Kingdom, Denmark, Norway, Sweden, Germany, Italy, and the Netherlands found out that the number of institutional repositories varies from as low as 1.5%(Finland) to as high as 100% (Germany, Norway and Netherlands) (Abrizah, 2010:54).

In the recent study in New Zealand on deployment of institutional repositories, findings shows that although the overall deployment of institutional repositories is lagging, there is an increase in subject based or disciplinary repositories (Cullen & Chawner , 2010:136). Authors posit that this may be due to the fact that New Zealand researchers are more motivated to share research output with a specific community compared to individual recognition and academic award. It is reported that by mid-2006, all Australian universities had established institutional repositories

with the main purpose of providing researchers with vehicle to enhance the availability of their publications. Asian countries too have been striving to keep abreast with the institutional repository adoption. Japan, India and Taiwan have been recognized as big contributors to the growth of institutional repositories in Asia (Abrizah, 2010:57). Another recent study places India as the second in the Asian region as a contributor to the world institutional repositories (Prabhat & Guatam, 2010).

In comparison to United States, United Kingdom and other European countries, the promotion and development of institutional repositories in Asia started relatively late (Abrizah, 2010:54). Author also noted that, Status on Asia institutional repositories reveal that Open Access repositories are not widespread and the percentage of institutional repository systems in Asia is about 4-10 percent except in mainland china which has centralized institutional repository system for about 300 universities. On the other hand, the numbers of institutional repositories in Japan and Korean universities are increasing very quickly

2.4 Institutional Repositories in Developing Countries

Access to scholarly research is improving as a result of the growth of institutional repositories and associated information technology developments (Ratanya, 2010:15). Author further adds that, the increasing number of academic institutions are encouraging students to submit theses in electronic format which as a result become increasingly visible within the competitive research environment, in addition to paper copies, institutions of higher learning require electronic version to be made available for inclusion in institutional repositories, while many institutions are also scanning/digitizing older version of theses in order to make them freely available on the internet. The development of institutional repositories in African countries has been very slow despite of

the international awareness which has been given through conferences and workshops Ezema, (2011:479).

In the Arabian Gulf region, the idea of free access to scientific and technological information came from the intellectual interaction at the 2nd scientific Gulf-Maghreb conference held in Riyadh on 25-26 February 2006, which culminated into adopting the Riyadh Declaration(second Gulf-Maghreb scientific conference, 2006) it was the desire of the scientist of the Arab world to provide free access to their research output and to transmit it free of charge, in order to contribute to the advancement of scientific research. Soon after the Riyadh declaration in 2006 the Open Access movement started gaining momentum among the universities of the Arabian Gulf Region. According to the Arab repository (www.arjournals.info/journals.php) there are around 43 open access journals as of 2009. The development of institutional repositories in Nigeria and other African countries has been very slow in spite of the international awareness which have been given to it through conferences and workshops (Chan et al, 2005; Christian, 2008). Among the developing countries, India, Brazil, and South Africa are more adaptable to the building of institutional repositories. According to Christian (2008), of the 20 institutional repositories in Africa, South Africa alone has 14 of them. This means that the remaining six is shared among other African countries including Nigeria. This does not tell a good story of the vision 20-20-20 in Nigeria because the scientific and technological development of any country is highly dependent on the availability and the use of research findings. The near absence of institutional repositories in Nigeria has been linked to the information and communication technology infrastructure in the country coupled with the neglect of research and education in the country. Other factors that contribute to lack of institutional repositories in Nigeria according to Christian (2008) are lack of awareness of open access institutional repositories, epileptic power supply and lack of trained information communication technology personnel. Though institutional repository

is a capital intensive project, no nation that wants to be part of the present information economy could ignore the critical roles of institutional repository in aggregating the research productivity of scholars.

In Malawi, digitization projects have been rarely reported. Apart from the National Archives of Malawi which started digitizing National heritage materials mid 1990 with donor funding such as the British library under Endangered Archives programme (Mapulanga, 2012: 636). Author further states that, little information has been documented from the academia world until mid-2000 when awareness of digitization came into being. The most notable project was that of the college of medicine library at the University of Malawi which had loaded references to Malawian health on National Inquiry Services Centre database accessible on the web. In terms of repositories, the university Malawi libraries only had an intension to start digitizing into full text documents of its Malawian collection (Mapulanga, 2012:638).

Recent studies show that South Africa is the leading country in Africa in terms of establishment of repositories. Currently, 22 of the 54 African repositories are operational in South Africa. South African university libraries are currently the leader among African academic institutions in terms of the development of institutional repositories growing from a total of 14 registered and active repositories (Smith, 2009) to the current 23 repositories. The Council for Scientific Research and Industrial Research (CSIR) though not a university, but major research institute with a wealth of research documentation available also forms part of the development of South African institutional repositories.

Kenyan universities ambition to become Africaøs information technology hub have received a boost from the technology giant international business machine which has established research laboratory in Nairobiøs Catholic University of East Africa (Wasike, 2013:19). The laboratory

will play a crucial role in promoting open access in the teaching research goals of the university. Jomo Kenyatta University of Agriculture and technology has recently adopted an open access policy as part of the strategic goal of the university to invest and engage in productive collaboration with national and international institutions and industry to enhance knowledge creation and exchange through an institutional repository. Research carried out in Kenya shows that several universities have initiated the establishment of institutional repositories. University libraries in Kenya were found to support open Access in several ways, including establishment of open access author funds, which even though limited, cover payment for open access journals. Universities in Kenya including Catholic University of East Africa, University of Nairobi, Strathmore University, and Jomo Kenyatta University of Agriculture and technology has started developing institutional repositories namely DSpace and Greenstone, while including them in library collections in support of learning and teaching (Wasike, 2013:18)

2.5 Institutional Repositories and Scholarly Communication

Currently it is said that Africa accounts for less than 2% of the research output of the world. Although there is clearly not enough, there is a significant amount of research activity in African universities but the stumbling block comes in publishing the work in scholarly journals in order to ensure academic promotion (Moahi, 2009:4). Author further states that, not many of these academics do make it into such journals, and when they do the journals are out of reach of most university libraries rendering access difficult. Another factor is that with the scarcity of research resources(funding) it is necessary to avoid duplication of research and since many academics keep their work in their computers and do not necessarily have a forum for sharing the knowledge, this leads to considerable duplication. For African universities therefore an institutional repository is seen to be a vehicle for enhancing visibility, access and impact because research output will be visible on the internet.

Bailey et al (2006) defines, institutional repository as the means of collecting and providing access to diverse locally produced digital materials. Institutional repository is the means of collecting the intellectual digital outputs of organization (Donovah & Watson 2008). Rosenblum (2008) states that, institutional repository is the resource or system that facilitates the capture, storage, preservation and dissemination of intellectual output of an institute in electronic form. Author further stress that such output varies from institution to institution; some will capture theses and dissertations, while others will capture published papers, unpublished pre-prints, working papers, conference presentations, data sets, teaching materials and other similar materials.

Crow (2002:1) defines institutional repositories as the digital collections capturing and preserving the intellectual output of a single or multi-university community, institutional repositories provides the compelling response to two strategic issues facing academic institutions by providing the critical component in reforming the system of scholarly communication, component that expands access to research, reasserts control over scholarship by the academy, increase competition and reduces the monopoly power of journals, and brings economic relief and heightened relevance to the institutions and libraries that support them and have the potential to serve as tangible indicators of a universityøs quality and to demonstrate the scientific, societal, and economic relevance of its research activities, thus increasing the institutionøs visibility status and public value.

The study adopts the definition of Crow (2002) because it portrays institutional repository as an avenue that enable access to research and reasserts control over scholarship by the institution, increases competition and reduces the monopoly power of journals, and brings economic relief to the institutions that creates them. Hassan-Asamoah (2010:420) states that, scholarly

communication has been the age long means of exposing the findings of research to the world. This can be done by writing an article that is published in a scholarly journal, presenting it at a conference as a paper, or publishing it as a book, or even a chapter in a book. The ACRL scholarly communication committee defines it as the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community and presented for future use. Krishnamurthy (2011:187) says that, institutional repositories have the potential to bring significant benefits to institutions in improved visibility, status and public value, research knowledge management for individual research, the establishment of a priority for research findings, improved visibility and impact of research. Krishnamurthy further explains that interoperable institutional repositories have the potential to accelerate reforms in scholarly communication enabling open access to large body of scholarly materials through cross- archive archiving.

2.6 Influence of Institutional Repositories and Institutions of Higher Learning

Cullen (2010:133) states that, reasons for setting up repository vary from institution and to the individual discipline. Academic libraries also benefit from being involved in institutional repository initiatives, and there are implication for scholarly communication overall. Other proposed benefits focus on visibility status and public value, enhancing the quality of teaching and scholarship in colleges and universities, enhance open access, engaging the college community and enhancing scholarly collaborations, staying relevant to the changing needs of communities and open archiving.

2.6.1 Visibility Status and Public Value

One major benefit of repositories will be the visibility of African scholarship as a whole and the individual and institution's intellectual output in particular. Current closed access publishing model doesn't portray the quality and quantity of research done in African universities and by African scholars. The visibility and integrity of each institution is determined by the work reflected in their repositories hence a network of such causes repositories not only produce quality research work but also provides quality because the prestige of each institution will be at stake in terms of quality and numbers.

Pfister and Zimmerman (2008:15) also identified justifications for institutional repository to include, increase in visibility and impact of research output, change in the scholarly publication paradigm and improvement of internal communication within the institution.

Ezema (2011:480) noted that, the visibility of publications is usually associated to the extend in which the said published work is read and or cited by other scholars and in broad perspective how much the paper contributes to the growth of human knowledge. Author further explains that the institutional repository stands to generate greater impact by centralizing research outputs generated by the institution's researchers, and thus serving as much better and simpler metrics for gauging the quality of the institution's academic scholarship, productivity and prestige. Hixson and Cracknell (2007:39) noted that, when research engine returns search results that lead to the faculty and institution, it can raise the profile of both the faculty authors and the institution. The faculty can thus benefit by depositing their copyright- owned material in the institutional repository, personal visibility for research projects as well as professional careers. The institutional repository system increases access to materials that would otherwise be difficult to obtain and provide lead to related electronic resource and databases.

2.6.2 Enhancing the Quality of Teaching and Scholarship

Nagra (2012:139) states that, institutional repositories allows the archiving of institutional research and scholarly activities which enables the academy to find and access the previous and current projects of the institution at one place and enhances the quality of scholarship through sharing and collaboration and this fundamentally creates the basis for new ideas for teaching and research dissemination and sharing in academic institutions.

2.6.3 Enhances Open Access

Bailey (2006) reiterates that, open access applies to publications that are freely available on the public internet, permitting any users to read, download, copy, distribute, print, search or link to the full text of these articles, ensures for indexing, pass materials as data to software, or use the same for any other lawful purpose, without financial, legal, or technical barrier other than those inseparable from gaining access to the internet itself.

In 2010 the same author noted that, open access deals with free access to and reuse of scholarly works involving Gratis or libre open access. Gratis means that the scholarly work is free of charge, while libre open access implies that the scholarly work is free of charge and some or all restrictions on its reuse, such as translating it have been removed. Author also noted that there are two major open access strategies õopen access journals published articles (typically peer-reviewed articles) that are free of charge and depending on the journal, may be reused under the open licensingö, and õself-archiving involving authors or librarians acting for authors depositing e-print of journal articles or other works in digital depositories. Authors self-archive e-prints on personal websites, departmental digital archives, disciplinary archives, and institutional repositories. Ezema (2011:477) notes that, what is obvious with open access movement is that

there is democratization of availability and access to information and this will go a long way in bridging the information gap between the developed countries and the developing countries.

Dulle (2010:15) points out that through open access, the visibility of and accessibility to research articles published in open access journals or open access repositories from both developed countries and developing countries can be made easy and without restrictions. Author further stresses that the removal of information access restriction through open access implies that developing countries scholarsø problems of access to scholarly work may greatly be eased, much of the research output documented as grey literature in developing countries stands better chance of visibility and accessibility through open access.

