

**INTEGRATION OF OPEN EDUCATIONAL RESOURCES INTO ELECTRONIC  
RESOURCES TO FACILITATE TEACHING AND LEARNING. A CASE OF  
SELECTED UNIVERSITY LIBRARIES IN KENYA**

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## DECLARATION

I declare that this project is my original work and has not been presented to any other institution for examination or certification. This project has been complemented by referenced sources duly acknowledged. Where text or data have been borrowed from other sources, these are specifically accredited and references cited using current APA system and in accordance with anti-plagiarism regulations.

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## **DEDICATION**

I dedicate this work to my parents for investing in my education and for being patient with me as i worked on the project.

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## **ABBREVIATIONS AND ACRONYMS**

<b>ANU</b>	Africa Nazarene University
<b>AVU</b>	Africa Virtual University
<b>CC</b>	Creative Commons
<b>CERIS</b>	Centre for educational research and Innovation
<b>CUEA</b>	Catholic University of Eastern Africa
<b>ICT</b>	Information Communication technology
<b>IR</b>	Institutional Resources
<b>IP</b>	Intellectual property
<b>KU</b>	Kenyatta University
<b>MIT</b>	Massachusetts Institute of Technology
<b>MMU</b>	Multimedia University
<b>OCL</b>	Open Content Licensing
<b>OER</b>	Open Educational Resources
<b>OCW</b>	Open Course ware
<b>ODEL</b>	Open ,Distance and ELearning
<b>OPAC</b>	Online Public Access Catalogue
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization

## **ABSTRACT**

Though the OER movement has been in existence for over a decade now, less has been said on their integration in the academic Libraries. Academic libraries may hold institutional content such as syllabi and past exam papers but Inclusion of lecture notes, presentations, and assessment materials has not been a common practice in the university libraries. It was noted that even if the materials are found in electronic formats these contents remains closed in virtual learning environments and are controlled by the lecturers or the departments providing the course. Their integration with library resources and search facilities including the online public access catalogue (OPAC) is generally insufficient. This project presents a study on the Integration of OER to facilitate teaching and learning in Kenya. To realize this the study sought to examine the available OER integration strategies in the selected academic libraries, assess the type of OER's integrated in the academic libraries, establish the OER policy that govern the integration of OER, establish the adopted licensing mechanisms in the integration of OER's and finally to explore the challenges faced by academic libraries in the integration of OER. An emphasis was placed on two public and two private academic libraries that is Kenyatta University library, Multimedia University, Catholic University of Eastern Africa and Africa Nazarene University. The four universities presented a representation of academic universities in Kenya and it formed a baseline for a an OER study in Kenya and three of the university have embraced Open Distance and ELearning (ODEL).The study's respondent included the university librarians and the library staff. The study used a population of 89 respondents. The research used census method of determining the sample size and thereby took the 89 to be the sample size. Data was collected using questionnaires, Interviews and secondary sources. Data from the respondents was presented using table, graphs and charts. The researcher noted that most of the academic libraries in Kenya have only integrated the E-books and E-Journals as the only OER's. Two of the university libraries have partnered with external OER providers and have integrated external OER's. True to the statement of the problem most of the Educational materials are locked into the ODEL platforms and not to the libraries. Only one university has formulated an OER's policy though it's not functional, the others use open access collection development and others uses the ICT policies in the integration of OER. Most of the Universities use creative commons licenses in the sharing of the OER's. Some recommendations were made which includes; development of OER policies, having OER awareness campaigns, collaborating with national, regional and international organizations that provides OER and finally to solicit for funds for the sustainability of the OER initiatives. Further research was recommended on the role of faculty members in the integration of OER in the institution of higher learning.

# **CHAPTER ONE**

## **INTRODUCTION**

This chapter presents background information of the study, statement of the problem, objectives of the study research questions, significance of the study, scope, limitations, and assumptions of the study, theoretical framework and conceptual framework and operational definition of terms.

### **1.1 Background to the Study**

As modern technology continues to grow and advance, educationists have found that a massive number of digital content is readily available from all corners. Most instructors are relying on internet to conduct their teaching and thus the amount of digital content continues to grow (Goswami ,S.2011). Fuente, G.et al (2012) notes that, until recently much of these resources were locked up behind login in within systems. He continues to say that even if the materials are found in electronic formats these contents remained closed in virtual learning environments and were controlled by the lecturers or the departments providing the course. It is for this reason such movements as Open Educational resources movements have been introduced to try and break down such challenges to boost and enable the sharing of educational and research content freely.

The term Open educational resources was first accepted at United Nations Educational Science and cultural organization (UNESCO) 2002 forum, on the impact of open courseware for higher education in developing countries. *William and Flora Hewlett Foundation* define OER as: "teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits

their free use or re-purposing by others. Open educational resources include:

- i. Learning content: The learning content includes courseware materials, full courses, and modules, learning objects, collections and journals.
- ii. Tools: software to support creation, integration, use and improvement of open learning content including searching and organization of content and learning management systems, content development tools and online learning communities.
- iii. Implementation resources: Intellectual property licenses to promote open publishing of material, design principles and localization of content (Gakindi,M.2010).

Robertson (2010) notes that as the OER become prominent in institution of higher learning, academic libraries need to take account of these resources and integrate the institutional produced content and selecting the external open educational resources that could benefit and could be of interest to their groups of library user. ACRL (2009) observes that the OERs need to be treated as additional resources classified by subject librarians to support students and faculties in the lifelong learning. Thus Robertson (2010) agrees that academic libraries and librarians should undertake such responsibilities as identifying, indexing, preserving quality OERs. The Libraries can also help users to locate the OERs by integrating them into their information literacy and study skills. The traditional role of a librarian is slowly fading and they are taking new roles. Librarianship as a field is filled with specialist and experts in various fields and this is helping the modern librarian to stand out as an instructor. Librarians themselves are slowly becoming instructors in that they teach information literacy skills and they can be involved in developing courseware for these course in that becoming contributors of OER's( Lynch

2008).Nazli,A.(2008) realizes that Librarians role of a mediator is still important where the librarians links their users with information resources. In this case Librarians may collaborate with educators to develop courseware which can be integrated with the traditional library resources for an affordable education. The integration of OER helps the library to save on their diminishing budget on textbook and focus on such information resources such as modules, tutorials, open courseware, online simulations and moocs.The OER users in an academic library includes the students and the teachers. The OER helps the users to gain access to the global content with no restrictions .The OER movement also introduces them to more choices on the learning resources ( Mishra S.2017).

The integration of OER in academic libraries to facilitate teaching and learning has been affected by a number of challenges. These challenges includes institutional, technological and others.

- i. Inadequate broadband connectivity
- ii. Absence of enabling policies
- iii. Insufficient funding
- iv. Lack of recognition
- v. Intellectual property issues

Karadia A.(2015) observes that there exists a number of libraries and library consortiums that have been on the forefront in producing OER's. An example of such library includes Harvard open collection programs .This is a program that is part of Harvard libraries and museums. Through these programs the library provides OER through this strategies:

- i. They provide a link to their institutional repository in its home page.
- ii. They provide the relevant metadata records in their library catalogue

- iii. An OER search interface is integrated in the library web page
- iv. Provides OER in the electronic collection
- v. They also include relevant OER in the subject reading list.

Adala A. (2016) notes that Open educational resources Africa (OER Africa) signed a memorandum of understanding with Africa Nazarene University which outlined ways in which Open educational resources Africa would help Africa Nazarene University to explore the use of Open educational resources in support of its curriculum offering. Working together to support ongoing design, development, and implementation of programs at Africa Nazarene University; integration as appropriate of Open educational resources into both Open and distance learning (ODEL) and face-to-face programs at Africa Nazarene University; showcasing of emerging best practices at Africa Nazarene University to be shared with the broader higher education community within and beyond Africa; lobbying the broader higher education community within and beyond Africa regarding the advantages of collaboratively creating and sharing intellectual investment in university education as a way to improve quality and improve longstanding cost-effectiveness; mobilizing release of Open educational resources in areas of prioritized strategic importance for African (and global) higher education; where appropriate, jointly preparing new project and funding proposals. Mays,T (2017) also noted that ANU have already introduced distance learning and other forms of resources based learning and have developed a learning management system as a Moodle under a platform known as eNaz. The institution is already moving from teacher based contact to resource based learning. He continues to quote that there are sustained engagement with OER at ANU



but attention is needed to address such factors as an enabling policy environment and time to interact with support processes.

Kenyatta University is one of the public universities in Kenya, through its Digital and Open Learning (DSVOL) School, the university provides online learning any time at any place. The school provides digital devices to online students loaded with educational content based on the units they have registered. Unfortunately the access is not open since login details are required. Kenyatta university library has an institutional repository with open access full textbook under the Creative common license. The library also has an OER initiative where they collaborate with South African Institute for distance Education(SAIDE).Together with KU faculty members SAIDE develops research method course materials for moddle creating chemistry and communication skills modules, reports on comparison between A Tutor and moddle (learning management systems) also they source for OER by giving a detailed information on online searches for relevant content and giving requests to universities around the world (Adala2016).

Catholic university of Eastern Africa (CUEA) is a leading international Christian university based in Nairobi, Kenya. CUEA University library has made a milestone in the integration of OER. From their library homepage the library have subscribed for Electronic resources, the E-Journals and the EBooks. They have also provided a link for tutorials on the information literacy guides. These tutorials includes on how to use Zotero and Mendeley. They have also included viper: a software for plagiarism check .Their institutional repository gives links to various conference papers published within the university, some conference proceedings ,journal articles and examination past papers. There is a gap where the library has not partnered with any OER international initiatives.

Multimedia University of Kenya is a state owned university and a constituent college of Jomo Kenyatta University of Agriculture (JKUAT) based in Nairobi, Kenya. MMU library is coming up and they have integrated some OER in their library. They have subscribed for Electronic resources which includes E-book and E-journals.

## **1.2 Statement of the problem**

Wiley (2006a) observes that Open educational resources movement is an international phenomenon that is growing very fast and gaining integrity in many educational circles as a conceivable solution in bridging the knowledge gap. Vollmer (2010) says that a wealth of literature in form of open educational resources supports the more traditional modes of learning of teacher /student contact. The duty of an academic library cannot be overlooked in facilitating teaching, learning and research. This is achieved by selecting, acquiring, disseminating and preserving of information materials both print and electronic resources. The libraries are dedicated in cultivating access to scholarly and educational informational resources for their users. Robertson (2010) notes that libraries may hold institutional content including syllabus and past exam papers. However inclusion of lecture notes, presentations, and assessment materials have not been common in the university and college libraries. Although the materials are found in digital formats, they remain closed in virtual learning environments and are controlled by the lecturers or the department offering the course. The Integration of the OER in the library search facilities including OPACs is insufficient. Education programs and department such as the ODEL have such platforms as Moodle which provides links to lecture notes and course modules only accessible to registered students. The students are given login credentials but the same rights are not given to the libraries. The materials as observed by

(Robertson 2010) are locked from the outside world; library users who are not registered for those particular units cannot access the materials even if they belong to the same universities. Thus the knowledge gap the researcher seeks to fill is the integration of open educational resources such as the lecture notes, course modules, class presentations in the library's collection to supplement the externally acquired information resources to support teaching and learning.

#### **1.2.1 Aim of the Study**

The aim of the study was to explore the integration of open educational resources by academic libraries to facilitate learning and teaching.. The study will sought to identify the underlying factors to the integration of OERs and to explore how the academic libraries are involved in the integration of OERs to facilitate learning and teaching.

#### **1.2.2 Objectives of the Study**

- i. To examine the available open educational resources integration strategies in the selected academic libraries to support teaching and learning.
- ii. To examine the types of open educational resources integrated by the selected academic libraries to support teaching and learning.
- iii. To find out the policies governing the integration of open educational resources.
- iv. To assess the adopted licensing mechanisms in the integration of open educational resources in academic libraries.
- v. To explore the challenges faced by academic libraries in the integration of open educational resources.

### **1.2 .3 Research Questions**

- i. What are the policies that govern the integration of Open Educational Resources in academic libraries?
- ii. Which types of open educational resources are you aware of that can support educational programs?
- iii. What are the available OER integration strategies in use in the academic library?
- iv. What are the available licensing mechanisms adopted in the library?
- v. Which are the challenges academic library and librarians face in the integration of open educational resources in the library collection?

### **1.3 Significance of the Study**

The goal of this study was to explore the integration of open educational resources in academic libraries in facilitating the teaching and learning at Multimedia University of Kenya, Kenyatta University, Africa Nazarene University and Catholic University of Eastern Africa. The findings will help the following groups:

- I. Library users-The Integration of Open Educational users will help the library users in saving their money in buying of commercial textbooks since courseware materials will be integrated in the library.
- II. Teaching Staff- With the integration of OER in the library the teaching staff will have support in their teaching and research since the materials will be availed online and will be freely accessible, the teaching staff will be able to develop their curriculum with a lot of ease since they have freely accessible educational materials to refer to.
- III. Library- Integration of OER in the library will help in saving the library budget in buying of commercial textbook since the Lecture notes, and other courseware materials will supplement what the Library have already acquired materials. Secondly the library will

be assured that there is quality research and widened access to information materials is achieved.

- IV. University at Large-Integration of OER in the various storage strategies will help the university to be visible; this will help in marketing the university and in ranking the University in such ranks as webometrics.

#### **1.4.1 Scope of the Study**

The study was designed to assess the integration of Open educational resources by academic libraries to facilitate teaching and learning.. The study was confined to a survey of two public university libraries (Multimedia University of Kenya (MMU) and Kenyatta University (KU) and two private university libraries. Catholic University of Eastern Africa (CUEA) and Africa Nazarene University (ANU).

#### **1.4.2 Limitation of the study**

The study was limited to the main Campus libraries, since integration of OER is done at the main campus and not to the branch libraries. Secondly the two public and the two chartered private university library will form a representation of universities in Kenya and it will form a baseline for the study of OER.

### **1.5 Assumptions**

Kombo and Tromp (2006) define Research assumption as the statement that describes an unknown but tentatively reasonable outcome for the existing phenomenon. The study's assumptions will be:.

- i. The academic libraries in Kenya are aware of the different types of OER that can support long life learning.
- ii. Academic libraries have adopted OER policies in the integration of OER.

