

**UPTAKE OF OPEN ACCESS INITIATIVES AND INCENTIVES IN
MIDDLE LEVEL COLLEGE LIBRARIES IN KENYA: CASE OF THE
KENYA INSTITUTE OF MANAGEMENT LIBRARY NETWORK**

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF
MASTER OF LIBRARY AND INFORMATION SCIENCE, DEPARTMENT
OF LIBRARY AND INFORMATION SCIENCE, UNIVERSITY OF
NAIROBI**

2016

DECLARATION

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

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ACKNOWLEDGEMENTS

My special appreciation goes to my supervisors, Dr. Grace Irura and Dr. Elisha Makori for their invaluable guidance and support. My appreciation also goes to Dr. Dorothy Njiraine, the Chair Department of Library and Information science for introducing me to the course. I would also like to thank the University of Nairobi for providing the opportunity to study and in particular the library department. May God reward you all.

DEDICATION

This project is dedicated to my wife Alice Muthoni for the support during this tenure of my master's programme.

ABSTRACT

Libraries in developing countries are struggling to provide information in the most efficient and effective methods of providing to their clients. This has been necessitated by the rising cost of print information resources coupled with the dwindling library budgets. In addition, space utilization has been affected due to the storage of student projects within the libraries. The purpose of the study was to determine the uptake of open access initiatives and incentives undertaken in middle level college libraries in Kenya with the view to improve delivery of information services in libraries. The study sought to establish the initiatives and incentives used to implement and sustain open access in middle level college libraries with special reference to the Kenya Institute of Management Library Network. It established the methods used to promote open access initiatives in middle level college libraries. Objectives of the study were: explore the components that determine quality and quantity of research publications, assess the impact of Open Access incentives in improving delivery of library services in an academic library, investigate ICT infrastructure and components necessary for the implementation of open access and explore the use of information literacy as a model for sensitization of open access at the Kenya Institute of Management. Nature of the study was based on a case study approach where both qualitative and quantitative were used. It targeted a total population of 155 respondents that included Librarians, senior library assistants, library assistants, school of management staff and lectures. The sample of the study was 110 respondents who were sampled through purposive sampling method. Data collection methods included use of survey questionnaires, telephone interviews. Qualitative and quantitative data was analyzed and involved the application of tables and pie chart. The study found out that middle level libraries could improve the quality and quantity of research by use of policies, availing local content research as an incentive for publishing in open access, implementation of an institutional repository, application of various ICT components such as good intranet and networking system, use of webometrics in raising the impact factor of research. Thus, the study proposed several recommendations which included; more research should be conducted on open access in middle level colleges' more advocacy of open access should be provided through information literacy, the library should initiate publishing of research in open access institutional repository and to establish a publishing department.

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LIST OF ABBREVIATIONS AND ACRONYMS

APC:	Article processing charge
BOAI:	Budapest Open Access Initiative
CHE:	Commission for Higher Education
KICD:	Kenya Institute of Curriculum Development
KIM:	Kenya Institute of Management
IR:	Institutional Repository
OA:	Open Access

CHAPTER ONE

1.0 Introduction

This chapter introduces the areas of study including the background information of the study, research context and statement of the problem. It also seeks to identify the aim and objectives of the study, research questions and the importance of the study. This chapter outlines the assumptions of the study, scope and the limitations.

1.1 Background to the Study

The advent of scientific journals back in the 16th century, meant that scientific publications were shared without any financial incentives or rewards. The idea was furthered by the need for the advancement of the scientists' careers in comparison with other scientist publishers in similar fields of discovery for solutions to various issues facing the society. The advent of the Internet meant that print books that were in the older days donated with the only cost being that of subscription could eventually face stiff competition due to actualization of open access (Cannessa and Zennaro 2008, p. 5). Additionally, the advent of the Internet brought about the surge in the cost of journals to five times higher than the rate of inflation. Consequently, academic institutions have had a challenge in subscribing and accessing online journals due to the ever increasing cost. As a result, researchers have been forced to identify and implement other means of communicating and sharing their scholarly works by offering open access initiatives (Cannessa and Zennaro 2008, p. 5).

Open access is geared towards eradicating barriers that prevent free access to manuscripts, journals and other scholarly electronic information resources. Researchers in the developing world have had challenges in publishing their work in terms of lack of proper networks, funding and the digital divide issues. Scholars are optimistic of the fact that open access will bring about

the improvement of research and elevate the levels of education. Consequently, open access initiatives can bring about or increase institutional visibility, access and linkages of the institutional websites. This will reward the universities in such important ways such as increased funding for scientific research and achievement of high impact factor.