2.6.4 Engaging the College Community and Enhancing Scholarly Collaborations

The institutional repository enables the institution to disseminate the research output to the global research community, and enhances community outreach and opens new settings for research collaboration nationally and internationally. Sculenburger (2008) contends that, it helps to ensure that scholarly activities and research projects undertaken at the institution are accessible to the public, as well as to the global academic and research community.

2.6.5 Relevant to the Changing Needs of Communities

The latest trends of internet-based e-resources are changing ways that patrons of research communities seek information. Institutional repositories are created to address the trend in the production, dissemination, access, and use of scholarly materials. The faculty, researchers and the institutions in higher education play the significant role in the research and development of scholarly efforts in establishing flourishing repositories, faculty, researchers and institutions keep up with the latest scholarly communication trends that increases participation and role in the

research and communication process as well as visibility and value to the community (Genoni et al. 2006)

2.6.6 Open Archiving

Scholarly communications is being restructured for the digital environment. Already much discussion about the future of scholarly publishing has resulted in widespread experiments in open archiving (Yeats, 2003:6). Author further explains that these have been supported by development of the open archiving initiative protocol for metadata harvesting. knowledge or intellectual capital produced by scholars and parent institutions tends to end up being disseminated by commercial publishers who are required to undertake the work of identifying and selecting appropriate materials for capture, preservation and publication.in addition Yeats add that, through institutional repositories there has been the rise in new ways of sharing knowledge and new opportunities for institutions to use intellectual capital as a more effective indicator of academic quality.

2.6.7 Digital Preservation

Digital preservation refers to the series of managed activities necessary to ensure continued access to digital materials for as long as necessary (Hockx-Yu, 2006:234). Author explains that, the ease with which digital information can be created, combined with the huge increase in computer power and network bandwidth has led to the proliferation of a vast amount of born digital data, this data overflow has forced many to address the issue of long term preservation and Curation so as to ensure that data generated today can survive the changes of technology and can be accessed in the future. Furthermore, the broad view of institutional repositories as a means to manage and preserve effectively an institution¢s knowledge based on intellectual assets results in the content of institutional repositories expands beyond e-prints to include research

data, e-learning materials and other materials and other forms of institutional intellectual output, which are generally not published or preserved elsewhere. Researchers, students, staff and institution will require ongoing availability of the content within the intuitional repositories. Those running the repositories therefore naturally have the responsibility to ensure this for the content they are entrusted with managing by their intuitions and researchers (Hockx-Yu, 2006:235). The repositories provide opportunity for institutions and faculty to collect and organize digital information for long term preservation. The type of materials can be in any digital format but should have permission from the author for posting it to an institutional repository. Author further noted that, the material that might be lost or at risk can be preserved in institutional repository.

2.7 Essential Elements of Institutional Repository

Crow (2002:3) opines that, the digital institutional repository can be any collection of digital material hosted, owned or controlled or disseminated by college or university, irrespective of purpose or provenance. Author further argues that, the institutional repository is the digital archive of the intellectual product created by the faculty, research staff, and students of an institution and accessible to end users both within and outside of the institution, with few if any barriers to success; In other words author amplifies the following characteristics that any institutional repository must be identified with

2.7.1 Institutionally Defined

In contrast to discipline- specific repositories and subject-oriented or thematic digital libraries, institutional repositories capture the original research and other intellectual property generated by the institution's constituent population active in many fields. Institutional repositories represent the historical and tangible embodied of the intellectual life and output of the institution

and to the extent that institutional affiliation itself serve as the primary qualitative filter, and becomes a significant indicator of academic quality.

2.7.2 Scholarly Content

Crow (2002) explains that, depending on the goals established by each institution, the institutional repository could contain any work product generated by the institution's students, faculty, non-faculty researchers and staff. These materials might include student electronic portfolios, classroom teaching materials, institution's annual reports, video recordings, computer programs, data sets photographs, and art works and virtually any digital material that the institution wishes to preserve. To control and manage the accession of the content requires appropriate policies and mechanisms, including content management and document version control systems. The repository policy framework and technical infrastructure must provide institutional managers the flexibility to control who is able contribute, approve, access and update the digital content coming from a variety of institutional communities and interest group including academic departments, libraries, research centers and labs, and individual authors.

2.7.3 Interoperability and Open Access

Interoperability here according to Crow means providing no or low barrier access to the intellectual products generated by the institution to increase the awareness of research contributions. Author further argues that for repository to provide access to the broader research community, users outside the university must be able to find and retrieve information from the repository. Institutional repository systems must therefore be able to support interoperability in order to provide access via multiple search engines and other discovery tools. The other aspect of interoperability is the open archive approach that enables access to web-based accessible materials through interoperable repositories for metadata sharing, publishing and archiving. The

OAI-Protocol for metadata harvesting (OAI-PMH) defines the mechanism for harvesting records containing metadata from repositories in any format that is agreed by the community (or in any discrete set of data and service provider (Peters, 2010:255)

2.7.4 Cumulative and Perpetual

The essential feature of institutional repository is that it must be cumulative and perpetual. This has two implications; first, whatever the content submission criteria for the repository, items once submitted cannot be withdrawn, cases of withdrawal can only be done in presumably rare cases involving allegations of libel, plagiarism, copyright infringement. This removal would be the function equivalent of revoking the registration initially granted to the contribution or accession into the repository (Ifeanyi, 2011:478-479). Ifeanyi further explains that the other aspect of this feature is that repositories tend to preserve and make accessible digital contents of the institution on a long term basis.

2.8 Economics of Setting up Institutional Repository

There are many factors to consider in setting up an institutional repository. These include the cost of hardware, software, staff salaries, internet connectivity cost and other consumables. There is also the need to have reliable back up power supply which is a major hitch in most African countries (Agyen-Gyasi, 2010:6). Author therefore suggests the following as the major factors to consider while setting up institutional repository.

2.8.1 Software

Whatever service is selected, software will still have to be evaluated in several areas namely: hardware requirements, user interface, functionalities, the formats of data which is acceptable and can be uploaded onto the platform, ability to accept imports and exports and to integrate into

interoperate with existing library management programs, the standard harvesters which would be able to collect information from the software, the type of data, the quantity or size of the data that can be handled without freezing or hanging the system, the number of queries and traffic that can be handled at one time (Agyen-Gyasi, 2010:9). Author further states that, the security provided for data from hackers and the needed auxiliary software to support the software used for example portable document format(pdf), picture managers, are very essential while selecting software for repository. Author also noted that the available software used by most universities with institutional repositories are DSpace, EPrints and Fedora.

2.8.2 Hardware

Deciding on what service to offer and what software to use impacts greatly on the hardware to acquire. If a hosted service were selected, the only hardware might be a desktop computer, scanners and a connection to the internet, there is need to purchase a server whose specification would be determined based on the volume of data intended to be stored in the repository (Agyen-Gyan, 2010: 9). Author also noted that, the physical storage space for the server should be enough, the room should be airy and free of dust this might require the installation of air conditioner that would run all day. Furthermore, the server needs to be protected against power fluctuations, virus attacks and hackers. This means purchasing of ups and voltage regulator, antivirus and building fire walls. Finally, for disaster management the entity involved in setting up a repository would need to have a contingency plan in place. If possible, there should be extra servers for backup in location that is off site or away from the building housing the main server. Although another server is ideal, a simple external hard disk with a high capacity would be used to back up records in the repository. Other hardware to consider would be scanners, computers and a generator that will provide backup electrical power supply, this may be necessary for majority of African countries(Agyen-Gyan, 2010 :10).

2.8.3 Staffing

A growing pool of literature discusses the roles librarians play in developing institutional repositories. Chang (2003) proposes that, it is necessary for librarians to be conversant with digital collection management and open archive information system management skills. Library staff and authors need to be trained to prepare documents in an acceptable format and to submit content to the repository using a simple interface. Some libraries, like the University of Glasgow, emphasize a fully mediated service for their faculty members, where library staffs manage the whole submission process from metadata entry, file conversion to uploading (Ashworth, 2004).

In terms of defining the collection, librarians need to establish content management policies. Librarians are experienced in selecting, describing, storing, and managing information content. They can negotiate with users on content priorities such as what metadata to store and present, should teaching materials be included, and how to handle successive drafts of the same paper (Genoni, 2004). Genoni also suggests that librarians should evaluate the performance of the collection and make decisions relating to access, conservation, and preservation.

Ideally, voluntary submissions from researchers will seed an institutional repository and sustain its growth. The real world is always very different. Researchers may support the project in principle, but very few take action voluntarily. Librarians thus have to take a proactive role in garnering content for their repositories and work towards a sustainable approach (Mackie, 2004).

Traditionally, academic library staffs organize and disseminate scholarly information largely acquired from commercial vendors. The role of librarians is now expanding to include collaborating with information technology staff and academics to manage and disseminate research output and learning objects emanating from their own institutions (Harwood & Sullivan, 2004). Libraries have moved beyond a custodial role to contribute actively to the evolving scholarly communication process (Crow, 2002). Institutional repositories, open access, and self-

archiving are unfamiliar concepts to most researchers. Advocacy then becomes a crucial aspect of any institutional repository project. At the University of Melbourne, librarians visited departments, maintained a promotional web site, and showed impressive usage statistics on individual papers. They also published in their university newspaper and held related seminars (Harwood & Sullivan, 2004). The general consensus is that the central challenge for developing institutional repository lies not in its technical implementation, but in instilling a change of mindset among researchers, to make self-archiving an integral part of their academic life (Nixon, 2002).

2.8.4 Marketing & Advocacy

A digital repository requires a number of technical and administrative steps to develop before implement it. Two very important aspects are advocacy and promoting, as there is no use of having spent money and time planning a repository that is empty. A repository is useful when is used by users and sufficient material is stored in them for users to search (Luarte, 2006:18). Promoting the repository with faculty is an additional crucial factor. It requires that librarians tirelessly promote the institutional repository. Changing the culture of scholarly communications is not an easy job and uptake remains slow in the academy. Many repositories are using the õif you build it, they will comeö philosophy. Through developing the infrastructure and encouraging early adopters, a critical mass of content will attract other researchers and illustrate to administration how the repository will meet institutional needs (Westwell, 2006:217).

One repository (Cornell) has introduced an incentive plan for adding material to the repository (http://dcaps.library.cornell.edu/facultygrants/). Faculty competes for grants, which are then used to develop and add content to the repository an innovative way to increase funding and interest researchers in archiving their work. In addition, Suber (2006) recently reported in the SPARC

Open Access Forum that Minho University is using financial incentives for departments related to the number and type of documents deposited. In a study of web-linked citations in scholarly articles, Carlson (2005) noted that, approximately one third were no longer active and a further third no longer pointed to information pertinent to the citation. This is a powerful argument to convince researchers that their material should be housed in an institutional repository. As a success factor, this is more difficult to measure; however, it is suggested that where researchers who are familiar with the repository from both the input and searching sides will use it. Perhaps these inducements, combined with an institutional mandate, will encourage scholars to deposit their work.

2.9 Challenges and Issues that Hinder Use of Institutional Repositories

Historically, libraries are powerhouse of information and knowledge. This gives academic libraries the capacity to influence learning, research and teaching in institutions (Batune, 2009). Academic libraries acquire, preserve, organize, distribute and manage information resources in relation to research, teaching, learning and community services to students (Makori, 2015:18).Author further notes that, libraries administer and provide quality information services to students, staff, researchers, and the general academic community so as to enhance higher customer satisfaction and better return on investment which in turn foster development nationally and institutionally.

Usability is a multidimensional construct that can be examined from various perspectives (Huym, 2008:866). The international organization for standardization (1994) defines usability as õthe extent to which a product can be used by specific users to achieve specific goals with effectiveness, efficiency, and satisfaction in a specific context of userö. Other studies share similar perspectives where Brink et al. (2002) defines usability as functionally correct, efficient

to user, easy to learn and remember, error tolerant and subjectively pleasing, while Oulanov and Pajarilo (200) suggested five attributes including efficiency, helpfulness and adaptability, in addition the Massachusetts Institute of Technology(MIT) Information Services and Technology Department (2004) usability guidelines of ten attributes including navigation language and content, architectural and visual clarity and functionality. The following issues can be attributed to hinder the usability of institutional repositories; mandate, interoperability, copyright issues, content recruitment, promotion and preservation strategies.