## **1.7 Theoretical Framework**

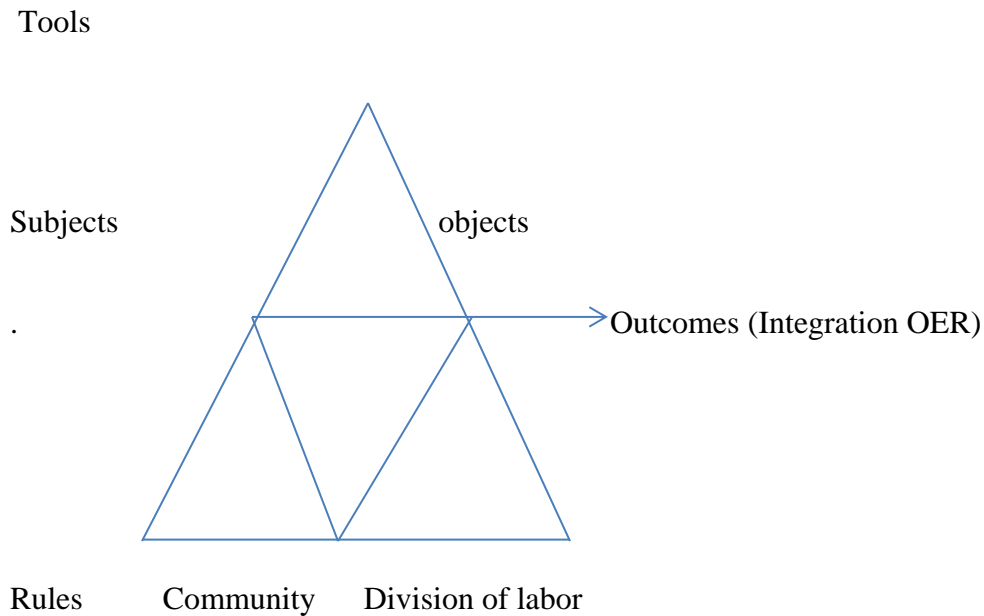
Mugenda and Mugenda (1999) defines Theoretical framework as the over-arching theory that guides the researchers study. It is an established and coherent explanation of specific phenomenon and includes the major concepts and universal laws and relationships that inter-relate these concepts together..

The study's theoretical framework will be based on the Activity Theory

The Research will employ the use of Activity Theory

### **Action theory**

Activity theory was developed by Engestrom (1987) The Activity theory will enable the researcher to investigate activity of Integration of OER within a social setting. It is also referred to as activity system. The activity Theory approach accepts that activity system is made up of the interaction between a subject(librarian) and an object(educational materials) in order to produce the outcome (OER).The interaction is mediated by a community(academic cultures and the professional support) and constrained or facilitated by tools(technological factors which include Learning management system ,library OPAC and Institutional repositories) , rule and division of labor (educational practices).The approach recognizes that the integration of OER changes the educational setting.



The activity in this research will be the integration of Open Educational Resources to facilitate teaching and learning in the selected academic libraries. The research will take the following elements to explain the theory further.

Subjects-depict the academic librarian

Object –creation of OER

Outcome-Integration of OER to facilitate teaching and learning.

Tools-Technology Library OPACS, Learning management systems, Institutional repositories

Community-Library, Faculty, OER user

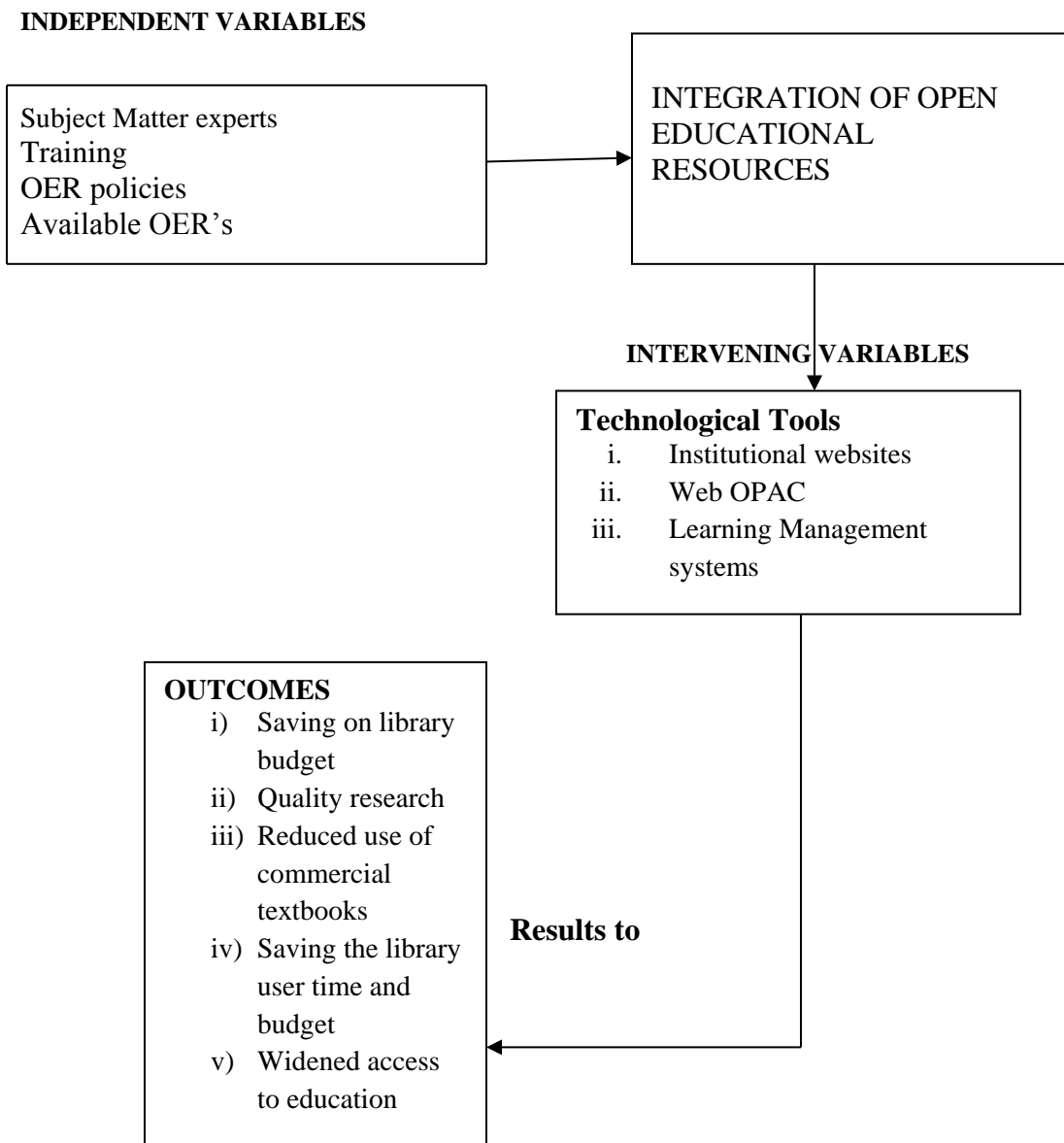
Division of labor-(Roles) Academic librarians as the researchers.

Rules-Organization culture and policies to depict which OER's are to be integrated.

### 1.7.2 Conceptual framework

According to Mugenda and Mugenda (1999) a Conceptual framework is when a researcher conceptualizes the relationship between variables in the study and shows the relationship graphically or diagrammatically .It helps a reader to quickly see the proposed relationship

**Fig 1.1 Conceptual framework**





Source: Researcher 2018

From the above conceptual framework it is clear that the integration of open educational resources in academic libraries will be influenced by the available technological tools which includes the Institutional websites, web OPACs and Learning management system. Successful integration of OER will be determined by the policies in place in the Library which defines what is integrated and where. Another factor will be the subject matter experts who are able to select and classify the materials to facilitate use and visibility. The outcome of the integration of the resources will be quality research among the users, saving on the library's budget, supporting faculties in their teaching, reduction in the use of commercial textbooks, saving on students' budgets and finally it will promote widened access to quality education..

## **1.8 Operational Definition of Terms**

Open Educational Resources – Educational content available on the web.

Academic Library- -Academic library in this context refers to a university  
Library.

Professional Librarian- -According to this study a professional librarian is one who  
holds a Bachelor's Degree and above in Library and  
Information Science

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The chapter reviewed relevant literature on the integration of open educational resources in academic libraries. The chapter reviewed literature on the strategies for integration of OER, benefits of open educational resources to both the library and the users, the role of academic library in the integration of OER's, licensing mechanism in the integration of OER's, literature pertaining to the types of OER's available and the challenges academic libraries face in the integration of Open educational resources.

#### **2.2 Strategies for integration of OER**

The benefit of the Open Educational Resources in the institution of higher learning cannot be overlooked. In this regard a concern was raised by (Shank,J.2014) over the permanency and the future of these resources. He notes that this creates an opportunity for the academic libraries. The professional librarians are called to work with the teaching staff, IT specialist and the administrators to integrate the OER into the existing library resources to ensure that the institutional resources are safe and easily accessible to their perceived users. Butcher. (2011) brings another concern over the sharing of the available OER. He gives a number of strategies where academic libraries can use to integrate the institutional developed resources:

- i. Link to the Institutional repository-.Butcher N.(2011) explains that most institutions and more universities are developing their own collections and making them available as OER or OCW(Open course ware).That the obvious is those resources need to be integrated with other externally acquired library resources. These resources then can be

accessible through the institutional repository. This means that the experts need to create links which can be accessed through the IR. The institutional repositories can include such examples as MIT open courseware, University of Oxford Open Stacks, MOOCs, and Open University, open learn

- ii. Through the social network-with the advancement of technology, social networks such as YouTube, twitter and Facebook have provided an opportunity for libraries to integrate the OER. An example is a site called Flickr ([www. Flickr.com](http://www.Flickr.com)) that allows publishing of photographic content using the creative commons licenses. Academic libraries can also employ the use of YouTube that allows the sharing of digital video materials. The libraries can also use twitter huddles and Facebook pages to post links to available OER to different categories of users.

A survey done by Fucini, G., Robertson, J. & Boon, Stuart on the role of libraries and information professionals in Open Educational Resources initiatives indicates that academic libraries are called to play a very key role in the OER movement, their role has not been fully recognized. The university libraries are committed to providing academic resources in support of teaching and research. He noted that the libraries hold such educational resources as syllabi and past papers, but such content as lecture notes, class presentations, tutorials, modules and collaborative materials are not commonly found in the libraries. He observed that academic libraries integrate the few OER they hold into their institutional repositories by giving a link. They also provide a link of OER as part of the Electronic resources subscribed. The academic libraries also provide an OER search interface integrated within the Electronic resources platform. They also provide relevant OER in the subject reading list to the students. Finally the academic libraries include relevant OER metadata records in their library catalogue.

Barker P .(2016) gives a number of strategies that can be used in the integration of OER and thereby sharing with the users. He talks of Institutional repositories and websites, general and global repositories, subject specific repositories.

#### **Institutional Repository and Websites**

Barker P.(2016) defines repositories as services hosting a variety of information resources that are organized in a thematic way and they facilitate the description of the resource. They includes:

- i)** MIT open courseware-MIT courseware comprises of a variety of OER derived from their course. They include course syllabuses, recordings notes and slides from faculties, reading list, assessment questions and assignment. Some of their resources are hosted externally .For example some videos on YouTube.
- ii)** University of Nottingham, U-Now .The U-Now repository has resources and links to OER used in University of Nottingham courses. They are released under CC licenses, although some have no formats licenses associated with them, they also provide link to third party resources related to some courses. They also provide tool to support the creation of resources and discovery of resources and their attribution-Now significant role is known in supporting the university commitment to open education.
- iii)** University of Oxford open spires-Oxford university has got a number of open education initiatives. For example Podcast projects focusing on specific topics. They have more general open content initiatives relevant to education. They are widely known on use of podcast that is syndication of recordings and metadata bt RSS feeds.
- iv)** Open University, Open Learn-Open learn conveys together several aspects of United Kingdom Open Universities external activity. This includes materials

linked to BBC TV series plus other courseware materials available as OER. Open learn website uses OER to bring people spontaneous interest to students. It has unique contents which have comprehensive treatment of topic rather than the normal selection of resources used in courses. Their OER are mostly on EBook collection rather than courseware materials. They also provide tools to support creation and remixing of contents through their open learn platforms.

### **General and Global repositories**

These are OER integration or sharing strategies that have a wider scope. They include such services as MERLOT, Solvonauts and OER commons.

- v) MERLOT-This is an OER project from California state University these are links to 10,000 of resources with associated comments. They have resources in all subjects and all levels of education. Though not all resources are open source licensed. The resources here are classified by type for example simulations, assignments and online courses. Their scope is global and the content is contributed by MERLOT members and is peer reviewed for their suitability for retention.
- vi) Solvonauts-This is provided by the University of Hawaii. They include open licensed resources with one hundred and ten resources described from over 1400 sites. They provide special searches for pictures videos, and audio. It is an open source software.
- vii) OER Commons-They have links to resources in all subjects in all levels of Education, They have 100,000 listed resources, although not all resources have open licenses. Some of the resources have limited reuse rights. They

have a global scope and have creation tools and community facilities for teachers

### **Subject specific repositories**

They are designed to engage and support discipline communities across multiple institutions. They are specifically used to host different varieties of resources and they use specified resource descriptors. They include:

- i) Humbox-Humbox hosts OER for humanity education which is drawn from dozen UK higher institution of education. Their OER formats include slide decks, text documents, video recordings, images and audio. The repository is built on an ED share platform drawn from the Southampton University. It is a format repository which can be used to encourage engagement from learners who share same education interests.
- ii) Core Materials-It's a catalogue of science and engineering OER materials. Their OER includes interactive texts, equations, data sets, animations and videos. The resources are associated with UK institutions of higher learning. The repository uses third party sites to display their resources. The third party includes; YouTube, Flickr, slide share, vimeo and scribds.
- iii) Kritikos-Kritikos were first developed to help in the discovery of visual resources for engineering education, but it has now adopted a more general scope. Some of the resources are not open licensed and thus have limited reuse rights. The repository supports learners to contribute to resource base by introducing a strong focus on its users who may be teachers or even students. It is based on two technologies which are google custom search engine API learning registry. It uses a third part to display its resources.

There exist a gap on the integration strategy where academic libraries mostly use the

institutional repositories in the integration and there is a need to embrace other strategies.

### **2.3 Perceived Benefits of Open Educational Resources**

Producers of open educational resources have different audiences in mind which includes learners, faculties, staff, educational resources, and other sectors like the public and even private sectors. The OER are coined to benefit each and every audience in their different capacity of interaction with the resources. The use of OER has an impact on overall engagement and the perceived benefit includes: the removal of barriers to education, equalizing access sponsoring of high quality content.

#### **2.3.1 Professional Recognition and Enhanced Profile**

(Mtebe & Raisamo, 2014) notes that OERs helps an institution to receive professional recognition and enhanced profile. Open educational resources extend an institutional recognition and profile both nationally and internationally. OERs help in ranking of universities rather known as web metrics. Massachusetts institute of technology demonstrated the increase of new students by 35% when students became aware of freely available courses. The introduction of OERs in institution of higher learning also attracts funding agreements and partnerships.

#### **2.3.2 Reducing Social Inequalities**

OER use in Institution of higher learning helps to bridge and to reduce social inequalities. The resources widens access of education to disadvantaged learners especially those who are located in inaccessible places and cannot access post-secondary education due to work to family commitments.