2.9.1 Inadequate Advocacy

One of the best ways to promote the development and use of open access institutional repository in developing countries is through advocacy. For such advocacy to be really effective, it must be undertaken by the stakeholders in the region (Christian, 2008:38). Christian further argues that poor advocacy and marketing of the institutional repository in relation to open access is one of the reasons for slow uptake of institutional repositories in Africa, thus resulting into lack of knowledge or awareness of open access which in turn influence development and use. Lack of proper understanding of the roles, purpose and working of an institutional repository. Institutional repositories are comparatively new to much of the academic world particularly in developing countries. It is difficult to promote the benefits institutional repositories offer whilst allaying stakeholdersø concerns and a relentless promotional and marketing aspect is crucial to successful institutional repository implementation (Jain, 2010: 132).

The use of advocacy has been found to be an efficient method of effecting changes in organization and the wider society. Building of institutional repository is a new approach to research dissemination and many stakeholders know little or nothing about them. The library as

the center for dissemination of information should be at the center of this advocacy (Ezema, 2011:482)

2.9.2 Content Recruitment

The purpose of institutional repository, in part, is to serve as open access repositories of the intellectual output of the faculty at the institution and to showcase the tangible results of those pursuits globally. Therefore, the success of institutional repositories depends on contributions from the faculty, yet not all faculties contribute to repositories in the institution (Casey, 2012:2).

There can be undeniable difficulties in generating content especially in the beginning. Often, academics are unwilling or lazy to deposit their research work (Jain, 2010:130). Author also noted that, experiences suggest that institutional repositories will only function to its optimal capacity when a mandate is in place to populate it. Furthermore, researchers can react negatively to any suggestion of compulsion and may not respond to the invitation to add research output to the institutional repository. Often low deposit rates are attributed to a lack of institutional policies and mandatory requirements in addition to lack of motivation and low priority for faculty members and researchers.

As academic institutions implement institutional repositories, often there is reluctance among faculty to contribute as shown in the survey of directors at the Association of Research Libraries (ARL), where two-thirds of the majorities of Faculty members at the institutions were not contributing (Association of Research Libraries, 2006). Jantz and Wilson (2008) found out that, faculty contributions to institutional repositories in ARC institutions to be low or non-existence in one third. Furthermore, Schonfeld and Houseright, (2010) discovered in a 2009 survey that less than 30 percent of faculty in united states colleges and Universities were contributing to institutional repositories. Submission policies describes the policy of submission of the digital content for the repositories, although self-archiving is the most common procedure to deposit the

contents author deposits the work in the repository individually. New users who wish to submit content have to register on the institutional repository and then choose the collection for submission (Shoeb, 2010: 206). Furthermore, Gibbons (2004) comments that, the õrecruitment of content, not technology, is the greatest barrier to successö. Ware (2004) surveyed 45 institutional repositories and found out that the average number of documents per repository was only 1,256. Both points to a fact experienced by all libraries that content building is a painfully slow and uphill process.

Ultimately the success or failure of an institutional repository rest upon its ability to address the needs of the members of the institution it serves. Several studies noted that institutional repositories have not attracted the volume of deposit that was initially expected, nor have they yet been adopted as standard practice in the scholarly communication framework (Carlson, 2009:154). Author further noted that, for most part, researchers have not responded with much interest in the services offered by institutional repository thus far have not deposited their materials at the rate that was initially predicted. In addition, A study conducted by Nancy Foster and Susan Gibbons examined the difficulty of recruiting content for the institutional repository at the university of Rochester through interviews with faculty on their research and writing activities and practices (Carlson, 2009:154).

2.9.3 Different Publication Types, Multiple Versions and Relationships

The debate surrounding institutional repository has generally focused on journal articles and models of payment for scholarly publishing, but institutional repositories include many more item types. Book chapters, working and discussion papers, datasets, questionnaires, doctoral theses, conference and seminar papers, and slides from presentations. (Rumsey, 2006:183) additionally, repositories provides the means to store, search for and access all types of research

output, these knowledge hubs have an important roles to play for creators and users of such materials, multimedia and teaching materials may be added and managers have to ensure that metadata for all item types if of high quality and international standards for ease of search and access. From another perspective, research is underpinned by questionnaires and other work which contribute to the final findings and final publication may have been preceded by conference presentation, it may be important that the author is able to link the item to other relevant items in complex digital objects. Deposit into the institutional repository which has been constructed so that such relationship between objects can be expressed and used to enable rich and imaginative users of research, with all different elements available to the end user.

It is important to know the content, subject, files and type of media for submission in your institutional repository (Nagra, 2011 :143) Author further argues that, the institutions need to conduct survey for the need assessment of students and faculty to find out the nature and type of content contained in their research projects, in addition, the type of content in repositories can vary from institutions to institutions, it is advisable to know the content needs of your institution community to plan guidelines, policies and define the file formats requirements accordingly.

2.9.4 Intellectual Property Rights

 The other issue that affects the development and use of institutional repository is intellectual property right, the aspect of law that covers diverse legal rights that exists in creative work. Intellectual property law embraces such exclusive rights in copyright, patent, trademark, industrial design, trade secrets and trade name. (Christian, 2008:39). The authorøs right to reproduce work includes the right to convert the work from the paper format to digital or electronic format, this right is especially important since the development of institutional repository always entails scanning of previously published work in paper format and converting

the same into digital format for uploading in the repository. Unless this is done with the permission of the copyright holder or under a statutory exception as fair dealing, this amounts to copyright infringement and eventually affects use of institutional repository resources.

Sometimes researchers are apprehensive about infringing publishersø right and lack adequate awareness about their own intellectual property rights (Jain, 2010:130). Author also notes that, publishers often see institutional repositories as potential obstacle and threat to their business and misinterpret them, publishers also often have policies at least tending towards complicating if not antagonism towards institutional, authors may therefore be undecided making their pre-published work available online before or even after it is published by a traditional publisher. Since scholarly publishing through institutional repositories is a paradigm shift from traditional publishing, management of intellectual property issues must also evolve (Jain, 2010:130)

2.9.5 Internet Self-Efficacy

Internet self-efficacy refers to the individualøs ability to use internet through own skills (Hsu, Chiu & Ju, 2004). For individual to access or publish scholarly content on the internet and open access outlets in particular, it is important that one must have necessary skills (Dulle, 2010:9). This view is also supported by Wang and Su (2006) who asserted that, in order to benefit from open access initiatives, readers should improve the information and computer literacy skills. Similarly, it is equally important for researchers to become internet literate in order to use the electronic media environment more effectively for accessing and disseminating scholarly content. Lynch (2003) noted that, without commitment by the respective tertiary institutions to train staff and students to use institutional repositories, the institutional repositories have no case for existence. In addition, Makori (2009:11) suggests that, information professionals in academic libraries in Kenya can master the use of information and communication technology systems and

other competencies through motivation, encouragement and additional training as this will educate user in articulating information requirements and needs.

2.9.6 Sustainable Support and Commitment

Often, it is difficult to sustain continuous support and commitment for the management and academic staff (Jain, 2011:130). Author further states that, stewardship is easy and inexpensive to claim, it is expensive and difficult to honor and perhaps it will prove to be all easy to later abdicate Management commitment and support are vital for successful institutional repository implementation to ensure preservation and maintenance, information technology infrastructure, digital rights management and institutional mandate (Wee, 2015:198). Setting up the repository is the major undertaking for the institution that requires commitment of financial and staff resources to ensure success in both establishment and maintenance of the repository (Cullen & Chawner, 2012:198). A successful institutional repository requires institutional commitment, startup resources are relatively high and there is a necessity for both technical and advocacy skills to be employed to make the repository part of everyday working practice of the academics, tireless commitment to marketing and improving the services, as well as reacting to feedback from users is necessary (Jones, 2006:124)

2.9.7 Perceptions of Users Towards Institutional Repository

There have been previous studies at academics to determine attitudes of users towards open access and the willingness to contribute to repositories (Abrizah, 2009:19). In research universities, institutional repositories are predicated on contributions by the stakeholders who include both academic staff involved in teaching and research and both postgraduate and undergraduate students as potential authors and readers of the materials in institutional repositories (Abrizah, 2009:19). Author further posits that, whether or not institutional repositories become a part of the intellectual infrastructure depends on the extent of the

universityøs community contribution. Faculty cites variety of reasons for hesitation to contribute to institutional repositories such as the learning curve for new technology, copy right issues, concerns over whether contributing to repositories is equal with publishing, fear that how quality of some materials in the repository taints their research, and worries about plagiarism (Davis & Connolly, 2007).

2.9.8 Costs of Institutional Repositories

Establishing the institutional repository is not cost free. Factors that impact costs include the number and type of staff, type of technology chosen for the repository, services provided, and cost of preservation of data. One of the first decisions for an institution is to choose the type of hardware and software for the project. Open source software systems provide the institution with the ability to customize the program and develop facilities that meet local needs. To the contrary, it does mean that the institution needs programming and systems staff to run the system. Choosing the commercial software program limits the amount of technical staff needed and may limit the amount of customization to be done. Other technology costs include digitizing content or hardware and software needed for such services, charges for backup systems, and digital storage (McKay, 2008).Once the software platform is solved, the institution can determine the staffing needed to run the repository. Staffing will include those with direct responsibility for the daily operations of the services and those who have new responsibilities added to their positions to support the service. The latter include staff who may take on marketing roles, staff who contribute metadata, and staff who provide training.

Operation costs include costs for marketing materials such as brochures, supplies, including costs for software upgrades, and hardware replacement costs. With these categories of costs in mind, an institution can determine the additional costs it will incur by adding an institutional repository

to its set of services. Libraries may also need to determine the cost to scan materials for the repository, particularly if the intuition decides to digitize dissertations and theses for the repository (Giesecke, 2011: 534).

The initial financial cost for institutional repository open source software opted for by most institutions is not high but the ongoing maintenance cost may be significant and may prohibit an institutional repository project getting beyond the proposal stage (Jain, 2010:130).

2.9.9 Working culture and policy issues

Contributing content to user-generated or self-service sites can be perceived as time consuming by hard pressed academics. They may be happy to contribute content but reluctant to do it themselves which necessitate mediated deposit services (Jain, 2010: 131). Author furthermore state that, it may take time, constant encouragement and mandatory policies for routine self-archiving to become part of normal academic behavior. In addition, permanent, reliable mediated deposit services perhaps based at the library may also take time to establish especially if staffed by existing personnel undertaking this role on top of normal duties, additionally, policies developed to monitor quality of submissions constrain institutional repository success.

2.9.10 Lack of incentives

In the absence of any specific or financial incentive, academics can feel little motivation to provide even bibliographic details of their academic work especially when they see incentives are available at other institutions (Jain, 2010:131). Author also noted that, the academic argument may run that õthe universityøs core mission is to advance research and scholarship. It is secondary to archive content and to make research publicly accessible.

2.10 Empirical and Intellectual Studies

Studies indicate that, as a result of developments in digital scholarship, more and more scholars are creating content in digital form. The content may however end up in some out of reach expensive journals or in the author's computer or even in a subject database where it is really out of reach of most academics that would benefit from its use

Global research indicates that the growth of institutional repositories in institutions of higher learning has greatly increased with the introduction of open source initiative in scholarly communication and software development (Campbell, 2011:152) Campbell further notes that, in part, the demand for institutional repositories has developed out of changes in scholarly communication models as well as from the need as divine to develop a clearinghouse for the scholarly output of a particular college or university. In addition, Jain (2011:133) states that, as a result of challengers for setting up institutional repositories, hitherto the growth of institutional repositories has been concentrated largely in institutions in developed world.

Complementary studies were released addressing the deployment of institutional repositories where Lynch and Lippincott, focused solely the United States, while Van Westrienen and Lynch, focused on 13 different countries from around the world, concentration on Western countries found in Europe (Fralinger, 2012:135). The two studies were among the first to assess the deployment and expansion of institutional repositories, Van Westrienen and Lynch took the assessment beyond national borders to determine how institutional repositories were evolving not only in terms of deployment but in terms of content, disciplinary coverage and preferred software. By looking at the total number of institutional repositories in these countries, the authors showed that institutional repositories are a true global phenomenon at academic

institutions, in addition to being well established as campus infrastructure components (Van Westrienen & Lynch, 2005)

Recent studies show that South Africa is the leading country in Africa in terms of establishment of repositories. Currently, 22 of the 54 African repositories are operational in South Africa. South African university libraries are currently the leader among African academic institutions in terms of the development of institutional repositories growing from a total of 14 registered and active repositories (Smith, 2009) to the current 23 repositories. The Council for Scientific Research and Industrial Research (CSIR) though not a university, but major research institute with a wealth of research documentation available also forms part of the development of South African institutional repositories.

The momentum to embrace Open Access initiative in Africa has been building up since the open access movement(OAM) gained momentum as worldwide effort to provide free online access to scholarly research (Otando, 2011). Author further explains that several institutions have already established institutional repositories.   The world Repository map affirms that there are approximately 2,075 repositories internationally listed on the registry of open access repository. Of the 34 African repositories listed, 25 (65%) are found in South Africa, and only 4 (12%) are found in Kenya. The concept of open access is still new in most developing countries, and Kenya indeed has embraced this noble project. Under the Kenyan constitution 2010, the right to information is enshrined in the Bill of Rights Article 35 where it is imposes a duty on the state to publish and publicize any important information affecting the nation. Kenya legal fraternity has begun an initiative to provide access to legal information (The Constitution of Kenya, 2010:27)

Several institutions have established or are in the initial stage of establishing institutional repositories. Strathmore University, International Livestock Research Institute (ILRI), and Kenya

Agricultural Research Institute (KARI) are already operational institutional repositories. The establishment of Kenya Library and Information Services Consortium (KLISC) was prompted by the move from INASP to stop funding the electronic journals that was launched in 2000 by programme for Enhancement of Research information (PERI), hence the need for collective subscription to PERI E-resources to share costs. Currently, KLISC has membership of about 75 institutions which have either established or are in the process of establishing an institutional repository. Academic libraries in Kenya need to integrate technological solutions into mainstream information products and services, these solutions include integrated information systems, digital information systems, computing, Radio frequency identification technology, and local area and wide area networks (Makori, 2009:12).

2.11 Knowledge Gap

Many studies in the past on institutional repositories development in Kenyan institutions of higher learning have concentrated on public universities while little attention has been given to the private institutions of higher learning. The studies in the past have not addressed the issue of dissemination of scholarly information and communication with regards to institutions of higher learning in Kenya, while several studies have addressed the issue of implementation of institutional repositories without taking into consideration the promotion and acceptability for use in research in private institutions of higher learning in Kenya.

2.12 Conceptual Framework

Conceptual framework is the argument about why the topic one wishes to study matters, and why the means proposed to study it are appropriate and rigorous (Sharon, 2012:2). The study opted to use conceptual framework to identify and indicate the various aspects that influence adoption of institutional repositories. The dependent variables of visibility and public value, management

support, quality of teaching and scholarship, advocacy, open access, intellectual property rights, open archiving, internet self-efficacy, and users perceptions of institutional repository is influenced by the adoption and use of institutional repository. Additionally, adoption of institutional repository impacts on effective dissemination of scholarly information and communication.

Independent Variable   **Dependent Variables**   **Outcome Variables**

Adoption of institutional repository

Visibility and public value
Management support

Quality of teaching and scholarship

Open access, intellectual Property rights

Open archiving, internet self-efficacy

Users perception of institutional repository

Advocacy for repository

Effective dissemination of scholarly information
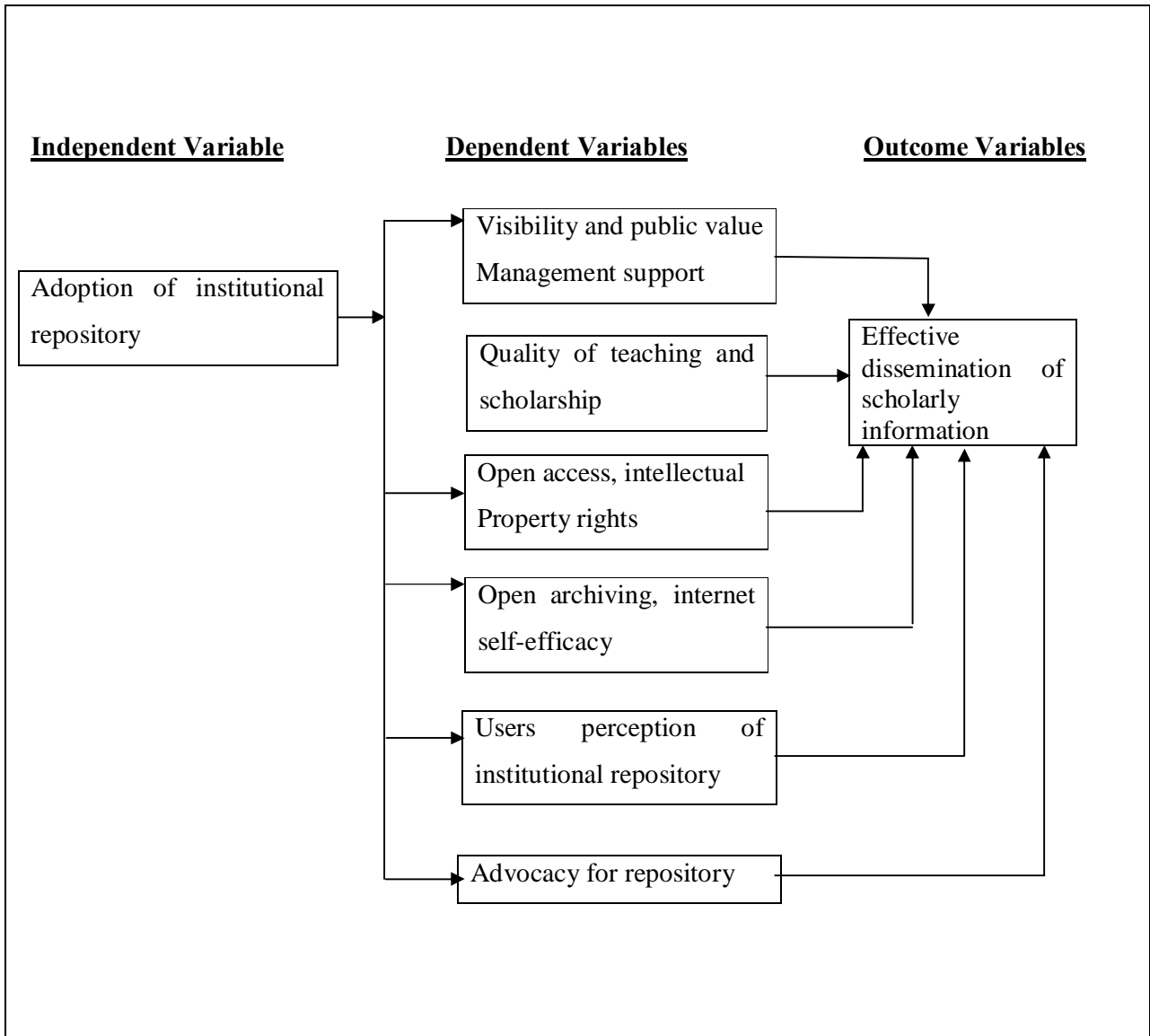
Figure: 2.1 Conceptual Framework for Institutional Repository (Researcher, 2015)

2.13 Chapter Summary

This chapter provides detailed information of institutional repositories including significance to institutions of higher learning. Additionally, it discusses the essential characteristics of institutional repositories and provides explanation of key concepts in the literature. Chapter is organized into themes and sub themes based on the objectives and research questions of the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides discussion of the research methodology used in this study. It discusses the research design especially with respect to the choice of the design. It also discusses area of study, the population of the study, sample and sampling techniques, data collection methods, research instruments, pilot study, validity, reliability, ethical considerations, data collection procedures, and data analysis.

3.2 Research Design

Research design is a logical sequence that connects the empirical data to a studyøs initial research question and ultimately to its conclusions. Research design is the logical plan for getting from here to there, where here may be defined as the initial set of question to be answered, and there is some set of conclusions about the questions. In addition, research design is the plan and structure of investigation so conceived as to obtain answers to research questions (Cooper & Schindler, 2011:139). Author further states that, the plan is the overall scheme of program of the research. It includes outline of what the investigator will do from writing hypotheses and their operational implications to the final analysis of data.

The study adopted mixed method involving use of both qualitative and quantitative research designs; Combining qualitative and quantitative methods enable triangulation or greater validity and also ensure completeness and sufficiency in description. The study used case study design focusing on United States international university-Africa (USIU-A). The case study allows an in-depth investigation of the problem and thereby brings better understanding of the effects of

adoption of institutional repositories in dissemination of scholarly information and communication in institutions of higher learning in Kenya.

3.3 Area of Study

The study was carried out at United States International University-Africa located in Kasarani area, off Thika road in the suburbs of Kenya's capital city of Nairobi, USIU-A the premier, independent and non-for-profit institution serving more than 5000 students representing 62 nationals: 85% of whom are domestic and 15% are international.

3.4 Target Population

Population is the total collection of elements about which we wish to make inferences (Cooper & Schindler, 2011:364). The target populations in the study were the members of the academic staff, postgraduate students and the library staff of the United States International University-Africa. The study carried out the research from a sample rather than from the entire institution due to the logistical aspects of such a large institution, therefore the researcher will pick a representative sample which will give more information about the whole population. United States International University currently has a population of 245 academic staff, 1, 500 graduate students, and 25 library staff based on the USIU spring 2015 fact sheet.

3.5 Sample and Sampling Techniques

3.5.1 Sample Size

Sampling is a procedure that users a small number of elements of a given population as a basis of drawing conclusions about the whole population (Neelankavil, 2007:240). In addition, Lim (2012:2) says that, sampling is widely used in academic research as a means of gathering useful information about a population. Furthermore, Ariola et al, (2006) argues that, the process of

sampling makes it possible to draw valid inferences or generalizations on the basis of careful observation of variables within a relatively small proportion of the population. Sample size is the number of elements used to represent the total population (Cooper & Schindler, 2011:139). In addition, Sharon (2010:74) says that, stratified random sampling is whereby the population is divided into layers or strata, the strata constitutes the whole population so that each sampling unit belongs to exactly one stratum. The study therefore used stratified sampling to divide respondents into three mutually exclusive homogenous strata which are postgraduate students, academic staff and the library staff. This gave every group in the population a chance of being selected in the sample.

Table 3.1: Sample Size for Respondents

Respondents	Population Size	Sample Size
Graduates	1,500	150
Academic staff	245	25
Library Staff	25	25
TOTAL	1,770	195

Source: USIU Spring 2015 Factsheet

From a total population of 1,770 respondents which comprises of 1,500 postgraduate students, 245 academic staff, and 25 library staff was selected for the study. The study used 10% to get the required sample size from both postgraduate student and academic staff population, the whole library staff were purposively selected for study.

3.5.2 Sampling Techniques

 The study adopted stratified random sampling and purposive sampling techniques, in stratified sampling the population is divided into subpopulations (strata) on the basis of supplementary information, then samples are drawn randomly within each strata (Kothari, 2013: 159) . Stratified random sampling technique was used to divide respondentøs population into three mutually exclusive homogenous groups of postgraduate students, academic staff and library staff. This technique gave every unit in the population a chance of being selected in the sample.

The study adopted purposive sampling technique. Purposive sampling is a non- probability sample that conform to certain criteria, Purposive sampling is applied in qualitative research and is also known as judgment sampling (Patton 2002:230). In addition, Lynn (2010:119) states that, purposive sampling is a selection of samples based entirely on one's knowledge of the population and the objectives of the research. Furthermore, Neuman (2007:143) states that, purposive sampling is used to select unique cases that are specifically informative. 25 library staff was purposely picked for the study since they are perceived to be knowledgeable about institutional repositories.

3.6 Data Collection Methods

Data is defined facts or information, behavior, attitude, attributes collected from participants or observation from secondary source. Data collection methods include primary and secondary data. The study used structured questionnaires. Structured questions (closed ended) are questions which are accompanied by a list of possible alternative answers from which the respondents select the answer that best describe their situation.