### **2.3.3 Increased Student and Educator Access to Educational Materials.**

Omollo (2011) notes that, when OERs are distributed electronically it becomes easy to access copy and even share them. This is evidenced in all electronic learning resources whether openly licensed or not. Now with the open licensed like OERs it becomes easier to share materials with wider audiences. Rather than restricting access to enrolled students, OERs are available to students and educators in a variety of settings. Students are able to access resources developed by their own faculties as well as from faculty from other universities. One of the goals of OERs is to distribute educational resources among students and also among educators which have been realized. Omollo continues to say that sharing is legal and actively encouraged.

### **2.3.4 Eased Development of New Programs**

New programs are been developed in universities due to the increased need for education. The expansion of new teaching programs has been made easier by the development and adoption of OERs. Faculties and university administrators are able to preview how other topics are taught at other institutions. Open Licensing allows faculty to contextualize and translate OERs to suit their local needs (Omollo, 2011)

### **2.3.5 Improving Educational Experiences**

Gourley & Lane, (2009) explains that open educational resources helps in improving education experiences. He notes that open education is a philosophy and a pedagogical shift. The resource improves education by providing educational materials that are restricted or locked down by copyright laws.

### **2.3.6 Enhanced Relationship with Major Partners**

Use of open educational resources in academic libraries enhances and strengthens relationship with major partners. This was witnessed at the Open University of the United

Kingdom , after they embraced the OER many strategic partners came up to partner with the university. The partners which included National institute of adult continuing education, Commonwealth of learning, contributed to growing relationship in the worldwide Moodle open source virtual learning community which promotes and powers open learning, distance and electronic learning(ODEL).

#### **2.3.7 Increased Student Engagement with the Local Curriculum**

Omollo (2011) observes that the growing class sizes limits the in person interaction between faculties and students. Thus in order to supplement the limited time they have with students for classroom and other demonstrations, several faculty are interested in creating interactive ,self-guided learning materials that students can work through on their own and in their own time. The goal is to go beyond the standard PowerPoint lecturers to design dynamic, media rich, standalone instructional materials. This done by distributing OERs electronically either online or even through CD ROMS which enables the students to access the materials on a computer at their conveniences.

### **2.4 Role of the Library in the Integration of Open Educational Resources**

Brophy (2000) describes an academic library as the heart of the university in that it is the source of life in institution of higher learning. He continues to quote that the university rather the academic library reflects its university. Thus the role of an academic library in use of open educational resources cannot be disputed. An academic library is paramount in integration of OERs in the following ways:

#### **2.4.1 Metadata and Resource Description**

According to Keyser, (2012) Metadata is data that defines the content, formats or the characteristics of a data record or information resource .It can be used to define highly organized resources or amorphous information such as text documents. They can be

applied to E-resources, digital data and also to printed books, journals and even reports. He continues to quote that creating metadata was always part of library work. With different metadata standards academic libraries and librarians are involved in describing OERs and creating relevant metadata to help users in retrieval of the resources from the web.

#### **2.4.2 Managing Intellectual Property Rights**

Jones, (2006), quotes that the traditional role of the library within the academic institution has mainly been collection management and access of external materials. External meaning any content brought in either through subscription, purchase or other mechanism. However new digital library systems are changing this relationship by providing a means to capture locally produced material for example teaching and learning materials objects like OERs .The libraries are mandated by the institution to manage licenses by providing a framework to systematically allocate and identify rights. Intellectual property thus becomes the heart of the OERs, the legally defined teaching staff and students access the OERs licensed electronic resources through their library can access most of the literature. The Library understands more on the term “fair use “to not fully licensed materials and could be in a position to advice the academic circle to avoid legal complications.

#### **2.4.3 Digital Literacy**

Reitz (2004) defines digital literacy as the skills needed to retrieve information efficiently and communicate well using computer hardware and software, based on a theoretical understanding of computer technology the way it can be used to do specified tasks. (Kilduff, 2014) noted that library users appreciate the importance of developing their digital skills and competencies for lifelong and effective learning. Robertson (2010) notes

that academic libraries can be involved with OER is by extending what they do in teaching the literacy skills to users classes to help in directing users in selecting and evaluating OERs. He continues to quote that locating and using OERs requires hire special skills relating to information literacy and study skills.

#### **2.4.4 Institutional Repository and Preservation**

Libraries themselves are repositories and have always dealt in the management of repositories for their users (Jones, 2006). Jacobi, (2013) quote that after the MIT declared their course materials free and available online at no cost, the quantity of OER has increased and their use requires filtering. There has emerged a new role for library information specialist of content curators. After all this has been their traditional role of collecting, describing, disseminating and preserving information resources. Jones, (2006) observes that Libraries themselves are repositories and are called to provide to its parent organization content preservation and as they preserve they need to attract content into the repository content they need to offer a guarantee to provide the content in a long term basis.

#### **2.4.5 Providing Access to Trusted Relationships**

Academic libraries have an upper hand and hold a central position in the lives of the members of the institution despite the changes technology has brought and the wide use of intellectual and educational resources available on the internet. Librarians hold relevant skills which includes outreach and education, curriculum development and instructional support which benefits the open educational resources.

#### **2.4.6 Marketing of Open Educational Resources**

Kumar, (2011) notes that many academic institutions maintain institutional open access repositories where libraries and library and information professionals are extremely

involved. He continues to say that the new age library and information professionals help the institutions by increasing visibility and outreach of local open access resources OERs included through marketing, advocacy and outreach. The library and the information professionals promote OER to all of their users .He says that traditional library orientation programs in reputable academic libraries demonstrate OERs together with their other subscribed digital collections thus creating awareness on the existence of the OER.

## **2.5 Types of Open Educational Resources (OER)**

Shaffauhauser, (2014) defines open educational resources as the freely accessible teaching, learning and research resources that are located in the public domain or have been released under an intellectual property license and permits their use and reuse by others. The different types of OER includes the following audio podcasts, slides and class presentations ,electronic books (EBooks) Electronic Journals (E-journals), open courseware's, interactive games and simulations, video lectures /tutorials .

### **2.5.1 Audio and Video Podcast**

Smaldino, (2011) notes that a podcast is an audio file that can be downloaded to a hand held device for example a iPad or a cellphone. They can also be streamed, meaning the audio file can be stored on a network server and can be availed for listening on an audio device. The podcasts are provided to students or even to teaching staff so as to improve their learning experience. He continues to quote that class lectures can be recorded and provided to students as podcasts that they can access them or review them as study guides. They are also used to access past news programs, famous speeches or other related educational resources that learners can listen to actual broadcast relating to events or concepts they are study in class. Podcasts can also be recorded as video formats which

provide the user with a visual element and demonstrations that can help them with independent work outside the classroom setting. For example students might watch a podcast on how to solve a math problem or how to create a website.

### **2.5.2 Tutorial Modules**

Shank, (2014) defines tutorial modules as self-paced and that they provide guided learning exercises that teaches by example. The modules require the learners to complete certain tasks as they progresses on. It's a step by step and moves in a progressive order. That is from the beginning to the end. The tutor provide the learner with an introduction to the course from the beginning and gives a summary at the end with what the learner is expected to have done at the end of the course. Smaldino, (2012) adds that tutorials working with an agent in form of a person, computer software, or special printed materials that can present the content, poses questions or problems, requests the learners responses, analyzes the responses and supplies appropriate feedback and provides practice until the learner demonstrates a predetermined level of competency.

### **2.5.3 Open Courseware**

UNESCO, (2002) Defines open courseware as the OER's that provides educational resources for institution of higher learning (colleges and universities included) teaching staff to adapt according to their curricular and pedagogical requirements. The open courseware includes the technology to support open, access and use of the courseware. The open courseware includes a minimum of the course description, syllabus calendar and at least includes lecture notes, demos, and simulations, illustrations, learning objects, reading materials, assessments and projects. However Open courseware does not provide open learning support for students.

#### **2.5.4 Online Simulation**

Shark, J (2014) Defines computer simulation as imitation or that represents a real world process / procedure or a situation and aids a learner to an experience but virtually. Simulations do not replicate a function, process or a system but its goal oriented and depicts the outcomes of the function, process, or the system. The simulations allow the learners to face a scaled down version of a real life situation .Smaldino, (2012) quotes that the simulation allows a realistic practice without the expense or risks otherwise involved. Simulations represent a scenario that may be too complex to bring into the classroom. A simulation offers an advantage to the learning environment where they can be used by students of all ability levels. There are two types of simulation. The computer software simulation and a web based simulation which is accessible via the internet.

#### **2.5.5 E-Books**

Obradovic,K.M (2011) Defines an EBook as any piece of electronic text regardless of size or composition excluding journal publications, made available electronically for any device(handheld or desk bound) that includes a screen. The oxford dictionary of English defines an E- book as an electronic version of a printed book which can be read on a personal computer or a handheld device designed specifically for this purpose. Obradovic,K.M (2011) quotes that modern universities encourages and promotes the development of flexible educational models, the use of new teaching technologies and computer assisted learning management systems. Flexible, distance and E-learning initiatives involve engaging students in online learning experiences. Together with other educational online, E-books offer excellent support for teaching and learning-books are synonym to open textbooks which are textbook licensed under an open copyright license and made available online to be freely used by learners, tutors and members of the public.

The open textbook is made available either in print-book or audio formats and can either be downloaded or acquired at a little cost or no cost. In the OER movement E-books are seen as a solution to challenges with traditional print textbooks which are not easily accessible and affordable. The difference between an open textbook and a traditional textbook is that with copyright permissions on textbooks allow the public to freely use, adapt and distribute the material so long as the author is attributed.

#### **2.5.6 E-Journals**

Reitz (2004) defines an electronic journal as a digital version of a print journal or a journal like electronic publication with no print counterpart, made available via the web, Email or other means of internet access. He continues to say that some web based electronic journals are graphically modeled on the print version. The Library may have tailor made E- Journal articles which can supplement the lecturer's notes.

There is a gap on the integration of courseware material in the library, most of the integrated materials are few and the research needs to fill that gap.

### **2.6 Licensing Mechanism in the Integration of OER in the Academic library**

Altikin,D Brown,J.& Hammond ,A (2007) notes that Licenses are necessary since many countries have laws that govern how people reuse, creative works without the designation of an open license. Educational resources are restricted by traditional copyright laws and their sharing is limited. Thus the research on open licenses .The open licenses have evolved in an effort to protect author's rights in environments where content especially the digitized materials can easily be copied and distributed without the permission. Open licenses ensures that copying and distribution happen within a structured legal framework which is more flexible than the normal all rights reserved status of copyright. Examples







of the licenses which are used in sharing and re use of OER include copyright, creative commons and public domain.

### **2.6.1 Creative Commons**

Creative commons as illustrated by (Altikin,D Brown,J.& Hammond ,A 2007) is a parameter of share, reuse and to remix legally and it is an OER movement avenue to provide free tool that permits authors, scientist, artists, educators to mark their creative work with the freedom they want it to have. Creative commons (cc) play a noteworthy part in making openness possible. It has a particular interest in and engaging with educational materials. Fitzgerald, B. (2007) explains that CC is a nonprofit organization that is based in San Francisco that and reuse enables the sharing of creativity and knowledge through a legal tool. He continues to quote that CC IS aimed at creating a distributed information commons by encouraging copyright holders to license their materials through open content licensing protocols and promoting better identification, negotiation and reuse of content. This is for the purpose of creativity, education and innovation.CC also promotes open access research and it's a model for facilitating an effective and easy way in which inactive copyright materials like archives and materials in the museum can be given a revived life.

### 2.6.1.1 Elements Included In the Creative Commons

The following four elements are included in the creative commons license to depict what can be done with certain contents:

Icons	License	Parameter
	<b>BY</b>	Attribution: Others can copy, distribute, perform and remix your work if they credit your name as specified by you.
	<b>ND</b>	No Derivatives Works: Others can only copy, distribute, or perform verbatim copies of your work
	<b>SA</b>	Share Alike: Others can distribute your work only under a license identical to the one you have chosen for your work
	<b>NC</b>	Non-commercial: Others can copy, distribute, display, perform or remix your work but for non-commercial purposes only.

### 2.6.2 Copyright Licenses

According to Reitz ,J.M (2004) quotes that copyright are the exclusive rights granted by a government to an author, editor, compiler ,composer, play right, publisher or distributor to publish ,produce, sell or distribute copies of a literary, musical dramatic ,artistic or other work , within certain limitations( fair use and first sale). Fitzgerald,B. (2007) notes that in the online environment an amount of information is subjected to copyright laws. If

librarians and educators included need to share knowledge, they need to be conversant on how copyright operates. Although copyright law adopts the international convention, it's similar in most of the countries. The copyright depicts that we cannot share, reproduce, copy or distribute to the public copyrighted materials without receiving permission from the copyright owners. However there are exceptions where permission may be provided by a statutory or compulsory license (which includes levy, loyalty or license fee) are not required when an insubstantial part used fair use exists. Private use or educational use in some instances will amount to fair dealing or use. The digital world poses a great avenue for infringement of information materials but such cases may lead to civil liability in form of damage or criminal responsibilities which is either through fines or serving a jail term. There is a gap on creative licenses where most libraries do not understand the various elements on creative commons licenses.

## **2.7 Challenges Associated With Integration of Open Educational Resources**

Carina B.&Belinda T.(2011) observed that in spite of the evolution of the OER movement challenges to its use and adoption still exists which includes: Intellectual property and copyright issues ,quality of resources available, lack of awareness of the OERs, technological fragmentation.

**Intellectual Property and Copyright Issues-**Marilyn et al (2012) adds that libraries face a challenge on licensing models. The publishers need to provide a multi- user licensing. Libraries need to ensure that all OER allows multiple concurrent usages through leased ownership. This now becomes a new role for librarians during the contract –negotiation process with publishers and vendors providing the OER .Mtebe &Raisamo (2014) quotes that some lecturer lacks knowledge about intellectual property and copyright

issues. They do not understand which OERs should free to access and which rights belong to authors and which belongs to the institution .Copyright issues are sensitive issues which requires advice from experts. Intellectual and copyright issues requires that the involved parties to develop and implement reuse rights and investigation of digital rights management for sensitive materials (Jones, R.et al 2006) Adala A (2016) notes that intellectual property rights (IPR )and copyright issues is one of the challenges facing the integration of OER in Kenya. This is because Institution of higher learning requires permission from the IPR owners so as their materials may be availed online publicly.Gakindi (2012) says that Publishers fears to publish their materials online and they argue that other institution may copy and reuse them for commercial purposes.

**Sustainability-**Atkins,D. ,Brown,J.& Hammond ,A.(2007) says that one of the challenges academic libraries face in the integration of OER is long term sustainability. They continue to say that initial startup cost may not be much but sustaining the project may cost a lot of money even though the OER's are free. The maintenance cost through internal funding may be a problem to the libraries. The funding of libraries continue to contract while the users usage continue to increase and this now poses a threat to the sustainability of OER. However the library management may come up with ways of sustaining the projects by encouraging the institutions to buy into the OER movement to ensure their sustainability. Secondly they may encourage membership based consortia so as to share costs and also the expertise of sustaining the OER movements.