3.6.1 Questionnaire

The questionnaire for the study was guided by the study objectives, the study used structured questions which is aimed at obtaining quantitative data based on the research questions. The questionnaire was administered to library staff, academic staff and postgraduate students. The questionnaires was divided into two main sections, one dealing with general information and the other part with effects of adoption and use of institutional repository.

According to Garaba (2010:162) questionnaires exist in different formats. They can either be self-administered, online, postal or mail-based, interviewer-administered, telephonic or interview

schedules (Czaja, 2005:36). The most popularly used are self-administered and researcher-administered questionnaires. Self-administered questionnaires include online questionnaires, postal questionnaires and delivery and collection questionnaires. Researcher administered questionnaires and structured interviews.

Ndenje ó Sichalwe (2010:151) states that, questionnaires are well documented in literature which is also supported by various authors (Babbie, 2001:262; Cohen, Manion & Morrison 2000:129; Frankfort-Nachmias & Nachmias 1996:226; Kumar 2005:130; Leedy & Ormrod 2005:185; Mugenda & Mugenda 2003:72-73; Sarantakos 1998:159). Respondents can answers questions with assurance that they will be unknown, and thus they may be honest than they would in an interview, particularly on sensitive or controversial issues (Powell & Connaway 2004:125; Leedy & Omrod 2005:185). Questionnaires also gives privacy in responding as well as time to look up information in cases where they are not sure of the answers (Frankfort-Nachmias & Nachmias 1996:226; Sarantakos 1998:224).

In comparison to other data collection tools, questionnaires are relatively inexpensive and allow a large number of respondents to be surveyed in a relatively short period of time even if the respondents are widely distributed geographically (Cohen, Manion & Morrison 2000:129; Kumar 2005:130; Powell & Connaway 2004:125). Questionnaires provide a high degree of anonymity for respondents (Frankfort- Nachmias & Nachmias 1996:226; Kumar 2005:130; Powell & Connaway 2004:125).

Kumar (2005:130) however states that the main disadvantage of the questionnaire is that its application is limited to a study population that can read and write. It cannot be used 48 on a population that is illiterate, very young, very old or handicapped (Kumar 2005:130; Powell & Connaway 2004:126).

3.6.2 Interview Schedule

This study employed the use of interview schedule to gather information from the respondents, out of a total of 5 top library management, 1 was selected purposely for interview with the aim of obtaining qualitative information, appointment with the two was booked whereby a face to face interview will be conducted guided by the interview schedule. Face to face interview allows for personal communication with the respondents and makes it possible to collect more information which is relevant to the research objectives.

3.6.3 Literature surveys

A wide range of literature related to the research topic was consulted; these resources included books, journals and publications with the relevant literature as well as through surfing the Internet. This method of data collection was preferred because it gave the researcher an insight into what other researchers have written about implementation of a records management programme. Through this method, the researcher was able to relate the findings of the study to those of other researches which allowed for confirmation in case of any similarities and explanation of disparities.

3.7 Research Instruments

Research instruments are tools used to aid in assessment of subjects or respondents. There are various measurement tools including surveys, interview guide, observation and questionnaire, but this study used both questionnaire and interview guide. A pilot study was carried out to ensure that both questionnaires and interview guides are valid and reliable for the study.

3.7.1 Pilot Study

Pilot study was carried out before the actual study; the pilot study was done at Kenya School of Accountancy University situated along Thika road. The questionnaire was tested by selecting respondents randomly whereby the 6th person out of every 12 students was be picked for the study, 2 members of staff will also be selected for the pilot study. This will enable the researcher to identify issues such as difficulty in interpreting the questions, errors in the framing of the questions among other errors for revision.

3.7.2 Validity

Validity is the extent of systematic error in measurement (Rubin, 2009:91). Author further states that, validity is the extent to which a specific measurement provides data that relates to commonly accepted meaning of a particular concept. In addition, Gatara (2010:14) argues that, if a measure has been developed and is said to be reliable, it means that if applied repeatedly to measure phenomenon, it would produce the same results and it would be valid if helps a scientist establish the falsity or truth or statements, or even causes. The study pre-tested the instruments to ensure consistency of the instruments through the involvement of experienced researcher to help in improving the research tools.

3.7.3 Reliability

Reliability addresses the consistency of descriptions and interpretation over time, typically in the form of repeated measurements (Jensen, 2013:267). To ensure reliability the study reduced the occurrence of error on the instruments by identifying the sources of measurement error that would be most detrimental to useful score interpretation and design a reliability study that permits such error to occur so that their effects can be assessed, pilot testing of the instrument

was done to allow for the identification of such sources, the study used triangulation to ensure consistency and reliability of the instruments.

3.8 Data Collection Procedures

The study carried out pre-test using five respondents who were not part of the target group. This helped the researcher receive important feedback on how the questions will be recorded and structured to be more precise and unambiguous. The purpose of pre-testing the data instrument is to ensure that the items in the instruments are stated clearly and have the same meaning to all respondents. Pre-testing also permits refinement before the final test. The necessary introductory letter was obtained for the study from the university giving authority to collect data for academic purposes. Questionnaires was administered to the respondents directly .The study also conducted a face to face interview whereby the respondentsø were consulted prier for preferred date

3.9 Data Analysis

Data analysis is the process of evaluating data using analytical and logical reasoning to examine each component of the data provided. Data is a collection of facts and figures relating to a particular activity under study. Data analysis is the whole process which starts immediately after data collection and ends at the point of interpretation and processing of result. For data to be useful, it has to provide answers to the research problems. Data collected was prepared into useful, clear and logical information, data analysis and processing involves coding, editing and tabulation as well as grouping into thematic areas and content analysis. The data collected from the field was then analyzed and processed into meaningful and relevant information. Statistical package for social sciences was used to analyze quantitative data collected. Content analysis was used to analyze qualitative data for the study. Data was prepared into percentages, pie charts and tables for better interpretation.

3.10 Ethical Considerations

The study made every effort to achieve validity by ensuring that the research tools are sufficient in scope and coverage. The study also ensured that the instruments are measured alongside other instruments used in similar studies, besides involving experts in the field to give an input as a way of reducing errors and oversights. The study promoters also looked at the instruments before collecting data. These research findings will strictly be used for academic purposes; therefore, all the responses therein were treated with confidentiality as accorded by academics ethics. The originality of the study was paramount and   solely be founded on the data collected from the field.

3.11 Chapter Summary

This chapter highlights the methodology, approaches and procedures that were used to carry out this research including research design, area of study, population and sampling design, sampling technique, data collection methods, data analysis and presentation, reliability and validity of research instruments and ethical issues.

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter outlines the data presentation, data analysis, results and discussions of the study. The study used questionnaires administered to staff and postgraduate students and responses from the interview schedule with library management to obtain data and information. The analysed results are presented in form of charts and tables. Quantitative data were analysed using Microsoft Excel application while qualitative ones were processed through coding in Statistical Package for Social Sciences.

4.2 Background Information of the Respondents

This study sought to establish background information of the respondents based on professional expertise, highest educational level, work experience, and specific responsibilities. In terms of professional expertise, the results are as indicated in figure 4.1 page 55. In this study, 15% of the respondents were librarians, 14% were lectures while 71% were students.
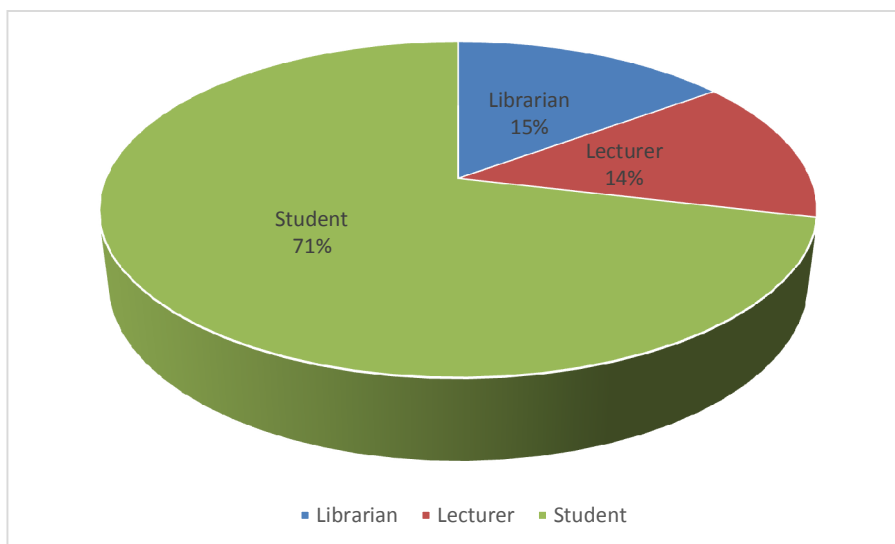
Figure 4.1: Respondents Professional Expertise

4.2.1 Educational Level

In terms of educational level, the results are as indicated in figure 4.2 below. In participation, 18% of the respondents were Ph.D. holders, 69% were Masters holders, 12% were bachelor's degree holders, and 1% Diploma holders. This indicates the majority of the respondents were Masters holders.
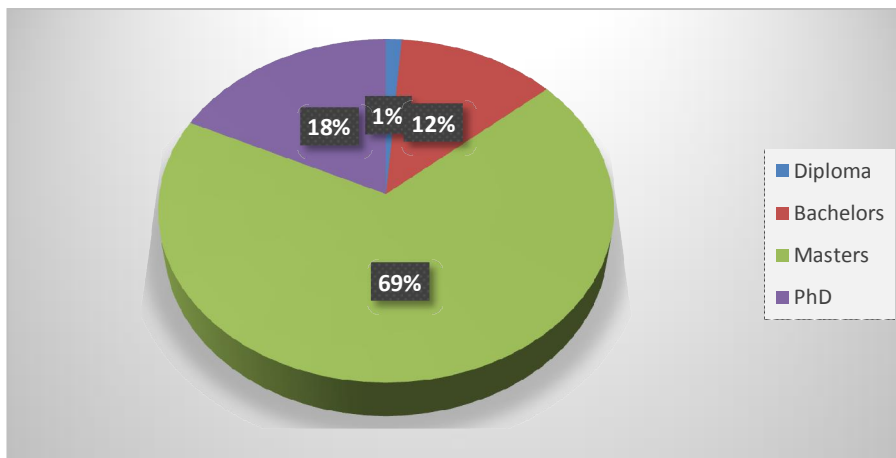
Figure 4.2: Respondents Educational Level

4.2.2 Work Experience

In the aspect of work experience. The study established the following information as indicated in figure 4.3 below. Majority (66%) of the respondents had 6 years and above, followed by 22% 3-5 years, while the rest 12% had 0-2 years.
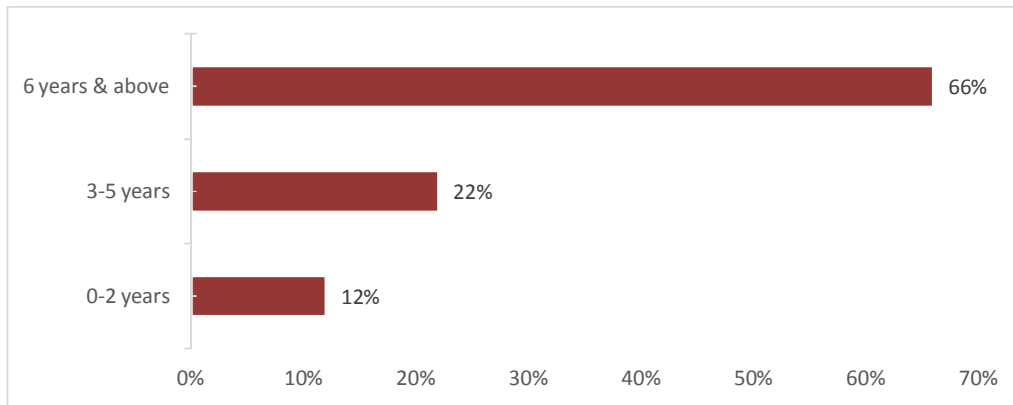
Figure 4.3: Work Experience