**Quality of Resources Available-**Quality of the OERs is becoming an issue to some instructors and also to the users this is as a result of information overload. Their argument is that they could not find resources which are relevant to their situations. There is also a

question over the OERs found in the internet. Another argument is that the OERs are not exhaustive enough, they are shallow and that in order to use them one need to edit then so as to suit their syllabus and context needs (Mtebe &Raisamo 2014).

#### **Lack of Awareness of Open Educational Resources in Academic Institutions-**

A research done at Tanzania indicates that some librarians are still unaware of the existence of OERs. Mtebe &Raisamo (2014) observed that for those who are aware of the resources lacks knowledge of how to access them. Most of them are uninformed and the resourceful persons available are very few who can help them to use the Open educational resources. The projects are irrelevant if the open educational resources remain unutilized.

**Technological Fragmentation-**Technological fragmentation refers to changes in technology and creates incompatibility among the software and hardware involved in the use of OERs. Obsolescence is a common problem in the technology field and can only be curbed by use of compatible content and repository standards to prevent isolated islands of incompatible content.

**Institutional Barriers-**Carrina,B & Belinda ,T (2011) Quotes that at many academic institutions there are noteworthy barriers to the creation and integration of OER initiatives. He continues to say that there is a greater academic concern of certain risks including loss of control and threats of reputations which include mistakes made to be permanently accessed and out of date materials remaining in circulation. There is also a reluctance to give away their content to the public. This now calls for policy makers to commit themselves to long term process of consulting and reviewing of the available

content to keep it updated and correct any mistakes made. The institutions then are required of having a start funding to be assured of continuity of the projects.

## **2.8 Future of Open Educational Resources**

Atkins,D.,Brown,J. & Hammond ,A.( (2007) observes that the rapid improvement in computation rates, information transfer and storage capacities has offered platform for OER to grow and to thrive. He continues to say that as mobile phones becomes smarter (smart phone) and they help in the massive communication of education and thus the continued use of OER.

**Increased Access to content on the Web-**Carrina &Belinda (2011) promises a future for OERs quoting that in the recent past there has been an increase of access to content on the web. He elaborates by saying that the increased growth of digital content with the modification of search engines like Google has helped to change the user's behavior by making it possible to seek, search and consume any content. He says that the consumer oriented approach to web 2.0 and the move to consumption to production is changing the landscape for the use of the web for educational purposes. With the coining of web 2.0 as a concept with a focus on user participation and openness and the mix of such technologies as blog, wikis, social networks, social presence systems, web content management systems, collaborative editing tools, news sharing and ranking

**Portals and Repositories-**Marshals & Cassaly (2006) observed that the last ten years has witnessed development in the use of portals and repositories in the institution of higher learning. The use of portals and repositories are promoting the use of high eminence open educational resources. A repository contains articulate pool of materials while a portal points the users to large amounts of materials across the web. The widely use of portals

and repositories guarantees the world of quality, value added easy to use and reuse of Open educational resource.

## **2.8 Summary**

It was found out that academic libraries in Kenya have embraced technology in their service delivery. A lot has been said on the role of library in the delivery of E-Learning and the library support to the distance learning (Fuente 2012). However little has been done on the integration of OER in the academic libraries to facilitate teaching and learning. As it were the library is the heart of the university and thus the research hoped to address the knowledge gap on the integration of OER by academic libraries by establishing the strategies that govern the OER integration, type of the OER integrate in the academic libraries, the policies that govern the OER integration and the challenges faced by academic libraries in the integration of OER.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

The chapter outlined research design, population sample, sampling techniques, research instruments and methods of data collection, presentation and data analysis

#### **3.2 Research Design**

Research design is a structure of research. It's an arrangement of conditions for collection; analysis of data in a manner with an aim of combining relevance with the research purpose (Kombo & Tromp 2006). The researcher used descriptive survey design.

Descriptive design is a method of collecting information by interviewing or administering questionnaires to a sample of individuals. It is designed so that information about a large number of people or the population can be represented by responses of a smaller group of subjects.. Descriptive research design describes the affairs as it is and the researcher reports the findings. This design was used in the study since some of the data could be analyzed using descriptive statistics. This method helped in portraying the real situations on the integration of OER to facilitate teaching and research at Africa Nazarene University, Multimedia University, Catholic University of Eastern Africa and Kenyatta University libraries.

#### **3.3 Variables**

A variable is a measurable characteristic that assumes different values among the subjects; it is a logic way of expressing a particular attribute in a subject. In this research the dependent variable was the Integration of Open Educational Resources. The integration of OER depended on the availability of technological tools which includes the



Learning management systems (LMS), Library OPAC and the Institutional repositories.

Therefore the Independent variables include:

- i. Subject matter experts
- ii. Training
- iii. OER policies
- iv. Available OER

### **3.4 Location of the Study.**

The researcher used a survey of two public and two chartered private academic library .The study's location was at, Multimedia University of Kenya (MMU), Catholic University of Eastern Africa (CUEA), Africa Nazarene University (ANU) and Kenyatta University (KU) Main campuses Libraries. The location was chosen since the two public and the two private universities formed a representation of the universities in Kenya. The locale was also chosen because the four universities are involved in innovative learning programs that take advantage of advancement in ICT. The locales have adopted the blended modes of study including Open and Distance learning education (ODEL.) And part time studies. Thirdly the locales have also adopted online repositories for their research and instructional materials and most of these materials are in open access.

### **3.5 Target Population**

Target population refers to a complete set of individuals, cases, or objects with common observable characteristics. It is a large group from which a sample is chosen. The target population of this study was all the librarians from the four survey universities libraries. The target population was 89 respondents from the four selected university libraries as tabulated below.

**Table 3.1: Target Population**

Target population strata	Population	Percentage
(%)		
Multimedia	13	14.6
Kenyatta University	43	48.4
Catholic University of Eastern Africa	16	17.9
Africa Nazarene University	17	19.1
<b>Total</b>	<b>89</b>	<b>100</b>

Source: Records from the Four University Librarians office.

### **3.6 Sample Size**

According to Kombo and Tromp (2006), sampling size is the process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of characteristics found in the entire group. Mugenda, (2003) defines sampling as a process of selecting individuals to represent the larger group from which the sample was selected. The researcher used a census method for selecting a sample size. Census is that kind of a survey that measures the entire target population (Mugenda &Mugenda 2013).The researcher used all the professional librarians in these universities libraries. According to this research a professional librarian is one who possesses relevant training in library and information science. The sample size is tabulated below:

**Table 3.2 sample size**

<b>Target sample strata</b>	<b>Sample</b>	<b>Percentage (%)</b>
Multimedia	13	16.6
Kenyatta University	43	48.4
Catholic University of Eastern Africa	16	17.9
Africa Nazarene University	17	19.1
<b>Total</b>	<b>89</b>	<b>100</b>

Source: Researcher 2017

### **3.7 Research Instruments**

The researcher used questionnaires, interview schedules and secondary sources checklists as the research instruments for the study. Questionnaires were the major source of primary data collection; the researcher also used interview schedules and secondary information including viewing the institutional and the library websites.

#### **3.7.1 Questionnaire**

According to Mugenda and Mugenda (2003) questionnaires give a detailed answer to complex problems. Additionally, questionnaires are also a popular method for data collection in deduction because of the relative ease and cost-effectiveness with which they are constructed and administered. Questionnaires give a relatively objective data and therefore, are most effective.

The researcher believes that questionnaire is one of the richest sources of data in a case study and usually the most important type of data to be collected. Questions provide the

researcher with information from a variety of perspectives. The researcher formulated structured and unstructured questions according to the study's objectives. The questionnaires were distributed physically to the respondents.

### **3.7.2 Interview Schedule**

Kothari (2004) explains the interview method of collecting data as the presentation of oral-verbal stimuli and reply in terms of oral-verbal responses. This method can be used through personal interviews and, if possible, through telephone interviews. Personal interview method requires a person known as the interviewer asking questions generally in a face-to-face contact to the other person or persons. This sort of interview may be in the form of direct personal investigation or it may be indirect oral investigation. In the case of direct personal investigation the interviewer has to collect the information personally from the sources concerned. This method is particularly suitable for intensive investigations. The researcher did a personal interview with the university Librarians..

The interview schedule was prepared following the study objectives and sought to meet the study's objective. The researcher booked an appointment with the University Librarians for investigative information including the following:

- Types of OER adopted in the academic library
- Promotion on the use of available OER
- Policy issues pertaining to the integration of OER
- Challenges on the integration of OER
- Measure to curb the said challenges.

For Validity of the information given, the researcher followed up with the respondents with a phone call.

### **3.7.3 Secondary information sources.**

Kothari,C.(2004) Defines secondary information sources as sources which have already been collected and analyzed by someone else. Secondary information sources may be published or not published. The researcher checked the organization and the library website to verify that they provide the open educational resources in their institutional repository. The following information was sought using the secondary sources:

- i. Availability of links to electronic resources, open textbooks, Different types of OER'S.
- ii. Policies governing the library including the OER integration policy.
- iii. Presence of licensing mechanisms.
- iv. Availability of OER Integration mechanism

The method helped in data validity since the researcher was able to compare data provided by the questionnaire and what was found on the website and at the institutional repositories.

## **3.8 Pilot Study**

A pilot study was conducted in advance to specifically test aspects of the instruments so as to allow necessary adjustment and remove any question that may not yield to important data before the actual study was done. The pilot study was done at KCA University Library since it's was not among selected university libraries under study. Seven library staffs were issued with questionnaires to test on the validity of the instrument. The pilot study helped the researcher to come up with research instruments which yielded to data reliability and validity

### **3.8.1 Data Validity**

Kombo &Tromp (2006) says that the validity of a test is a measure of how well a test measures what it is supposed to measure .To achieve validity the researcher ensured that

the research instruments which were used addressed the objectives and the research questions which the researcher intended to answer and to achieve. The instruments were pretested with a few individual before the researcher embarked on the data collection exercise to check on their validity. The researcher used the secondary information sources to validate the data provided; this is by viewing samples institutional repositories, the institution and the library website to verify that the information provided was valid or not.

### **3.8.2 Data Reliability**

Data reliability is a measure of how consistence the results from a test are. Kombo & Tromp 2006 says that, no two interviewers are alike and the same person may provide different answers to different interviewers. To achieve reliability of the research the researcher used research instruments whose aim was to collect reliable data. Secondly the researcher carried out a pilot study to check whether the objectives matched with the questions administered. Necessary adjustments were done to achieve data reliability.

### **3.9 Data Analysis**

Oso & Onen (2005) defines data analysis as the organization, interpretation and presentation of data. It deals organizing the collected data into segments. The researcher analyzed the data by organizing into themes derived from the research objectives and questions. Some narratives were used to report finding where some data was presented in tables of frequency, graphs and some pie charts.

### **3.10 Ethical Consideration.**

Mugenda & Mugenda (1999) defines ethics as the moral principles and values that govern the way an individual or a groups conducts its activities. For the maintenance of ethics

the researcher sought for permission from the relevant authority in the institutions involved. The researcher gave a confidentiality note on the questionnaires informing the respondents the reason for the research and assured them that the information they gave was treated with confidentiality and it was used for academic purposes only

## **CHAPTER FOUR**

### **DATA ANALYSIS AND PRESENTATION OF FINDINGS**

#### **4.1 Introduction**

This chapter presents the findings of the research conducted. Data was collected through the use of interview schedules, use of questionnaires, document analysis and through secondary sources. The research was based on the Integration of Open Educational Resources to facilitate teaching and learning in Kenya. Data was analyzed and presented according to the study's objectives, research questions and assumption which were broken into various themes. Data presentation was done using charts, pie charts and tables because the data was grouped. The chapter followed the following sequence:

- i. Integration of the available OER
- ii. OER integration strategies
- iii. OER integration policies
- iv. Licensing mechanisms
- v. Challenges faced in the integration of OER

#### **4.2 Response Rate for the Respondents**

The research respondents were derived from two fully chartered private universities libraries and two public universities libraries. The researcher issued a total of 89 questionnaires in the four university libraries to the professional librarians and 51 questionnaires were filled and returned. This reports a good response rate as per the summarized table 4.1 below:



**Table 4.1 Response rate of the respondents**

<b>Library</b>	<b>Questionnaires issued</b>	<b>Questionnaires returned</b>	<b>Percentages</b>
<b>ANU</b>	<b>17</b>	<b>11</b>	<b>64</b>
<b>MMU</b>	<b>13</b>	<b>6</b>	<b>46</b>
<b>CUEA</b>	<b>16</b>	<b>8</b>	<b>50</b>
<b>KU</b>	<b>43</b>	<b>26</b>	<b>60</b>
<b>TOTALS</b>	<b>89</b>	<b>51</b>	<b>220</b>

Source

### **4. 3 General information about the respondents**

This is an analysis of the respondents by their job title and their qualification. The general information was captured so as to know the qualification required in the integration of OER in the academic Libraries. The researcher wanted to know whether the library staff involved in the integration of OER is professional librarians. According to the researcher any librarian possessing any training on librarianship is a professional

#### **4.3.1 Job Title of the Respondent**

The researcher sought to find out the job title of the library staff works in the libraries.

### **Table 4.2 Job Title of the Respondent**

The table below shows the job title of the respondents who works in the academic library in Kenya. The study sought to establish the relationship between the staffs' job title and the role they play in the integration of OER's.

<b>Job title</b>	<b>Number of Respondent</b>	<b>Cumulative Frequency</b>	<b>Percentage</b>
Librarian	4	4	7.9
Assistant Librarian	7	11	13.7
Senior library assistant	28	39	23.5
Library Assistant	12	51	54.9
<b>Total</b>	<b>51</b>	<b>51</b>	<b>100</b>

The findings clearly shows that majority of the respondents are library assistants with a higher percentage of 54.9 %, followed by a 23.5 percentage of senior library assistant .This indicates that majority of the staff who works in the academic libraries are library assistant .This is tabulated in Table 4.3 below:

**Table 4.3 Qualification of the respondent.**

<b>Qualification</b>	<b>Number of the respondent</b>	<b>Percentage</b>
PHD Level	1	1.97
Masters Level	16	31.38
Degree Level	24	47.05
Diploma	10	19.6
<b>TOTAL</b>	<b>51</b>	<b>100</b>

The study sought to establish the qualifications of the Respondents. According to the data provided majority of the respondents are professional librarian. According to the researcher anyone who possesses any training in library and information science is a professional. This shows that majority of the staff who works in the academic libraries and those who are involved in issues pertaining to OER integration are professional librarians.

#### 4.4 Types of the common OER integrated in the academic libraries

The study was to introduce the respondent to the various OER in place and the researcher wanted to know whether the respondents are aware of their integration. If they respond to the affirmative, Which OER are integrated in the various libraries.

##### 4.4.1 Awareness OER integration in the academic libraries

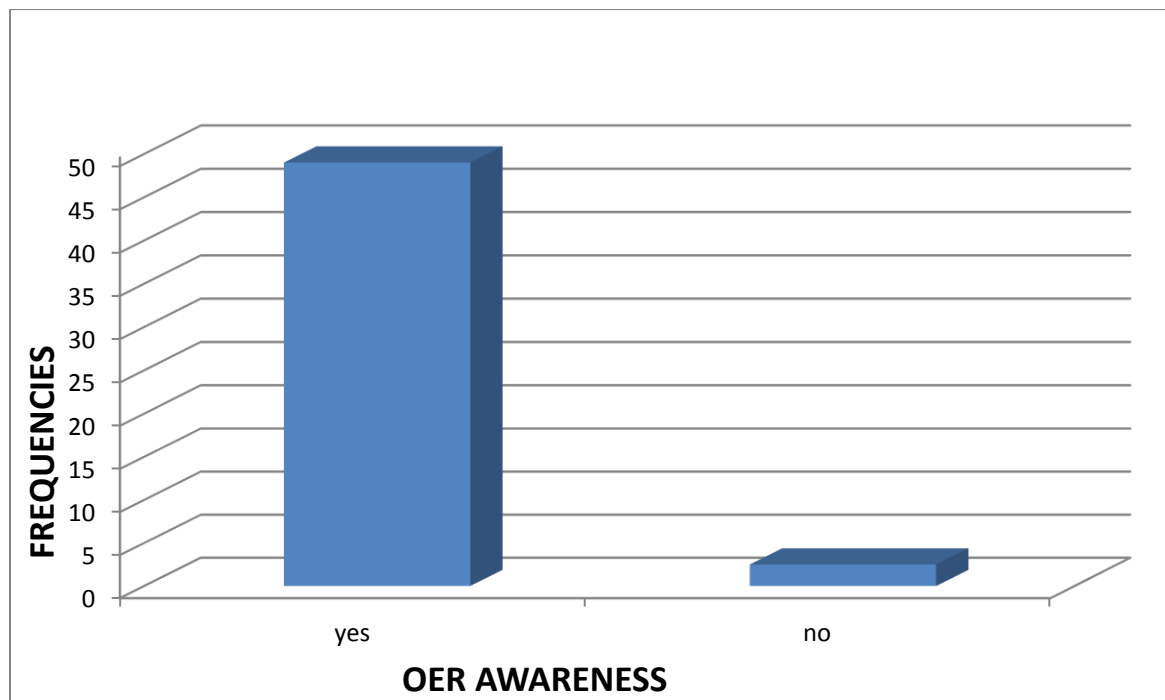
The study sought to establish whether the respondents are aware of the integration of OER in their academic libraries. This was to know whether they really understand the objective of this study.

**Table 4.4 Awareness of Available OER**

Awareness of OER	Number of respondents	Cumulative Frequency	Percentages
Yes	49	49	96
No	2	51	4
<b>Total</b>	<b>51</b>	<b>51</b>	<b>100</b>

Nithin,L(2011) indicates that the OER is seen as a new wave of innovation for teaching and learning and ensuring wider access to quality higher education in the third world countries. In this regard the study aimed at establishing whether the academic libraries in Kenya are aware of the integration of the OER in their specific libraries. When the academic librarians were asked whether they are aware of the integration of the OER in their libraries a majority of 96% responded on the affirmative, they indicated that they are aware that their particular libraries integrate various OER. This shows that academic libraries in Kenya are in abreast with the modern technology that enables learning and teaching easy. A smaller percentage of 4 % indicated that they are not aware of the integration of the OER in their libraries. The assumption here is the smaller percentage

may not have a clear understanding of what OER are and thus they may not be aware of their integration



**Fig 4.1 Awareness of integration of available OER**

Types of the OER integrated in the different university libraries. The study sought to know whether the respondents are conversant with the different types of OER integrated in their respective libraries. Awareness of the different types of OER will make integration easier since the respondents already know the key role of the OER.

**Table 4.5 Type of the OER integrated in the different Universities libraries.**

Type OER integrated in the Library	Frequency	Percentage
Electronic Journals	22	43.1
Electronic Books	21	41.1
Audio podcasts	6	11.7
Slides and class presentations.	12	23.5
Open Courseware	9	17.6
Interactive games and simulations	4	7.8
Video lecture	7	13.7
Tutorials and course modules	12	23.5
Virtual Labs	3	5

Source: Survey tools 2018

With a 96 % of the respondents indicating that they are aware on the OER, the study sought to establish whether the respondents were aware of the various OER integrated in their various academic libraries. The survey shows a higher percentage of 43.1 of E-journals and 41,1% of Electronic books, Slides and class presentations and tutorial share a percentage of 23.5 % a, open courseware 17.6 % video lectures 13.7 %,interactive games 7.8 % lowest percent of 3 goes to the virtual labs. The researcher interrogated the secondary sources and true to the data the most commonly integrated OER are the Electronic books and electronic journals. The interview with the University Librarians concurred with this and they indicated that they have not been able to harvest other learning materials from the teaching departments and they raised a concern that the Open, and Distance Education Learning (ODEL) departments holds the learning materials including the modules. This concurs with what (Fuente 2012) wrote in his research in the roles of libraries and information professionals in OER initiatives. He indicated that libraries may hold institutional content such as syllabi and past exam papers but Inclusion of lecture notes, presentations, and assessment materials has not been a common practice

in the university libraries. He continues to say that even if the materials are found in electronic formats these contents remains closed in virtual learning environments and are controlled by the lecturers or the departments providing the course. He also indicated that the integration of OER in the library is insufficient despite the benefits accrued from them especially to serve the online library users. Data gathered from the secondary sources shows that some university house externally acquired open courseware from OER Africa, MIT and from free book center and none from the institutions. Kenyatta University Library have partnered with MIT and OER Africa to provide Open courseware.

#### **4.5 OER Integration Strategies**

The study sought to establish the OER integration strategies adopted in the various libraries under study .This is to test whether the available OER are visible to the intended audience, if not then awareness mechanism need to be employed in the academic libraries. The data sought was on the integration strategies, accessibility strategies and the role of the library in the integration of OER.

**Table 4.6 OER integration strategies**

OER integration strategies	Frequency	Percentage
Link to the institutional repository	10	19.6
Library provides an oer link in the e –resources	24	47.05
Search interface in the library catalogue	21	41
Relevant OER in the reading lists	2	3.9

The study was to establish the OER integration strategies employed by academic libraries. The study indicated 47.05 % of the OER link at the E -resources platform, this concurs with the earlier study which showed that most of the OER integrated in the

academic libraries are the subscribed electronic books and electronic journals which included even the open source resources.41% of the respondents talked of a search interface in the library catalogue , true to this when data validity was done through the secondary sources the researcher found that Kenyatta University have partnered with OER Health Africa ,free book center and MIT Open courseware and their resources are integrated at the KU OPAC together with their internally acquired resources.19.6 %talked of the institutional repositories to provide accessibility to the available OER. This concurs with a research done by (Adala 2016) where she says that Kenyatta University library has an institutional repository which gives free access to textbooks through the creative commons licenses. Fuente (2012) in the research on roles of academic libraries and information professionals in OER also displays the importance of digital repositories in the integration, discovery and access and promoting further use of OER.A small percent of 3.9 %respondents talked of the reading list. An assumption was that this data came from the Librarians who are involved in teaching certain courses in university including the information literacy skills. As they give out the course outline they indicate relevant OER in the reading lists to their students.

#### **4.5.1 Role of library staff in the integration of OER.**

Traditionally academic librarians are involved in the acquisition, organization and dissemination and preservation of information materials, both print and non-print. The study sought to assess whether the academic library staff are in any case involved in the integration of OER.

**Table 4.7 Role of library staff in the integration of OER**

<b>Role of the Library staff in the integration of OER</b>	<b>Frequency</b>	<b>percentages</b>
Metadata Description	19	37.25
Managing intellectual property	16	31
Digital Information Literacy	24	47
Providing access to trusted relationships	10	19.6
Managing and marketing the OER's	14	27

The study sought to establish the role of the library staff in the integration of the OER in the academic libraries to facilitate teaching and learning ,47 % percentage of the respondents said they are involved in the digital information literacy.37.25% of the respondents talked of metadata description,31% talked of managing the intellectual property, 27% talked of managing and marketing the OER, a small percentage of 19.6% talked of providing access to trusted relationships. This is a clear indication that the library staffs are equally involved in the integration of OER but their greater involvement lies on teaching digital information literacy. Robertson (2010) concurs with this and quotes that academic libraries can be involved with OER by extending what they do in teaching the literacy skills to users classes to help in directing users in selecting and evaluating OERs. Karadia (2015) supports this and says that the role of the librarians is slowly changing and moving from acquiring data to providing access to the same. He says that the library staffs through the integration of OER'S hold a promise in making education at all levels more affordable. Fuente(2012) agrees with this in his study on the role of academic libraries and information professionals in the OER initiative when he said ,although the librarians view their role as managing OER repositories ,indexing,cataloguing,and the marketing the use of OER, the librarians are still mandated with the third party roles like the copyright clearance, currency and quality of the OER'S



The Study clearly shows that the role of the librarians in the integration of the OER has not been fully utilized since it has come out clearly that their main role is teaching digital information literacy skills which is more on Promoting use of OER. The third party roles of copyright clearance, OER selection did not come out clearly.

#### 4.5.2 Accessibility Strategies

Accessibility strategies are the access points, where the user can access the available OER after their integration. The research sought to establish the different types of the integration strategies employed by the various libraries under study.

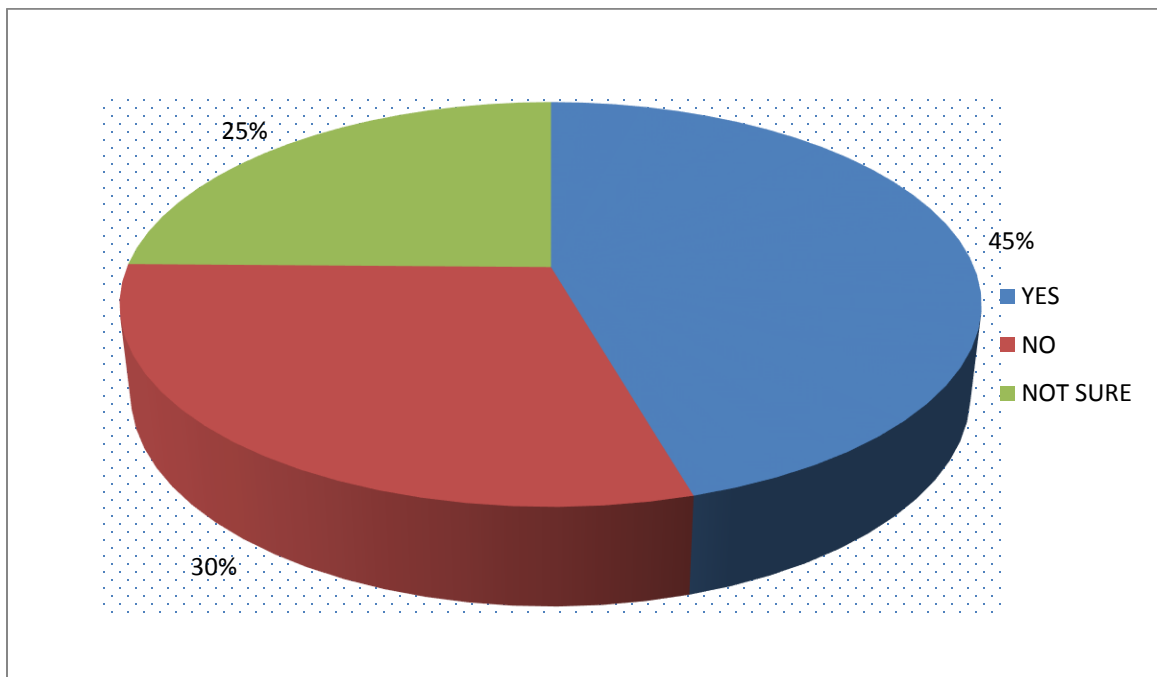
**Table 4.8 Accessibility Strategies**

Accessibility strategies	Frequency	Percentages
Institutional Repositories	28	54
Learning management systems	11	21
Institutional websites	25	49
Third party services e.g. you tubes	10	19

The study sought to establish the accessibility strategies, the visibility and the discoverability of the OER by the institution or the intended audience, 54% of the respondents said that they use the institutional repositories for the visibility of the available OER'S. 49% talked of the institutional websites, 21% talked of the learning management systems while a small percent of 19% talked of third party services like the YouTube. From the study it is evident that the most common accessibility strategy among the libraries is the institutional repository. True to this Adala (2016) says that Kenyatta University Library has an institutional repository which allows free access to textbooks under creative licenses. Africa Nazarene University uses the third party for example the YouTube services to provide tutorials on the access to their OER.

#### 4.6 OER Integration policy

As it were an OER policy document is used to give guidelines or provide guideline in the development and review of OER materials before sharing them to the wider web. Thus the research sought to establish whether the respondents are aware of the existence of the policy document in their respective libraries.



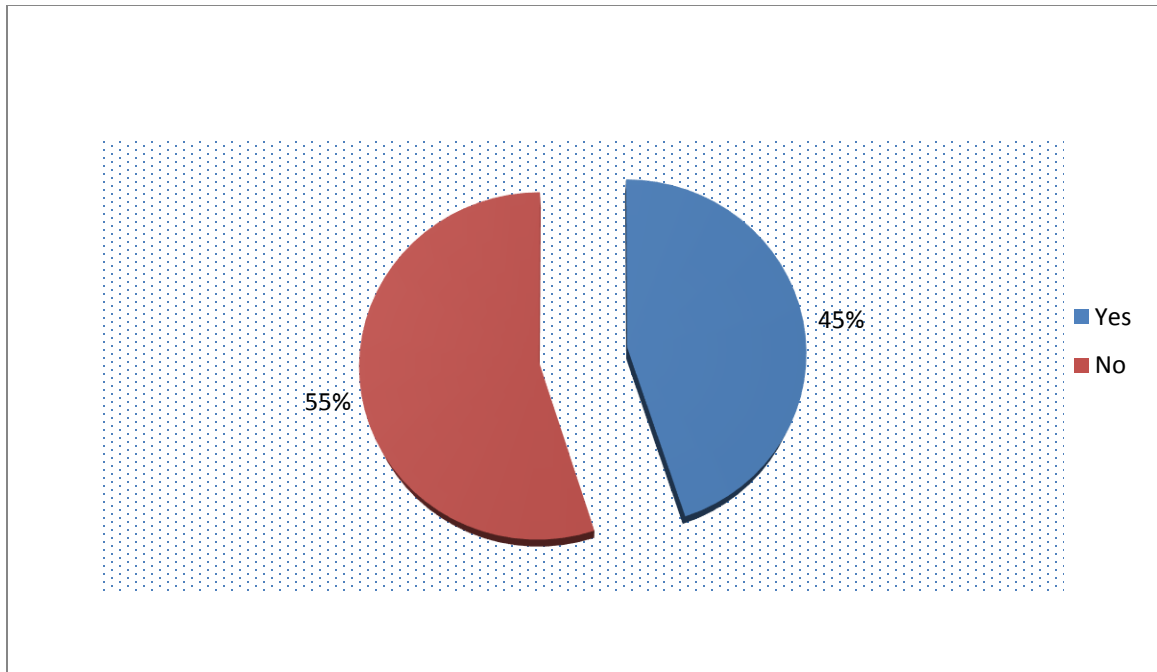
**FIG 4.2 OER integration Policy**

According to Adala (2016) a policy is a write up that gives direction that govern the development, and review of OER before they are shared to the wider web, it also clarifies publication rights and licensing issues. Omollo (2010) outlines the purpose of an OER policy and indicates that a policy identifies the human resource in the development of OER, Clarifies the publication rights and policies concerning the use and the required infrastructure, and defines the collaborations within the institution and the extent of

allowing access and sharing. In Line with this purpose the research then sought to establish whether the universities libraries in Kenya have formulated policies to guide them in this noble task. When the respondents were asked whether they have an OER policy document 45% of the respondents indicated that their library have got a written policy on the integration of OER while 30% says that they do not have a policy on the integration of OER , and 13% respondents were not sure whether their libraries have got a policy on OER. This shows that majority of the Libraries have a policy on the integration of OER. The data derived from the interview schedule shows that most of libraries in study uses the open access policy on the integration of the available OER. While another uses ICT policy because they are on the process of formulating an open access policy. This shows that libraries in Kenya do not have an OER policy which may be one of the reasons why such learning materials like open courseware are not integrated in the academic libraries despite their role in enhancing the visibility of the Universities. Ooko & Mays (2015) notes that there are institutions which have a fully developed OER Policy but it has not been aligned to OER A case in Point are Africa Nazarene University which has a fully developed OER policy but it's not functional.