4.2.3 Specific Responsibilities

In terms of specific responsibility, the results are as indicated figure 4.4 below. From the findings, the ratio of librarians to lectures is almost the same
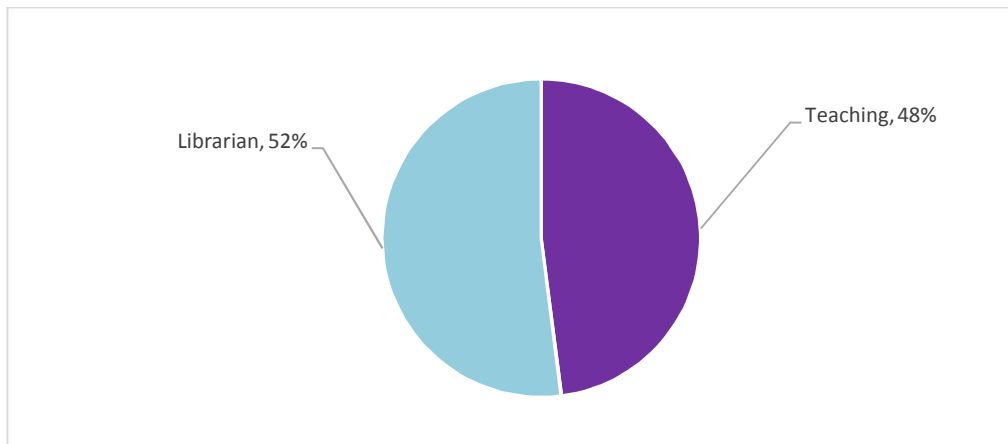
Figure 4.4 Specific Responsibilities

4.3 Influence of Institutional Repositories

The study sought to find out whether institutional repositories enable visibility and public value, promotes quality of teaching and scholarship at the university, provides open access, addresses changing information needs of communities as well as promotes open archiving. Findings shows that majority of the respondents strongly agreed (83.3%) followed by those who agreed 15.5%, while 1% of the respondents were undecided as indicated in table 4.1 pg. 58, the same trend was

similar on whether institutional repositories promote quality of teaching and scholarship, 82.2% strongly agreed, followed by 15.5% who agreed and 2.3% were undecided. The study further sought to find out whether institutional repositories provide open access to scholarly resources as well as provides open archiving. Regarding whether institutional repository promotes open access to scholarly resources, majority of the respondents strongly agreed 79.9%, followed by those who agreed 16%, undecided once were 2.9%, while 1% disagreed. In terms of whether institutional repository promotes open archiving, majority of the respondents strongly agreed 77%, followed by those who agreed 19.5%, those undecided were 1.7% and 1% disagreed. Further still, the study sought to find out whether institutional repository addresses the changing needs of the community. Majority of the respondents strongly agree 77.6%, followed by those who agree 21.3%, while 0.6% disagreed, and the rest 0.6% undecided. This indicates that institutional repository enables visibility and public value, promotes quality teaching and scholarship, addresses the changing needs of communities as well as promotes open archiving.

Table 4.1 Factors that influence adoption of institutional repository

Factors that Influence Adoption of Institutional Repository	5	4	3	2	1
Enables Visibility and Public value	83.3%	15.5%	1%		
Promotes quality teaching and Scholarship	82.2%	15.5%	2.3%		
Provides Open access to Scholarly resources	79.9%	16%	2.9%	1%	
Addresses the Changing information needs of communities	77%	19.5%	1.7%	1%	
Promotes Open archiving	77.6%	21.3%	0.6%		

4.4 Perception of User towards Institutional Repository

In terms of whether institutional repository will be effective in managing the research output, institutional repository is adoptable relevant and beneficial to the institution, will address the challenges users face in terms of access and use of research output. Findings as shown in figure 4.5 pg. 59, majority of the respondents (87.9% strongly agree that institutional repository will be effective in managing the research output, 2.9% disagreed, 8.0% were undecided. Regarding whether institutional repository is adoptable, relevant and beneficial to the institution, findings

indicated that 86.8%of the respondents strongly agreed, 11.5% agreed, while1.7% of the respondents were undecided. In terms of whether institutional repository will address challenges users face in terms of access and use of research output, findings indicate that 82.8% of the respondents strongly agreed, 14.9% of the respondents agreed, while 1.7% were undecided. This indicates that institutional repository will be effective in managing the research output, institutional repository is adoptable, relevant and beneficial, and will address the challenges users face regarding access and use of research output.
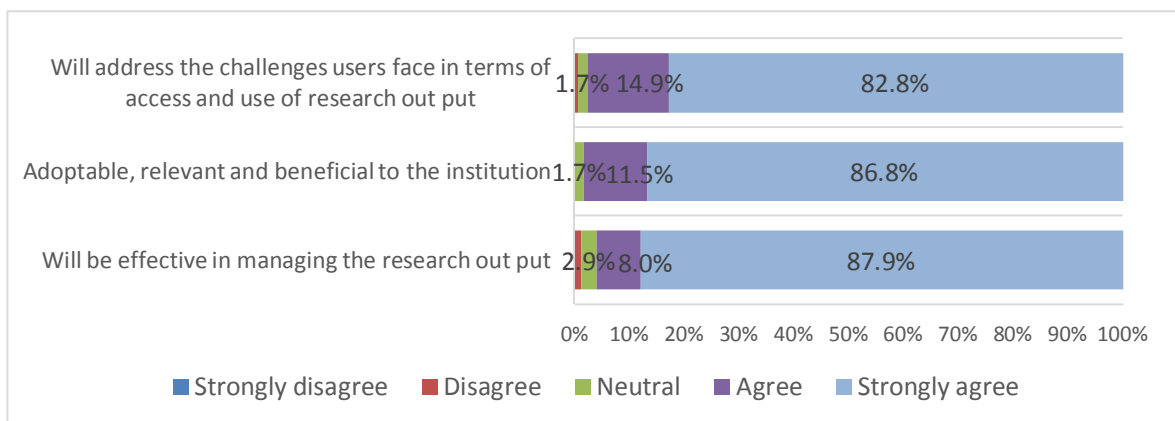
Figure 4.5: IR is Effective, Adoptable and Addressing challenges in access and use of the Institutional Repository

4.5 Management Support of the Institutional Repository

The study sought to find out whether the library management has supported the adoption of institutional repository in terms of enough computers, computer software, trained personnel for digitization and submission, availed scanners for digitization, provides sustainable budget for the repository, provides strategies to promote the service as well as deals with copyright issues, from the findings as indicated in table 4.2 pg.60, majority agreed (36.8%) that the library management provides enough computer for the repository, followed by strongly agree 36.2%, disagree 1.7% and undecided 1.7%. In terms of whether the library management has provided the computer software, findings indicate that majority of respondents strongly agree 40.2%, followed by those who agree 29.3%, disagree 3.4% while undecided 1.7%. In terms of whether the library

management has trained personnel for submission and digitization, findings as indicated in table below, majority of the respondents were undecided 50%, followed by those who agreed 33.9%, strongly agree 13.8%, disagree 1.7%, and strongly disagree 0.6%. The study sought to find out whether the library management has provided enough scanners for digitization of content. From the findings as indicated in table 4.2 pg.60, majority of the respondents were undecided 49.4%, those who agree were 32.2%, strongly agree 12.1%, disagree 5.7%, and strongly disagree 0.6%. Regarding whether library management has provided sustainable budget for the institutional repository , findings as indicated in table below shows that, the majority of the respondents were undecided 50%, followed by those who agreed 33.9%, strongly agree 12.6%, disagree 2.9%, and strongly disagree 0.6%. In terms of whether the library management has put up strategies to promote the service, findings are as indicated in table below. The majority of the respondents were undecided 43.7%, followed by those who agreed 35.6%, disagree 4.6% and strongly agree 0.6%. Regarding whether the library management has dealt with copyright issues, findings are as indicated in table below, majority of the respondents were undecided 50%, followed by those who agree 31.6%, those who strongly agree were 14.9%, disagree 2.3%, and strongly disagree 0.6%. This indicate that although the library management as provided enough computers as well as the computer software, management has neither trained personnel for submission and digitization nor provided scanners for digitization, in addition, there is lack of sustainable budget for the repository, as well as strategies to promote the service, further still the management has not dealt with copyright issues.

Table 4.2 Management Support of the Institutional Repository

Management Support of the Institutional Repository	5	4	3	2	1
Provides enough computers	36.8%	36.2%	1.7%	1.7%	
Provides the computer software	40.2%	29.3%	1.7%	3.4%	
Trains personnel for digitization and submission	13.8%	33.9%	50%	1.7%	0.6%
Provides scanners for digitization	12.1%	32.2%	49.4%	5.7%	0.6%
Provides sustainable budget for the repository	12.6%	33.9%	50%	2.9%	0.6%
Provides strategies to promote the service	0.6%	35.6%	43.7%	4.6%	
Deals with copyright issues	14.9%	31.6%	50%	2.3%	0.6%

The study conducted interview with one top library management staff on the management support. The interviewee reported that;

"Library management has availed computers for accessing the content of the repository but they are not enough, currently there about 10 computers at multimedia Centre therefore more computers should be purchased and since there is wireless internet connection users should be encouraged to carry their laptop pcs for accessing the repository"

"Currently there are no scanners for digitizing content, the research output are uploaded into the repository via a soft copy (CD-ROM)"

õMost library staff lacks the necessary information technology skills to manage the diversity of material types that are included in the repository. The ever changing information and communication technology calls for regular training of staff through workshops and seminars in order to enhance their technical know how to manage the repository. Furthermore, the interviewee confirms that there is still no decision made whether to put the repository under archives or to make it stand alone, repository should be made a fully functional unit independent from other sections of the library and should be fully funded".

"There are no clear policy guidelines with regards to access and use of the information resources, currently it is mandatory for graduate student to submit their research project on a CD-ROM, but policies are yet to be put in place to clearly state whether these research project will be accessed up to abstract or full text level".

4.6 Awareness of the Availability of Institutional Repository

The study sought to establish how the respondents learnt about the availability of institutional repository at the university, as explained in table below, the findings shows that majority (76%) learnt about the availability of institutional repository through notice updates through e-mail, 47% learnt through library web site, 2% brochures, while another 2% learnt through library tour and orientation as indicated in figure 4.6 pg. 62. The findings therefore show that the library management has not fully exploited other means of marketing and promoting institutional repository to the community.

Figure 4.6 How Users Learnt About the Repository
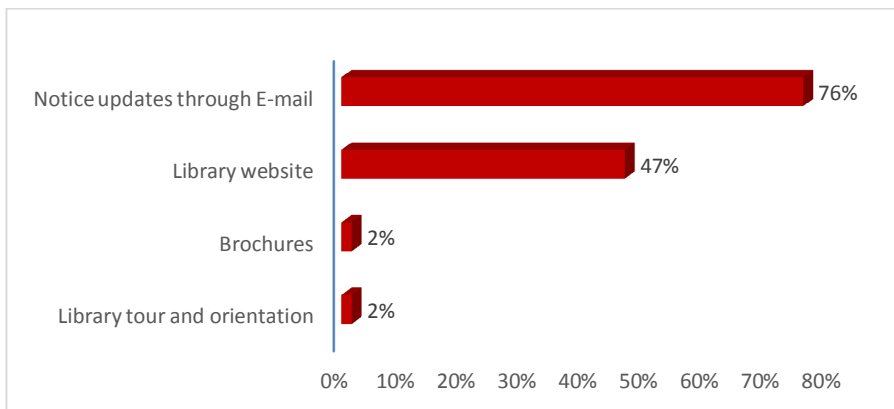
One library management staff interviewee reported that;

"Most library services and activities are communicated to users through notice updates through e-mail"

"The repository will be emphasized through the dean academic council, submission of the research output will be made mandatory, and it will be marketed through various committees and Electronic communication".

4.7 Strategies Applied by the University in Relation to Use of Institutional Repository

In terms of whether copyright issues, difficulty in content recruitment, and lack of training affects adoption of institutional repository, findings are as indicated in table 4.3 pg. 63, majority of the respondents (92.5%) strongly agree that copyright issues are a hindrance to adoption of institutional repository, 5.7% agree, 1% were undecided, while 0.6% disagree. Regarding whether difficulty in content recruitment affects adoption of institutional repository, the findings were as indicated in table below, majority of the respondents 86.2% strongly agreed followed by 10% agreed, 2.3% were undecided, while 1% disagreed. The study further sought to establish whether lack of enough training affects adoption of institutional repository. From the table below, majority of the respondents strongly agree 89.7%, those who agree were 6.9%, while 2.3% were undecided. This indicates that copyright issues, difficulty in content recruitment, as well as lack of training affect adoption of institutional repository. This implies that the library management has no laid down strategies to deal with the above issues hence the need for policies to deal with copyright, and content recruitment as well as training of staff in relation to use of the repository.

Table 4.3 Challenges that Hinder Adoption of Institutional Repository

Challenges that Hinder Adoption of Institutional Repository	5	4	3	2	1
Copyright issue is a hindrance to adoption of institutional repository	92.5%	5.7%	1%	0.6%	
Difficulty in content recruitment affects adoption of institutional repository	86.2%	10%	2.3%	1%	
Lack of training affects adoption of institutional Repository	89.7%	6.9%	2.3%		

One library management staff while interviewed reported that;

"Although there is mandatory submission of soft copy of the research project by post graduate student, there are no well-established structures for content recruitment from the academic and library staff. There is need for comprehensive policy that will guide collection of content from the academic and library including retrospective scanning of document necessary for the

repository". "There in need for staff training on submission and digitization of information resources"

4.8 Chapter Summary

This chapter, the results of the data analyzed has been presented. The findings of the study reveal that though the institutional repository is adoptable and very significant in managing the research output of the institution, there is a need for library and university management to train staff managing the repository since findings shows that there is lack of enough skills to effectively manage the repository, in addition, it was apparent that issues of copyright has not been dealt with appropriately, therefore there is urgent need to for the management to formulate policy guidelines to deal with copy right issues. A summary of major findings, conclusion and recommendations are detailed in the next chapter.

CHAPTER FIVE

SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter highlights the summary and discussions of the study findings including conclusion and recommendations. The study further makes recommendations regarding the adoption of institutional repository. Suggested areas for further study are also portrayed in this chapter. The purpose of this study was to assess the effects of adoption of institutional repository in dissemination of scholarly information in universities in Kenya with reference to United States International University-Africa

Objectives of the study included to:

- Find out factors that influence the adoption of institutional repository at the selected university.

- Examine the perceptions of users concerning the adoption of institutional repository at the university.

- Assess the extent to which the university management supports the adoption of institutional repository at the university.

- Establish the degree of awareness of availability of institutional repository at the university

- Determine the strategies applied by the university in relation to use of institutional repository at the university.

5.2. Summary of the Findings

The studyøs findings are summarized as follows:

5.2.1 Influence of Institutional Repositories

The first objective of this study was to find out factors that influence the adoption of institutional repository at the selected university. Several factors were established to influence adoption of institutional repository including visibility and public value, promoting quality of teaching and scholarship, open access to scholarly resources, addresses changing information needs of the community, and promoting open archiving. In terms of visibility and public value, 83.3% of the respondents strongly agreed, the same trend was similar on whether institutional repository promote quality teaching and scholarship with 82.2% strongly agreed as indicated in table 4.1 pg.58. Pfister and Zimmerman (2008:15) also identified justifications for institutional repository to include, increase in visibility and impact of research output, change in the scholarly publication paradigm and improvement of internal communication within the institution. Ezema (2011:480) noted that, the visibility of publications is usually associated to the extend in which the said published work is read and or cited by other scholars and in broad perspective how much the paper contributes to the growth of human knowledge. Nagra (2012:139) states that, institutional repositories allows the archiving of institutional research and scholarly activities which enables the academy to find and access the previous and current projects of the institution at one place and enhances the quality of scholarship through sharing and collaboration and this fundamentally creates the basis for new ideas for teaching and research dissemination and sharing in academic institutions. This therefore justifies the need for institutional repositories in universities in order to enable visibility and increased quality of teaching and scholarship.

Findings further showed that institutional repositories provide open archiving and open access to scholarly content. Findings as indicated in table 4.1 pg.58 shows that majority 79.9% of the respondents strongly agreed that institutional repository provide open archiving while 77% of the respondents strongly agreed. Ezema (2011:477) notes that, what is obvious with open access

movement is that there is democratization of availability and access to information and this will go a long way in bridging the information gap between the developed countries and the developing countries. This therefore calls for adoption of institutional repositories in universities in order to promote open access to scholarly content and encourage sharing of information.

5.2.2 Perception of User towards Institutional Repository

The second objective sought to examine the perceptions of users concerning the adoption of institutional repository at the university. To achieve this objective several questions were formulated which includes whether institutional repository will be effective in managing the research output , whether repository is adoptable, relevant and beneficial to the institution, and whether the repository will address challenges users face in terms of access and use of research output In terms of whether the institutional repository will be effective in managing the research output, 80.8%, 95.8%, and 87.9% of librarians, lectures, and students respectively strongly agreed that institutional repository will effectively manage the research output of the university as indicated in figure 4.5 pg.59. This therefore calls for commitment of the management to deal with issues that might hinder use of institutional repository such as copyright issues, provision of enough computers and other peripherals like scanners, training of personnel and strong marketing of the repository to realize its potential in terms of managing scholarly contents of the university.

Regarding whether institutional repository is adoptable, relevant and beneficial to the institution, findings reveal that 92.3%, 77.7%, and 83.1% of librarians, faculty, and students respectively strongly agreed that institutional repository is adoptable, relevant and beneficial to the institution as indicated in figure 4.5 pg.59. Interviewing one of the library management staff revealed that though institutional repository is adoptable, relevant and beneficial,   several factors were sighted

to be an obstacle to effective adoption of the repository including, lack of policy guide lines, difficulty in content recruitment, and lack of enough equipment such as scanners to support effective adoption of the repository. The faculty, researchers and the institutions in higher education play the significant role in the research and development of scholarly efforts in establishing flourishing repositories, faculty, researchers and institutions keep up with the latest scholarly communication trend that increases participation and role in the research and communication process as well as visibility and value to the community (Genoni, 2006).

In terms of whether institutional repository will address challenges users face in terms of access and use of research output, findings as indicated in figure 4.5 pg.59 shows that 84.6%,95.8%and 79.8% of librarians, lectures and students strongly agreed that institutional repository will address challenges users face in access and use of the resources, but the interview carried out with one library management staff who is also a member of the repository development committee reveal that despite the adoption of institutional repository, copyright issue has not been dealt with properly and therefore affects access and use of repository resources especially with respect to accessing full text document. Sculenburger (2008) contends that, an institutional repository help to ensure that scholarly activities and research projects undertaken at the institution are accessible to the public, as well as to the global academic and research community.

5.2.3 Management Support of the Institutional Repository

The third objective sought to assess the extent to which the university management supports the adoption of institutional repository at the university in terms of providing enough computers, provision of the computer software, training personnel for submission and digitization, availing enough scanners for digitization, provision of sustainable budget, put up strategies to promote

the service, and dealt with copy right issue. The findings as indicated in table 4.2 pg.60 shows that the library management has not availed enough computers this is evidenced by 23% of the respondent who were undecided, 36.8% agreed while 36.2% strongly agreed, this shows that the library need to allocate funds to purchase more computers to aid in access and use of the repository resources, an interview carried out on one library management staff revealed that there only about 10 functional computers in the library for accessing the repository resources, this call for a commitment by the library management to budget for more computers to enable effective use of the repository. In terms of computer software there was a general agreement that the library management has provided the necessary software for access of the repository resource as indicated in table 4.2 pg.60 whereby 40% of the respondent strongly agreed while 29.3% agree. Regarding training of personnel for submission and digitization of content, findings are as indicated in table 4.2 pg.60, majority (50%) of the respondents were undecided, 33.9% agreed, 13.8% strongly agreed, while 1.7%, and 0.6% disagreed and strongly disagreed respectively, this indicates that the library management has not trained personnel and therefore there is urgent need to provide training of the library staff mandated to manage the repository, in addition, the faculty should be trained on submission of content to the repository, due to diversity in content formats that pose challenges in uploading content to the repository, the staff managing the repository need to equip themselves with the necessary skills in order to effectively manage the repository. In order to benefit from open access initiatives, readers should improve the information and computer literacy skills. Similarly, it is equally important for researchers to become internet literate in order to use the electronic media environment more effectively for accessing and disseminating scholarly content. Lynch (2003) noted that, without commitment by the respective tertiary institutions to train staff and students to use institutional repositories, the institutional repositories have no case for existence. In addition, Makori (2009:19) suggests that, information professionals in academic libraries in Kenya can master the use of information and

communication technology systems and other competencies through motivation, encouragement and additional training as this will educate user in articulating information requirements and needs.

In relation to provision of enough scanners for digitization findings as indicated in table 4.2 pg.60 shows that majority (49.4%) of the respondents were undecided, (32.2%) agreed, (12.1%) strongly agreed, while 5.7% and 0.6% disagreed and strongly disagreed respectively. The library management therefore has not provided enough scanners for digitization of content, since the institutional repository is at initial stages there is need for more scanners to retrospectively scan documents that will be uploaded to the repository. In terms of whether the library management has provided sustainable budget for the repository, the majority (50%) of the respondents were undecided, (33.9%) agreed, (12.6%) strongly agreed, while 2.9% and 0.6% disagreed and strongly disagreed respectively. From the findings as indicated in table 4.2 pg.60, the library management has not provided sustainable budget for the repository, the library management therefore need to plan and budget for the long term sustainability of the repository, funds should be allocated for purchase of more computers, maintenance of the software, training and retraining of the staff in order to realize an effective adoption of institutional repository at the university. Regarding whether the library management has put up strategies to promote the institutional repository service, the study findings reveal that there no strategies put in place to promote the repository service. In research universities, institutional repositories are predicated on contributions by the stakeholders who include both academic staff involved in teaching and research and both postgraduate and undergraduate students as potential authors and readers of the materials in institutional repositories (Abrizah, 2009:19). Abrizah further posits that, whether or not institutional repositories become a part of the intellectual infrastructure depends on the extent of the university's community contribution. Faculty cites the variety of reasons for

hesitation to contribute to institutional repositories such as the learning curve for new technology, copy right issues, concerns over whether contributing to repositories is equal with publishing, fear that how quality of some materials in the repository taints their research, and worries about plagiarism.

In terms of whether the copyright issues have been dealt with, the findings as indicate in table 4.2 pg.60 shows the library management has done little to solve the copyright problem with regard to access and use of the repository resources. The library management needs to formulate policies that will guide access and use of the repository resources, options such as open access repositories should be advocated for, the aspect of law that covers diverse legal rights that exists in creative work. Intellectual property law embraces such exclusive rights in copyright, patent, trademark, industrial design, trade secrets and trade name (Christian, 2008:39). The author's right to reproduce work includes the right to convert the work from the paper format to digital or electronic format; this right is especially important since the development of institutional repository always entails scanning of previously published work in paper format and converting the same into digital format for uploading in the repository. Unless this is done with the permission of the copyright holder or under a statutory exception as fair dealing, this amounts to copyright infringement and eventually affects use of institutional repository resources.

5.2.4 Awareness of the Availability of Institutional Repository

The fourth objective was to establish the degree of awareness of the availability of institutional repository at the university. The study sought to establish how the respondents learnt about the availability of institutional repository. Findings as indicated in figure 4.6 pg.62, shows that majority of the respondents 47.7% learnt about the existence of the repository through notice updates via e-mail, 27.6% learned through library website and notice board, while 21.3% learnt

through library website, 1.7% learnt through other means such as meetings, 1% learnt through orientation and tour while 0.6% learnt through brochures. Despite the effort made by the library management to create awareness of the existence of the repository, many users still are not aware of the availability of the repository this therefore calls massive marketing of the repository avenues such as social media can be used to create awareness to a wider audience. One of the best ways to promote the development and use of open access institutional repository in developing countries is through advocacy. For such advocacy to be really effective, it must be undertaken by the stakeholders in the region (Christian, 2008:38).