#### **4.6.1 Approval of the policy by Library management**

The study sought to know whether the policy in place has been discussed by the library management.



**FIG 4.3 Approval of the policy by the Library Management**

The study sought to know whether the policy in place has been discussed by the library management and from the data provided it clearly shows that 45 % of the respondent indicated that the policy has been discussed and 55% indicated that the policy has not been discussed by the library management .This shows that although most of the libraries in Kenya have a policy that governs the available OER but it has not been approved by the library management. This may be one of the reasons why most of the academic libraries have not integrated other OER’S except the Except the EBooks and E-journals, since they do not have a document to guide them in the integration of the open educational resources.

#### **4.6.2 Issues addressed by the policy**

The study sought to investigate the issues covered by the policy. The research wanted to know whether pertinent issues like the Licensing mechanism, librarians’ role in the

integration and other issues are covered in the policy document. The content of the policy guides in the integration and in the sharing of the OER'S.

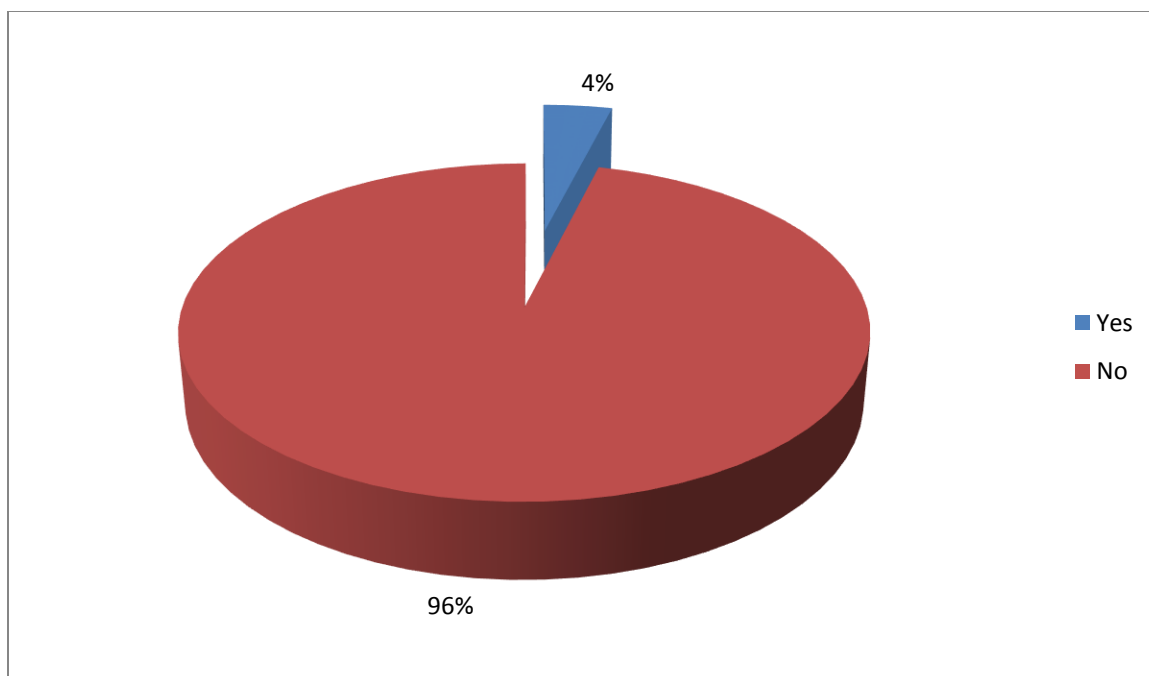
**Table 4.9 Issues addressed by the policy**

<b>Issues addressed by the policy Frequency</b>	
Integration of OER	10
The role played by the Librarians in the integration of OER	13
The Type of OER to be integrated	12
The Access methods	14
Licensing mechanisms	

From the above observation, The available policies addresses such issues as the integration of OER, The Role played by the Librarians in the integration ,the type of OER to be integrated and the access methods. The study clearly shows that most of the policies do not address issues of licensing mechanisms which shows at what level can the university share the available OER.

#### **4.6.3 Involvement of Library staff in the formulation of the Policy**

The researcher aimed at establishing whether the library staffs are involved in the formulation of the OER'S policy



**Source: survey tool 2018**

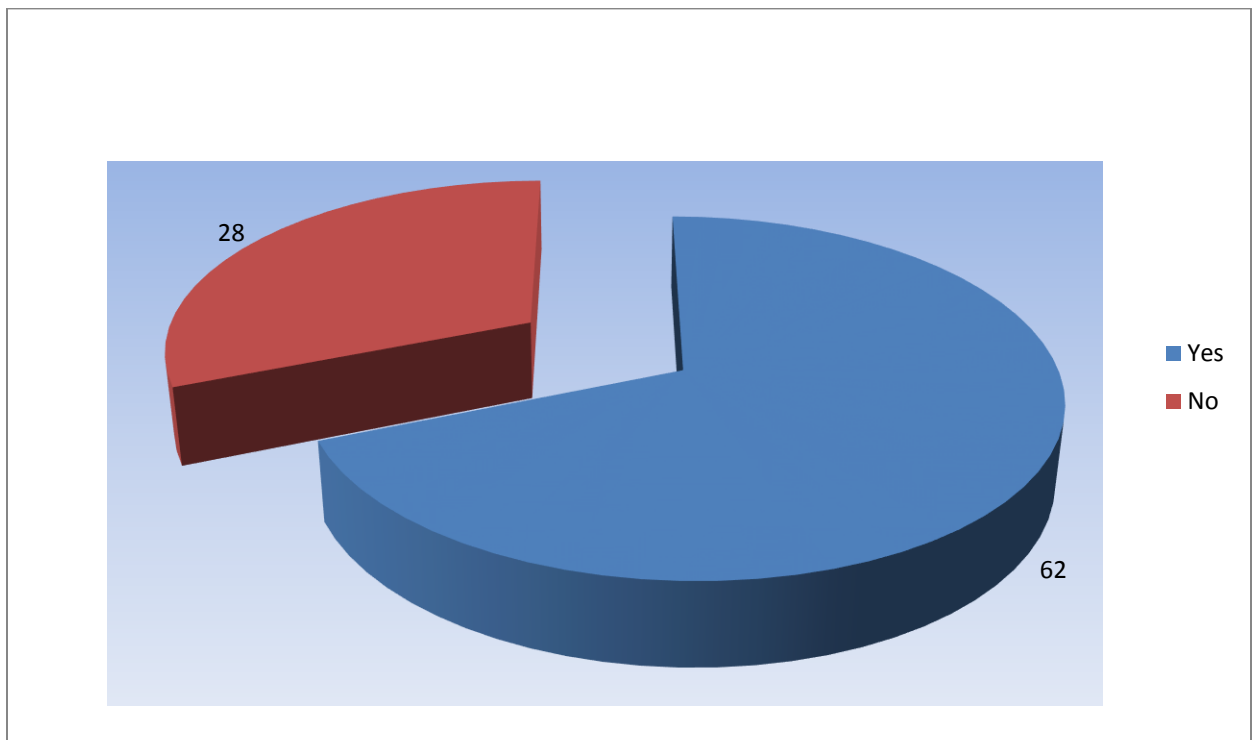
**Fig 4.4 Involvement of Library staff in the formulation of the Policy**

When the library staff were asked whether they were involved in the formulation of the OER policy, 96 % of the respondents said they were not involved in formulation of the policy, while 4% of the respondent says they were involved. As outlined by (ANU: 2015) a policy document provides a guideline in the development and review of the OER materials before they are availed to the public, clarify publication rights and licensing issues, guidelines on the infrastructure to be used, identify human resources and to support teaching staff in developing the necessary OER and to define collaborations within and beyond the institutions and the intent to allow access. It's evident from the study that the library staff are not involved in the formulation of the OER policy and this poses as a problem. If the library staff will be mandated to integrate the OER then they require intense training to understand the stipulated policies, to understand their role in

the integration and even to know to what extent they are supposed to share the available OER'S.

#### **4.7 Licensing mechanism**

The research sought to establish whether the respondents are aware of the licensing mechanisms adopted in their libraries.



**Fig 4.5 Awareness on the available licensing mechanism**

FitzGerald.(2007) observes that we are in the information revolution where information need to be shared. The sharing of information thereby helps in sponsoring access and information, for publicity and also to enhance knowledge and culture. To avoid legal

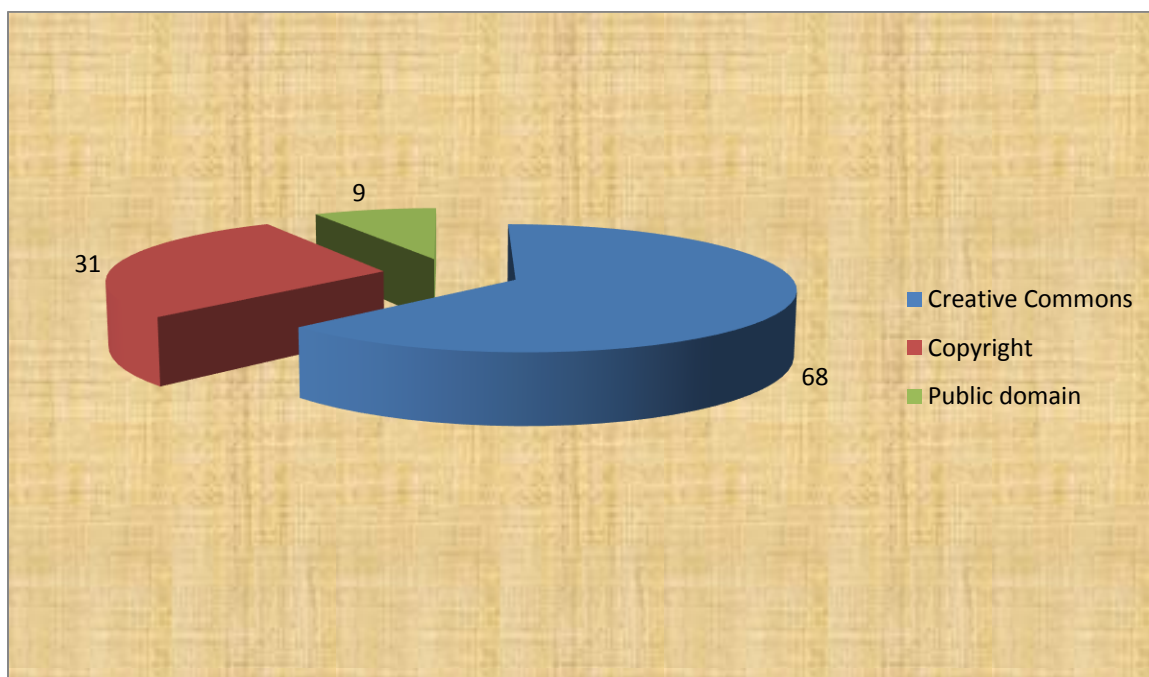
implication on the sharing of information, information owners employs open content licensing .The open content licensing provides the copyright owners with a means for sharing their content. By so doing they create a space in the internet for lawful continued access. The licenses also be used in a machine readable metadata in that the technologies in use can be able to understand the legal obligations attached to a particular document.

Bissell (2009) observes that licenses are adopted in order to deal with the challenges of OER. This is to stipulate who owns what and what can be shared to the public. He elaborates that knowledge can be shared freely and it should be allowed to evolve and change things and that pedagogy should always stay and promote creativity and the Library OER should be allowed to be adapted and improved upon. In line with this when the library staffs were asked whether they are aware of the licensing mechanism in use in their libraries, 62 % of the respondent responded on the affirmative while 28 % respondent said that they are not aware of the licensing mechanism. From the study it clearly shows that majority of the respondents are aware of the Licensing mechanism used in their libraries to safeguard and to share the OER available.. This is supported by Fulantelli (2008) who observed that the availability of the open licensing and ability to reuse content is very important to OER integration since it promotes the use of OER by external users and thus increases the OER Visibility.

#### **4.2.1 Licensing mechanism adopted in academic Libraries**

The researcher wanted to know the type of the licensing mechanisms the respondents uses in their respective libraries in the sharing of the available OER'S.





**Fig 4.6 Licensing Mechanisms adopted in academic libraries.**

**Source: survey tool 2018**

Allen & seaman (2014) attest to this that the availability of open licenses and the ability to reuse and reproduce educational contents is vital to the OER movements. With the use of internet, content can be spread on the web with little or no cost causing disruptions in copyright laws. This has demotivated the academia's causing great friction in OER Platforms. Fortunately digital inventions have given a solution on the open licenses through Creative Commons (Pena 2015). This research supports our study since when asked on the licensing mechanisms adopted in their libraries 68 % said that they have adopted the creative commons licenses, 31% respondents talked of copyrights and 5% talked of public domains. The study shows that most of the academic libraries have

adopted the creative commons licenses in the sharing of their work which has eliminated the problem caused by the use of copyrights in sharing. The importance of a license in the integration of the OER cannot be disputed. Intellectual property rights have been quoted largely as one of the major barriers in use and integration of OER. The study shows that the academic libraries understand the importance of the open licenses and its contribution in the sharing of available OER. Thus a further elaboration on the use of Creative commons in the Academic libraries was needed.

#### 4.7.2 Creative Commons rights allowed in the academic libraries

The table below tabulates the creative common rights allowed in the various academic libraries under study in the sharing of the integrated Oers to the general public.