5.2.5 Strategies Applied by the University in Relation to Use of Institutional Repository

The fifth objective of this study was to determine the strategies applied by the university in relation to use of institutional repository. Findings as indicated in table 4.3 Pg.63, shows that the library has not put any strategy to deal with copyright issues as evidenced by majority of the respondent (92.5%) who strongly agreed, 5.7% agreed, 1% were undecided while 0.6% disagreed. Regarding difficulty in content recruitment, findings indicate that majority of the respondents 86.2% strongly agree, 10% agree, 2.3% were undecided, while 1% disagreed. The purpose of institutional repository, in part, is to serve as open access repositories of the intellectual output of the faculty at the institution and to showcase the tangible results of those pursuits globally (Casey, 2012:2). Author further added that, the success of institutional repositories depends on contributions from the faculty, yet not all faculties contribute to repositories in their institutions. From the findings it was established that lack of training affects adoption of institutional repository, majority of the respondents 89.7% strongly agreed, 6.9% agreed, while 2.3% were undecided. Makori (2009:11) suggests that, information professionals in academic libraries in Kenya can master the use of information and communication technology

systems and other competencies through motivation, encouragement and additional training as

this will educate user in articulating information requirements and needs.

5.3 Conclusion

Based on the findings and discussions presented in the preceding sections, this study makes the

following conclusion:

- Institutional repository is an important concept in the digital era. No institution can survive minus the facility, findings shows that institutional repositories are vital since they enable institutional visibility and increase the value of institutions of higher learning. The revolution in scholarly communication brought by institution repository is vital in keeping scholarship vital and effective. It is clear that institutional repository is very powerful idea that can serve as an engine of change for institutions of higher learning.
- From the findings, it can be concluded that the library management has done little in terms of formulating policy guidelines that help direct users on how to appropriately access and use the repository resources. The policies and guidelines on access and use of repository resources play a vital role in providing users with rules governing rights and limitations for access and use of the repository materials.
- User training is very important if digital repositories are to be accessed, used, and managed effectively. It is important that one must have necessary skills. Readers should improve the information and computer literacy skills. Similarly, it is equally important for researchers to become internet literate in order to use the electronic media environment more effectively for accessing and disseminating scholarly content.
- Management commitment and support are vital for successful institutional repository implementation to ensure preservation and maintenance, information technology infrastructure, digital rights management and institutional mandate, setting up the repository is the major undertaking for the institution that requires commitment of financial and staff resources to ensure success in establishment and maintenance of the repository.

5.4 Recommendations

From the study findings and conclusion, the following recommendations are made

5.4.1 Influence of Institutional Repositories

Scholarship and scholarly communication are changing, an institutional repository is recognition

that the intellectual life and scholarship of universities will increasingly be represented,

documented, and shared in electronic form and that a primary obligation of universities is to initiate implementation of repositories that will enable stewardship over the research output and address the question about continuity of access of the research output by providing environment in which such output of scholarship can be managed and disseminated. In this case therefore universities are encouraged to adopt and implement institutional repositories in order to realize their value to the community.

5.4.2 Open Access Institutional Repositories

Open access is an alternative to the traditional subscription based publishing model made possible by new digital technologies and networked communications. Open access operates within the legal framework of copyright law, in the process of publishing, authors can transfer to publishers right to post their work on the internet, alternatively authors can retain the right to post their on the institutional repositories. Open access refers to works that are created with no expectations of direct monetary benefits and availed to users at no cost on the web for purposes of research and education. Any user can read, download, copy, distribute, print, search, or link to the full text without financial, legal or technical barrier. Universities therefore should endeavor to adopt open access institutional repositories to enable then solve the access and use barriers such as copyright issues.

5.4.3 Support of the Institutional Repository

Management commitment and support are vital for successful institutional repository implementation. Institutional repositories are capital intensive ventures that need enough allocation of funds for successful adoption and implementation; the institutional repository therefore should be made a separate fully functional unit within the library department, this will ensure that enough funds are availed to manage the repository services effectively.

5.4.4 Role of Education and Training

The ever changing technological innovations has made it difficult to remain in the old order,

The dynamics of digital information resources pose a lot of challenges to information professionals. The library management should come up with training programs to library and academic staff especially those mandated with the management of the repository resources, the library and academic staff should organize for regular workshops to enhance access and use of repository resources. It is important to train and encourage academic staff, library staff and students more on repository resources in order to increase their appreciation of these resources. Web base tutorials and guides should be developed to help users effectively utilize the repository resources.

5.4.5 Promotion and Marketing

The library management should embark on aggressive promotion and marketing of the repository service, the library should take advantage of social media platforms such as Facebook, twitter, whatsApp to create awareness of the existence and value of the repository to the community. Academic staff should be encouraged to grade citation of repository resources in reference on studentsø assignment; similarly, students can be encouraged to use repository resources more often through notices and by just pushing the link to them. The library management has to invest time, staff and resources in marketing the repository to users.

5.5 Suggestions for Further Research

The following area is suggested for further study.

5.5.1 Cross-repository Search Among Universities in Kenya

There is a clearly evolving idea of õfederatingö institutional repositories but yet little concrete exploration of what it means. Cross repository search swaps of storage between institutional repositories to gain geographical and systems diversity in pursuit of backup, preservation, and disaster recovery and other capabilities. Another area of federation is that faculty often doesnø stay in one institution for their entire career and frequently disregard institutional boundaries while collaborating with other researchers. The study therefore suggests that further research is done on cross-repository search among universities in Kenya.

5.5.2 Ethics and Open Access Repositories

The ethical case for Open Access repositories to research findings is especially significant in terms of public health that is being compromised by access restrictions. But the ethical imperative for OA is far more general: It applies to all scientific and scholarly research findings published in peer-reviewed journals. And peer-to-peer access is far more important than direct public access. Few libraries and information centers have formal process for policy creation, and even fewer have coherent strategies in place that can address issues to do with ethical and legal perspective. The study therefore suggests that further research is done on ethical and legal aspects of institutional repository, access and use in Kenya.

5.6 Chapter Summary

This chapter provides information on the conclusion, recommendation of findings of the above chapter. The study revealed that the adoption of institutional repository is adoptable, relevant and will solve the numerous challenges users face in accessing the research output of the university, but despite its adoptability enough has not been done regarding staff training and policy formulation that will see the effective adoption of the repository at the university. Therefore the

study recommends training for staff and policy formulation that will enable effective adoption of the repository, furthermore the study suggest area of further research including Cross-repository search among universities in Kenya and ethics in and open access repositories.

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APPENDIX I

INTRODUCTION LETTER

Daniel Okumu Ogenga
P.O. Box 14634-00800
Nairobi
June 8, 2015
Dear Sir/Madam,

RE: RESEARCH INFORMATION FOR A MASTERS PROJECT

I am a postgraduate student undertaking a Master of Library and Information Science at the University of Nairobi. As a partial fulfillment of the requirements for the award of the masterøs degree, I am conducting a study on **"Adoption of Institutional Repositories in Dissemination of Scholarly Information in Universities in Kenya with reference to United States International University-Africa "(USIU-A)"**, I therefore kindly request you to provide information regarding adoption of institutional repository at your institution.

The information you provide in this study will not be used for any other purpose apart from its intended academic use.

Yours faithfully,
Daniel Okumu Ogenga
Masters Student

QUESTIONNAIRE FOR STAFF

INSTRUCTIONS
Please respond by ticking (ç) against your preferred response for questions with options. For questions that require suggestions or comments, please use the provided space.

Background Information

1. Professional expertise:
   a) Librarian ☐
   b) Lecturer ☐
2. Highest educational level í ...
3. Working experience:
   a) 0-2 years ☐
   b) 3-5 years ☐
   c) 6 years and above ☐
4. Specific responsibilities:
   a) Teaching ☐
   b) Research ☐
   c) Librarian ☐
5. Indicate how you learned about the availability of institutional repository at the university
   a) Library tour and orientation ☐
   b) Brochures ☐
   c) Notice updates through E-mail ☐
   d) Library website ☐
   e) Any otherí í í í í í í í í í í í
6. To what extent do you agree or disagree with the following statement. Use the following scale of Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1.

NO	STATEMENT	5	4	3	2	1
FACTORS THAT INFLUENCE ADOPTION OF INSTITUTIONAL REPOSITORY						
1.	Enables visibility of the institution and public value					
2.	Promotes quality of teaching and scholarship					
3.	Provides open access to scholarly resources					
4.	Addresses the changing information needs of communities					
5.	Promotes open archiving					
PERCEPTION OF USERS TOWARDS INSTITUTIONAL REPOSITORY						
1.	Effective in managing the research output					
2.	Adoptable, relevant and beneficial to the institution					
3.	Address the challenges users face in terms of access and use of research out put					
LIBRARY MANAGEMENT SUPPORT OF THE INSTITUTIONAL						
1.	Provides enough computers					
2.	Provides the computer software					
3.	Trains personnel for submission and digitization					

4	Provides scanners for digitization				
5.	Provides sustainable budget for the repository				
6.	Put up strategies to promote the service				
CHALLENGES THAT HINDER ADPTION OF INSTITUTIONAL REPOSITORY					
1.	Copy right issues is an hindrance to adoption and use of institutional repository				
2.	Difficulty in content recruitment affects adoption and use of institutional repository				
3.	Lack of enough training affects adoption and use of institutional repository				

7. Suggest possible solutions to the identified challenges or problems associated with adoption of institutional repository.

í í
í í

QUESTIONNAIRE FOR STUDENTS

INSTRUCTIONS

Please respond by ticking (ç) against your preferred response for questions with options. For questions that require suggestions or comments, please use the provided space.

Background information

1. Programí í í í í í í .
2. Indicate how you learned about the existence of institutional repository at the university
   a) Library tour and orientation ☐
   b) Brochures ☐
   c) Notice updates through E-mail ☐
   d) Library website ☐
   e) Any otherí í í í í í í í ..
3. To what extent do you agree or disagree with the following statement. Use the following scale of Strongly Agree=5, Agree=4, Neutral =3, Disagree =2, Strongly Disagree = 1

NO	STATEMENT	5	4	3	2	1
	FACTORS THAT INFLUENCE ADOPTION OF INSTITUTIONAL REPOSITORY					
1.	Enables visibility of the institution and public value					
2.	Promotes quality of teaching and scholarship					
3.	Provide open access to scholarly resources					
4.	Address the changing information needs of communities					
5.	Promotes open archiving					
	PERCEPTION OF USERS TOWARDS INSTITUTIONAL REPOSITORY					
1.	Effective in managing the research out put					
2.	Adoptable, relevant and beneficial to the institution					
3.	Address the challenges users face in terms of access and use of research out put					
	LIBRARY MANAGEMENT SUPPORT OF THE INSTITUTIONAREPOSITORY					
1	Provides enough computers					
2.	Provides the computer software					
3.	Trains personnel for submission and digitization					
4.	Provides scanners for digitization					
5.	Provides sustainable budget for the repository					
6.	Put up strategies to promote the service					
	CHALLENGES THAT HINDER ADPTION OF INSTITUTIONAL REPOSITORY					
1.	Copy right issues is an hindrance to adoption and use of institutional repository					
2.	Difficulty in content recruitment affects adoption and use of institutional repository					
3.	Lack of enough training affects adoption and use of institutional repository					

4. Suggest possible solutions to the identified challenges or problems associated with adoption of institutional repositoryí í

APPENDIX IV

INTERVIEW GUIDE

1. Highlight how the institution supports the adoption of institutional repository.
2. Policy guide lines in place for the adoption of the institutional repository.
3. Strategies for marketing and promoting the institutional repository in the university.
4. State of ICT infrastructure in relation to institutional repository in the university.
5. Challenges faced in the process of establishing the institutional repository.
6. Measures put in place to ensure successful adoption of institutional repository

APPENDIX V

LETTER FOR DATA COLLECTION

UNIVERSITY OF NAIROBI

FACULTY OF ARTS

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

Telephone: +254 20 318262, Ext. 28095 Telegram: Varsity Fax: +254 20 2245566	P.O. Box 30197- 00100 GPO Nairobi, Kenya. dnjiraine@uonbi.ac.ke

Our Ref: UON/CHSS/DLIS/303   **19th March, 2015**

The University Librarian
United States International University – Africa
P. O. Box 14634-00800
Nairobi.

Dear Sir/Madam,

RE: OGENGA DANIEL OKUMU REG NO: C54/61012/2013

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

His topic is *"Adoption of Institutional Repositories in Dissemination of Scholarly Information and Communication in Institutions of Higher Learning with Reference to the United States International University – Africa"*

Any assistance accorded to him will highly be appreciated.

Regards,

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