**Table 4.10 Creative Commons rights allowed in the academic libraries**

Creative Commons Rights adopted in academic libraries	Frequencies	%
Attribution- Others can copy; distribute your work if they credit your name	26	50
No derivatives works –others can only copy, distribute or perform verbatim copies	10	19
Share alike –Others can share your work only under your license you have used	8	15
Non- commercial-others can copy, distribute, display your work for non-commercial	6	11
<b>Total</b>	<b>51</b>	<b>100</b>

**Source: survey tool 2018**

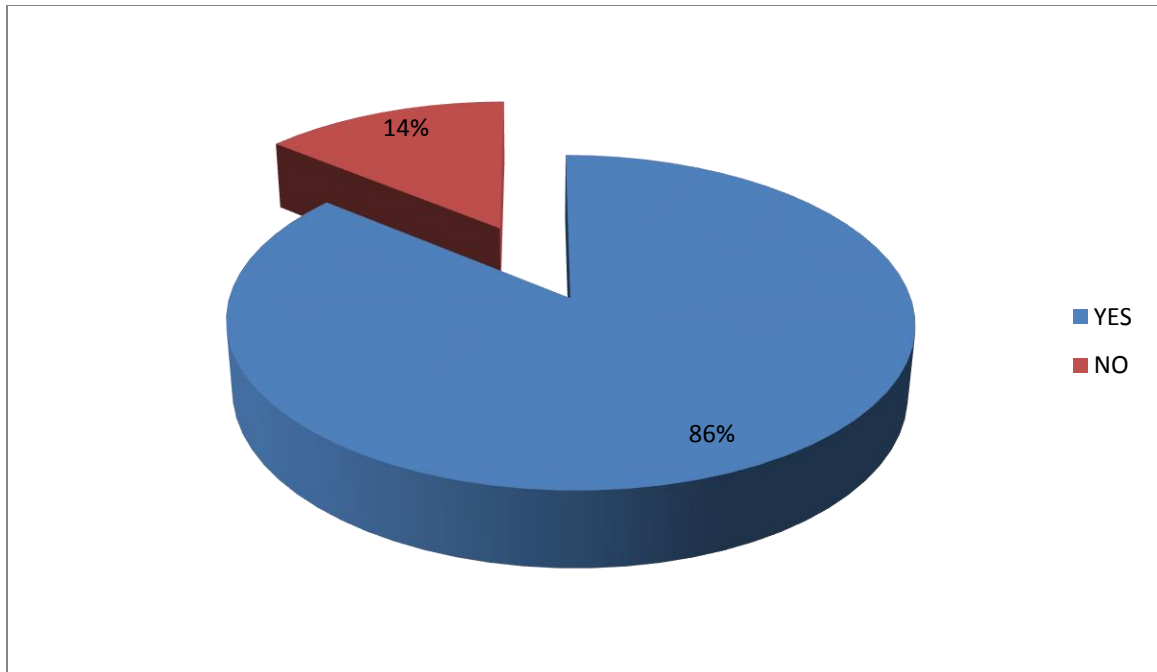
When further probed on the creative commons rights adopted in their individual libraries, the respondents indicated they used a multiple of creative common rights. 50 % of the respondents indicated that they allow Attribution meaning that they allow others to copy and distribute their work only if they credit their name according to the creators request. 19% of the respondents said that they allow No derivatives work, this means that other people can copy ,distribute or perform verbatim copies meaning they can only

distribute your original copy of your work if they want to modify they are require to get permission fromyou.15% respondents talked of Share Alike, that others can share your work under your licenses or the terms you have stipulated if otherwise they require your permission to modify your work. Finally a small percent of 11 said that they allow Non – commercial , meaning that they allow others to contribute their work for noncommercial. This means that you can allow other people to copy, distribute your work for other purposes except for commercial purposes. If they need to reproduce for commercial purposes then they require permission from you. From the data provided by the academic libraries it is evident that the academic libraries have a clear understanding of the creative commons licenses and are applying them in their libraries for the sharing and distribution of the available OER for equal access of education.

#### **4.8: Challenges faced in the integration of OER**

The researcher sought to know whether the academic libraries face any challenge in their endeavor to integrate the available OER's to facilitate teaching and learning.

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**FIG 4.7 Challenges On the integration of the OER in the academic libraries**

Source: Survey tool 2017

The study sought to find out whether the respondents faced any challenge in the integration of OER in their various libraries. Majority of the respondents expressed that they faced challenges in their endeavor to integrate OER in their libraries. With a higher percentage of 86 responding on the affirmative and a 14 % says that they do not face any barrier. This is in support of a research done by Adala (2016) on the current state of advancement of open educational resources in Kenya. That although OER is gaining momentum following the OER initiatives in Kenya including TESSA initiative at Egerton University ,Njoro, SAIDE OER Africa, in collaboration with Kenyatta University and with Africa Nazarene University and many others ,she says that OER integration in Kenya is still a dream. Gakindi (2010) in her research on the Information access needs of satellite campuses indicated that there is a certain fear to publish

materials and to avail content online publicly since other might copy for commercial purposes. This is further widening the gap for OER integration as quoted by Ochukut (2013) in the research on the implementation of OER at the University of Nairobi. This is a clear indication that academic libraries face barriers in the integration of OER.

#### **4.8.1 Challenges in the integration of OER's**

This was to establish the various barriers that hinder the integration of OER'S in various libraries in Kenya.

**Table 4. 11 Challenges faced in the integration of OER**

<b>Challenge</b>	<b>Frequencies</b>	<b>Percentages</b>
Intellectual property and copyright issues	24	47
Quality of resources available	12	23
Lack of awareness of OER in academic institutions	23	45
Technological fragmentation	14	27
Institutional barriers.	15	29

Source: survey tool, 2018

#### **Intellectual Property and Copyright issues**

When further probed to indicate the various barriers they face in the integration of OER in their libraries 47 % percent of the respondents indicated that Intellectual property and copyright issues as one of the barriers .This is because permission is required from the Intellectual property and copyright owners for their materials to be shared publicly. Some copyright owners are unwilling to release their rights for the materials and this poses as a barrier for the sharing of OER's. This concurred with a research done by Mtebe & Raisamo (2014) on investigating perceived barriers on the use of Open Educational

Resources in Higher Education in Tanzania. They indicated that Intellectual property and copyright issues as the main obstacle in the adoption and use of OER. Academic pride as cited by Ngimwa & Wilson (2012) as one of the challenges associated with IPS this is because permission is required from the IP owners to avail the materials online. The academics are unwilling to share their work may be because they cannot withstand national and international critique. This is supported by an interview done with Kenyatta University Librarian where he cited this as one of the challenges they faced as they were populating their Institutional repository that Thesis Supervisors feared their name to be availed as the supervisors with a fear that the work may not be of quality. Gakindi (2010) concurs with this that there was a certain fear to publish educational content publicly that others may copy and use for commercial purposes in the extent that some institutions like Moi University do not provide passwords to online databases to students and faculty for use outside the institution due to the premiums paid on academic publication.

### **Lack of awareness**

Lack of awareness of OER in academic institutions is another challenge which was identified in the study with a 45% of the respondents. Lack of awareness cut across between the teaching staff and also among the library staff. The Institution administration may not be aware of the value of the OER created in their institution and thus may harbor negative attitude and may not support the integration of the same in the support towards teaching and learning. Gakindi( 2012) supports this and says that sensitization lacks in the institution of higher learning on the value of the Open educational resources

### **Institutional barriers**

The Study also identified institutional barriers as one of the barriers library face in the integration of OER. 29% of the respondents indicated that they face institutional barriers as they integrate the available OER. Carina & Belinda (2011) raises a concern that there is a concern of certain risks including loss of control and threats of reputations including mistakes made to be accessed permanently and out of date materials remaining in the dissemination. Institutions are afraid that when materials are availed online they bring down their reputations due to underlying issues and thus they restrict their materials. This makes then the teaching departments to hold their modules, and other learning materials in their portals restricted with user names and password. Three of the institutions under study have ODEL departments which hold notes and modules but are only accessible to students doing online courses. Another institutional concern is the policy formulation. Adala (2016) raises a concern that policies and guidelines are lacking in the various institutions and even where they exist they fail to align in the integration of OER. An example is in Africa Nazarene University where there is an OER policy but as indicated by (Ooko & Mays 2015) it is nonfunctional.

### **Technological fragmentation**

Advancement in information communication and communication technologies is one chauffeurs of the knowledge economy. This has gained ground in institution of higher learning and especially on the on campus experience, evidenced in the use of student portals, internet access, digital libraries and availability of laptops and other handheld portable device. However technological fragmentation is still experienced in the

universities with cases of digital divide, when the respondents were probed on the barriers in the integration of OER 27% indicated that experience technological fragmentation. Such cases as low internet bandwidth, inadequate computers and laptops for use by the library staffs as quoted (Ngimwa & Wilson, 2012 ). Interviews with university librarians registered lack of qualified system librarian who can advise the library on matters relating to the integration of the available OER's.

### **Quality of OER**

Quality assurance in institution of higher learning has gained momentum where universities are striving to offer quality education as a competitive advantage. A decision needs to be made on quality control, standardization and localization of the OER shared to the public (Ngimwa and Wilson 2012) .Quality of OER was indicated as one of the barriers in the integration of OER. 23% of the respondent spoke of the quality of OER's as one of the barriers they face in the integration of OER.A concern was raised that some academicians were not willing to adopt resources from other sources. That they believed that their own content would be better (Ngimwa & Wilson 2012).This was supported by data collected from the interview schedule. Some of the university Librarians indicated that there is unavailability of quality OER since the teaching staff and ODEL departments are skeptical in releasing the learning materials, some of the modules as quoted have various spelling and the fear to release them to the public.



## **Funding**

According to Adala (2016) Funds and monetary values are important aspect in the succesful OER implementation in the developing country and especially in Kenya. OER projects cannot entirely depend on grants and donation thus long term funding is required. Funding was quoted by the university librarians as one of the barriers they face in the integration of OER. Libraries have minimal and restricted budget and it was quoted that integration of OER is seen as restraining the already minimal budget. This now calls for collaborations with other partners including the OER Africa, MIT Open courseware, TESSA Initiatives and other initiatives that may fund such noble projects.

## **Time**

One of the university librarian quoted lack of time as one of the challenges they face in the integration of OER. That the library staff have a lot in their hands That the librarians already have a lot to do and thus integration of OER have been seen as additional tasks that they lack time to harvest the available OER .In this regard the academic staff need to come up with an ICT committee who can spearhead the integration of the OER.

## **CHAPTER FIVE**

### **SUMMARIES, CONCLUSIONS, AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter provides the summary, conclusions and recommendations of the study. The chapter was guided by the theme of the study which was the Integration of Open Educational Resources to facilitate teaching and learning in selected University Libraries in Kenya.

#### **5.2 Summary of the findings**

This was guided by the research questions and the research objectives and according to the themes derived from chapter four of the study. The themes includes:

- i. Awareness of the integration of the available OER
- ii. OER integration strategies
- iii. Role of the library staff in the integration of OER
- iv. OER Accessibility strategies
- v. OER integration policy
- vi. Licensing mechanism
- vii. Challenges faced by the academic libraries in the integration of OER.

##### **5.2.1 Awareness on the integration of available OER**

The findings showed that the libraries in study are aware of various OER integrated in their Libraries. From the secondary sources it was discovered that the four university libraries in study have subscribed to the KCLISC electronic resources and have integrated them with their print information materials to support teaching and learning. The researcher did a deeper survey and found out that only two libraries among the four have integrated other OER. One of the private libraries have partnered with SAIDE OER

Africa and provides their students access to the OER Africa materials however it does not involve the library in the integration. Another public university library indicated that they have partnered with OER Health Africa and they provides OER from OER Africa , Free book center that provides links to thousands free technical textbooks, they have also partnered with MIT Open courseware w provides links to open courseware.

### **5.2.2 OER Integration strategies**

The study revealed that the libraries employed various OER Integration strategies. It was found that the library provides a link to the E-Resources platform for E-journals and E-books ,a link to the institutional repositories for open textbooks, conference papers and other resources, the academic libraries also provides a search interface at the library catalogue for such resources like the externally acquired open courseware, and finally the library provides relevant OER into the reading list this is mostly provided by the teacher librarian , these are the librarians who are involved in the teaching of various courses in the institution including the information literacy skills.

### **5.2.3 Role of the librarian in the integration of OER**

The study sought to find out the role of the librarians in the OER integration. The study shows that the role of the librarian is evident. It's evident that the academic library staff key role is teaching digital information literacy. This is done either through the emails or through the lib-chat software, where the librarians interact with their online users on issues pertaining to the use and evaluation of the available OER. The study also showed that the academic librarians are involved in the metadata description, this is describing the resources or rather providing the access points, the librarians also manage the intellectual property, this is managing the copyrights by guiding the institutions on the licensing mechanisms. It is also evident that the Librarians manage the OER repositories

and also market the OER either through orientation programs, during literacy classes, during faculty and board meetings and also creating an interface in the library websites. Their last role in the integration of OER is providing access trusted relationship.

#### **5.2.4 OER Accessibility strategies**

The study sought to establish the accessibility strategies employed by the academic libraries. From the data provided it is evident that the most common used accessibility strategy is the institutional repository, followed by the institutional website, others can access the OER's using the learning management systems and other uses third party services like the YouTube.

#### **5.2.5 OER Integration policy**

The study sought to establish whether academic libraries have formulated OER integration policies to guide them in the integration of OER. From the study it was established that different libraries uses the following policies: Data derived from interview from the university librarians indicates that the academic libraries uses the ICT, collection development policy, open access, OER policy in the integration of OER.

The researcher discovered that its only one university that has an OER policy unfortunately it was not formulated by the library; rather it was formulated and adopted by the ODEL department.

#### **5.2.5 Licensing mechanism**

The study sought to establish whether the academic libraries have an understanding on the licensing mechanism. This is set to guide in the reproducing, reuse, remix, sharing of the OER. It was evident that the academic libraries in Kenya uses the copyright laws, public domain and the use of the creative commons licenses in the integration and use of

OER. The creative commons had a higher percentage meaning the academic libraries have understood the importance of open licenses in curbing the problems brought by the copyright restrictions in knowledge dissemination.

#### **5.2.6 Challenges faced by the librarians in the integration of OER.**

The findings show that the librarians' faces a number of challenges in their endeavor to integrate OER in their individual libraries. The study revealed that there were several challenges as listed below:

- i. Intellectual property and copyright issues-this was cited as one of the biggest problem the librarians face in the integration of the OER. They said that some IP owners are reluctant in releasing their materials for fear of losing their rights.
- ii. Lack of awareness of OER-It was evident that there is lack of awareness of the OER and thus it poses as a challenge to librarians as they integrate the available OER. It was clear that some of the stakeholders and the teaching staff are not aware of the existence of the OER.
- iii. Quality of the OER-Most of the institutions are concerned about the quality of the OER integrated in their Library and the available OER have to go for vetting to establish their quality and thus delaying the process of their integration.
- iv. Inadequate funding- Most of the libraries cited inadequate funding as one of the challenges they face in their endeavor to integrate the OER .Most of the Universities are facing financial constraints and thus the library budget ends up been sliced. The University librarians talked of restrained budget and thus they were calling for collaborations and partnerships with international bodies to enable them integrate the available OER'S.

- v. Institutional barriers-Institutional barriers including the safeguarding of the institution reputation poses as a challenge to the libraries as they integrate the OER. Some institutions fear availing their materials online for fear of national and even international critique. Some fear petty issues as providing misspelled modules and course materials and these further delay the projects.
- vi. Technological fragmentation-Technology change at a very high rate and this affects the integration of the OER's. Such cases as low internet bandwidth, inadequate personal computers and laptops for use by the library affects the integration of the OER's. Some universities lack qualified system librarians who then can guide them on the technical issues.
- vii. Lack of time- Some librarians said that they already have a lot on their hand and thus very little time is devoted on the in-house innovations including the integration of the OER's.

### **5.3 Conclusions**

- i. Academic libraries have integrated OER in their libraries especially the electronic books and electronic journals, open courseware though from other organizations. This shows that OER integration is taking a slow pace in Kenya and in Africa. There is unavailability of courseware and learning materials in institutions of higher learning to integrate in the Library. It was noted that three of the universities chosen have embraced blended mode of study including the ODEL. The open, distance and ELearning department houses very rich information materials in terms of modules, class presentations, simulations but they are locked in their portals.

- ii. Academic libraries use ICT, collection development and Open access policies to integrate the available OER. It was noted that only one university which have an OER policy though not developed in the library. This fact may have slowed the Integration of courseware materials .Library are in a dilemma on what they will incorporate and integrate and what will be left .They are also faced with a problem of who owns what, where issues of IP owners becomes a tug of war, is it the owner of the resources or the institution that is offering the course. Most of the universities rely on collection development policies in the integration of available OER. However the policy does not include all details including licensing and mechanisms posing a challenge when it come in sharing of the OER in the available OER strategies. Africa Nazarene University have formulated an OER policy however it is not functional since there is absence of OER in the ODEL webpage and the only OER visible in the library webpage is a tutorial on how to access the electronic resources..
- iii. There is need for collaboration between the library and the teaching departments and especially the ODEL in the preparation, remix and the integration of the OER .This is because the ODEL departments holds learning and course materials in terms of course module which they offer to their online students which can be integrated in the library repositories and be accessed remotely. Unless the two departments come to a consensus the integration of learning materials in the library will always remain a dream.
- iv. Awareness campaigns are paramount in the realization of the integration of OER in the institution of higher learning. Stakeholders need to be made aware of the

importance of the integration of OER to the future of the universities and to the education sector at large. Such advantages of OER as global visibility need to be realized. The academic libraries need to come up with awareness programs during the year to enhance OER awareness among members of the institution. Africa Nazarene University library holds annual library week where they invite all library users including the stakeholders in their different lobbies. Competitions are held on the use of the library and in that the University at large gets to know the existence of various OER's.

- v. Increased budget to cater for the integration of OER should be made to the library. The library remains to be the heart of the University and for it to survive it requires adequate budget to cater for such issues as the integration of OER. Libraries need to come up with income generating projects so as to sustain noble projects including the OER project.

## **5.4 Recommendations**

### **5.4.1 Policies for OER Integration**

Academic libraries need to develop OER policies to guide them on what is to be released to the public and to whom. As it were a policy document provides instruction in the development and review of OER. The policy document gives direction on the publication rights and the licensing issues. Policies acts like a legal document and helps the Libraries and the institution at large in case their work has been reproduced for commercial purposes. As noted by Gakindi (2010) Academic libraries should develop policies that allow open licenses. Development of OER policies at institutional level also encourages participation and helps remove the negative perception towards the OER movement (Ngimwa and Wilson 2012).



#### **5.4.2 OER Awareness Campaigns**

Lack of OER awareness was cited as one of the challenges faced by the library staff as they integrate the OER in their library. Thus awareness campaigns should be launched by the libraries at departmental levels. There is need to engage the stakeholders, institution administration and the faculty for them to realize the value of OER in the institutions. The OER awareness campaigns helps in removal of the negative attitude towards the integration of the OER by some of the members of the institutions. The campaigns encourage the members of the institution to adopt open access practices and to develop quality OER for the betterment of the institution at large. Sensitization plays a major role in the integration and adoption of Open Educational Resources. The awareness can be done through faculty workshops, board meetings ,senate meetings and other informal meetings .The Libraries can also partner with national, regional and international organizations like TESSA initiatives, OER Africa ,UNESCO,MIT Open courseware to provide workshops on the publishing of quality OER'S.

#### **5.4.4 Collaborations**

Adala (2016) noted that the integration of OER in Kenya is achieving a milestone evidenced by the various initiatives implemented in the country including the TESSA initiative, OER Africa and others. However the OER process in Kenya is still facing various barriers including socio-culture and economic barriers. This now calls for institutional ,national ,regional and international collaborations to achieve this vital project .Academic libraries need to partner with teaching departments and more so with the Open, Distance and Electronic Learning (ODEL) department in the formulation, remix, development and integration of OER .Most of the Universities in Kenya have online courses which are offered through the ODEL schools. ODEL departments houses

learning materials in terms of modules which are availed to their students either through printed modules, or through the student's portal. The learning materials can only be accessed by registered online or distance students, thus the academic libraries can partner with ODEL to integrate these materials either in the library webpage or through the E-Resources platforms. Academic libraries can also partner or collaborate with regional organizations that offer OER like the OER Africa to provide their resources in the library to compliment other resources .They can also collaborate with international organizations that offer OER's. Such organizations includes MIT Open courseware and others like UNESCO

#### **5.4.5 Funding**

Atkins,D. ,Brown,J.& Hammond ,A.(2007) indicates that one of the challenges academic libraries face in the integration of OER is long term sustainability of the Project. He says the initial startup cost may not be much but sustaining the project may cost a lot of money even though the OER's are free. The maintenance cost through internal funding may be a problem to the libraries. The funding of libraries continue to contract while the users usage continue to increase and this now poses a threat to the sustainability of OER. However the library management may come up with ways of sustaining the projects by encouraging the institutions to buy into the OER movement to ensure their sustainability. Secondly they may encourage membership based consortia so as to share costs and also the expertise of sustaining the OER movements.

#### **5.5 Further Research**

The study was based on the integration of OER to facilitate teaching and learning in Kenya. The integration helps in widening the access to higher education. However, this can be achieved by involving the various and faculty members.

The researcher suggests a further research on the involvement of teaching staff in the integration OER to facilitate teaching and learning

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## **APPENDICES**

### **APPENDIX I: QUESTIONNAIRE FOR THE LIBRARY STAFF**

#### **Introductory letter to the Respondent**

Dear sir/madam

I am a master's student at Kenyatta University, Department of Library and information science. I am carrying out a study on the Integration of Open Educational Resources to facilitate teaching and learning in Kenya. The purpose of this letter is to request you to complete the attached questionnaire which will enable me to collect data regarding the topic under investigation. From the findings I hope to make achievable recommendations on what can be done to integrate Open Educational Resources in academic libraries to facilitate teaching and learning. I assure you that the information provided will be treated with confidentiality and will only be used for research.

Thank you in advance

Yours Faithfully

Jane Wanjia Mwangi



## Section A: Library Staff Background Information

### 1. Name of the Institution

---

#### Title of the Respondents

- |                                |                          |
|--------------------------------|--------------------------|
| i) University Librarian        | <input type="checkbox"/> |
| ii) Librarian                  | <input type="checkbox"/> |
| iii) Assistant Librarian       | <input type="checkbox"/> |
| iv) Senior Librarian Assistant | <input type="checkbox"/> |
| v) Librarian assistant         | <input type="checkbox"/> |
| vi) Library attendant          | <input type="checkbox"/> |

### 2. Work Experience

0-5 years ☐ 5-10 years ☐ 11-15 ☐ 16-20 ☐

### 3. Level of education

Degree level ☐ Masters Level ☐ PHD Level ☐

Others specify

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## Section B: Open Educational Resources (OER'S) Integration.

OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license and permits their free use or reuse by others. The resources include full courses materials, Lectures notes, course materials, modules, text books, software's and any other techniques to support access to knowledge.

4. Does your Library integrate OER'S with other Library Collections?

Yes

☐

No

☐

5. If yes to the above question which of the following integration methods are in use in your Library?

i) Link to the institutional Repository

☐

ii) Library provides an OER link in the E –Resources

☐

iii) The Library provides a search interface in the Library Catalogue

☐

iv) The Library provide relevant OER in the reading lists

☐

6. Which of the following types of OER's are integrated into your library?

i. Electronic books and open textbooks

☐

ii. Electronic journals

☐

iii. Audio podcasts

☐

iv. Slides and class presentations

☐

v. Open coursewares

☐

vi. Interactive games and simulations

☐

vii. Video lectures

☐

viii. Tutorials/ course modules.

☐

ix. Virtual Labs.

☐

Any other please specify\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

7. Which role do you as the Library staff play in the integration of OER in your library?

i) Metadata Description

☐☐

ii) Managing intellectual property

iii) Digital Information Literacy

☐

iv) Providing access to trusted relationships

☐

v) Managing the OER's

☐

vi) Marketing of OER's.

☐

8. Which of the following accessibility methods does your library user use in the access of OER?

i) Institutional Repositories

ii) Learning management systems

iii) Institutional websites

iv) Third party services e.g. you tubes

9. Do you provide training on the use of the OER to your library user?

Yes

☐

No

☐

10.If yes to the above questions which of the following measures do you use to train your library users.?

i) Library orientation

☐

ii) Knowledge ambassadors clubs

☐

iii) Information literacy classes

☐

iv) During Library's week.

☐

Any  
specify

other

please

---

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11. What are the barriers to the integration of OER's with other information materials in your library?

i. \_\_\_\_\_

ii. \_\_\_\_\_

- iii. \_\_\_\_\_
- iv. \_\_\_\_\_
- v. \_\_\_\_\_

### Section C: Policies Governing the Integration of OER in the Library.

12. Do you have a policy on the integration of OER in your library?

Yes ☐ No ☐

13. If yes to the above question, is that policy discussed and approved by the library management?

Yes ☐ No ☐

14. If Yes to the above question which of the following issues does the Policy address?

- i) Integration of the OER's ☐
- ii) The role played by the Librarians in the integration of the OER's ☐
- iii) The type of OER's to be integrated in the Library ☐
- iv) The access methods ☐
- v) Licensing Methods. ☐

15. If no to the above questions why is the policy not approved by the library management?

- i) \_\_\_\_\_
- ii) \_\_\_\_\_
- iii) \_\_\_\_\_
- iv) \_\_\_\_\_

### Section D: Open Educational Resources Integration Licensing Mechanisms

16. Are you aware of the existing licensing mechanism adopted in the integration and access of OER's in your library?

Yes ☐ No ☐

17. If yes to the above question which of the following licensing mechanism are adopted in the library?

- i) Creative commons ☐
- ii) Copyright ☐
- ☐

- ii) Public domain

18. Which of the following creative commons rights are allowed in your library?

- i) Attribution- Others can copy ,distribute your work if they credit your name ☐
- ii) No derivatives works –others can only copy, distribute or perform verbatim copies ☐
- iii) Share alike –Others can share your work only under your license you have used ☐
- iv ) Non- commercial-others can copy, distribute, display your work for non-commercial ☐

Section F: Barriers to the Integration and use of OER in your Library

19. Do you face any barrier in the integration of OER in your library?

Yes

☐

No

☐

20. .If yes to the above question which of the following barriers do you face?

- i) Intellectual property and copyright issues ☐
- ii) Quality of resources available ☐
- iii) Lack of awareness of OER in academic institutions ☐
- iv) Technological fragmentation ☐
- v) Institutional barriers. ☐

21. In your own opinion which are some of the solutions on the barriers of integration of OER'S in academic libraries to facilitate learning and teaching?

i) \_\_\_\_\_

ii) \_\_\_\_\_

—

iii) \_\_\_\_\_

—

iv) \_\_\_\_\_

—

v) \_\_\_\_\_

—

**Thank you and God bless you**

## **APPENDIX II: INTERVIEW SCHEDULE FOR THE UNIVERSITY LIBRARIAN**

How long have you worked in this library?

Open educational resources have been perceived as important in widening access to education. How does your library promote the use of OER? What are the policies that govern you as a library in the integration of OER?

Most publishers are availing open textbooks for use in libraries with no reservations provided .Have your library been able to acquire the open textbook?

Which are some of the challenges that you face as a library as you integrate the available OER?

Could you please briefly describe some of the measures to curb the barriers to the integration of OER?

THANK YOU

### **Appendix III –OBSERVATION CHECKLIST**

The observation checklist was used to collect observable information pertaining the integration of OER'S at the universities and the library webpage

1. Availability of links to electronic resources, open textbooks, Different types of OER'S.
2. Policies governing the library including the OER integration policy.
3. Presence of licensing mechanisms.
4. Availability of OER Integration mechanism.

## Appendix IV: RESEARCH PERMIT


**THIS IS TO CERTIFY THAT:**  
**MS. JANE WANJA MWANGI**  
**of KENYATTA UNIVERSITY, 53067-200**  
**Nairobi, has been permitted to conduct**  
**research in Kajiado , Kiambu , Nairobi**  
**Counties**


**on the topic: INTEGRATION OF OPEN**  
**EDUCATIONAL RESOURCES TO**  
**FACILITATE TEACHING AND LEARNING: A**  
**CASE OF SELECTED UNIVERSITIES IN**  
**KENYA**

**for the period ending:**  
**9th March, 2018**

**Applicant's**  
**Signature**

**Permit No : NACOSTUP/17/57041/15714**  
**Date Of Issue : 9th March, 2017**  
**Fee Recieved : Ksh 1000**



  
**Director General**  
**National Commission for Science,**  
**Technology & Innovation**



## APPENDIX V: RESEARCH AUTHORIZATION



### KENYATTA UNIVERSITY GRADUATE SCHOOL

E-mail: [dean-graduate@ku.ac.ke](mailto:dean-graduate@ku.ac.ke)

Website: [www.ku.ac.ke](http://www.ku.ac.ke)

P.O. Box 43844, 00100

NAIROBI, KENYA

Tel. 8710901 Ext. 57530

Our Ref: EG5/OL/LTY/24671/2014

DATE: 18<sup>th</sup> December, 2016

Director General,  
National Commission for Science, Technology  
& Innovation  
P.O. Box 30623-00100,  
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR JANE WANJA MWANGI REG. NO.  
EG3/OL/LTY/24671/2014

I write to introduce Ms. Jane Wanjia Mwangi who is a Postgraduate Student of this University. She is registered for M.Lis. degree programme in the Department of Library and Information Science.

Ms. Mwangi intends to conduct research for an M.Lis. Proposal entitled, "Integration of Open Educational Resources to Facilitate Teaching and Learning: A Case of Selected University Libraries in Kenya".

Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBAABU  
FOR: DEAN, GRADUATE SCHOOL

W/om