Open access journals are classified in various forms according to the policies and guidelines that mandate their accessibility. This means that open access must be governed by policies, whether journals are peer reviewed and if any cost is pegged on the journals. Open access journals are further classified in terms of whether they are in gold, green, or self-archiving. The green journals are journals that the author together with the institution that has published the journal pay an agreed amount of money for the publication of the journals, they are institutionally delivered and repository based (Eve, 2014, p. 8). While the gold journals is where the journals are free for the public use in their own open access repository. Gold journals are also in the hybrid format where by the subscribed journal articles have articles that are freely available to everyone (Eve, 2014, p. 9). Again the gold open access journals and online books do not require the user to subscribe at a cost and neither is there an institutional login format (Eve, 2014, p. 9). Lastly, there is self-archiving which means author publish their research without any royalties. Researchers in developing countries in Africa have been experiencing challenges in implementing open access initiatives in terms of limited resource, equipment's, funding in relation to dwindling library budgets, lack of training on use of open access repositories and the inability to deal with high rate of release of current technologies (Hoba, 2015). Additionally, African developing countries have had a rigid acceptance of open access due to lack of globally renowned researchers, lack of journals and lack funding for research (Hoba,2015).

However, Africa's commitment to open access acceptance can be traced back in the 1979 during the Monrovia declaration, Lagos Plan of action (LPA). Again during the Khartoum similar decision were made in the year 2006 all this were aimed at creating awareness on the need for African countries in investing heavily and seriously in research (Whydah, 2013, p. 2). Through the Berlin Declaration in October, 22, 2013, academic institutions were required to append their signatures on the Berlin Declaration. To date there have been two hundred and forty presentations regarding the development of open access sustainability among them one held recently in South Africa in the year 2012. It is worth to note that all the conferences have been based on a various themes regarding open access development (Whydah, 2013, p. 3). To further the argument on Africa's initiatives in open access, universities in Africa have gone a step further, by embracing open access policies. Some of the universities include: University of Nairobi, Strathmore University and in South Africa, University of Pretoria. There are other stakeholders related with knowledge sharing and dissemination of information and consortiums such as electronic information for libraries (eIFL), INASP, IDRC and SARUA (Whydah, 2013, p. 3). To date the right to access information is considered mandatory and has consequently been enshrined in various constitutional laws in developed and still developing nations such as Kenya. As a result, the Kenyan government for example has steadily hastened the need for her citizens to be presented with information in an effective and efficient manner such as the electronic access of information (Nwagwu, 2013, p.10).

In Kenya, open access has been advocated by academic libraries through initiatives such as the Kenya library and information science consortium (KLISC) which was established in the year 2004. KLISC has been spearheading policy formulation and open access journal publishing to its members. KLISC is a library consortium made up of academic libraries of universities and

middle level colleges as well as parastatal libraries (Matheka et al, 2014, p. 33).KLISC aims at providing access to electronic resources and open access journals by subscribing to the International Network for the Availability of Scientific Publications which is an international consortium for providing electronic resources. Another initiative is Programme for Enhancement of Research which has been able to facilitate and sustain provision of open access by enabling publishing in open access journals such as Africa Journals Online and also creating awareness on open access repositories (Matheka, 2014, p. 26).Electronic Information for Libraries (EIFL) has been also in the forefront in promoting and facilitating open access initiatives through trainings. In particular Kenyan universities such as the University of Nairobi have played a great role in furthering open access. The University has been able to advocate for open access policies by organizing series of trainings to the University top leadership (Matheka et al, 2014, p. 28).Adoption of open access policy formulation has been advanced by such institutions such as Strathmore University, Jomo Kenyatta University of Agriculture and Technology, Multimedia University. In every year both the University of Nairobi and the Jomo Kenyatta University Agriculture and technology have been organizing an open access week to enlighten the students about open access and the need to implement publishing in their institutions (Matheka et al, 2014, p. 35).Most African governments lack in the formulation of open access policies and the Kenyan government is not exceptional. However, it has made some vital strides by establishing the National Commission for Science and Technology and Innovation. The commission has facilitated for grants that have been used to support scientific research and innovations at national level. The commission has been able to steer interest within the research field and researchers have been able to identify with it in terms of partnering with the commission to research on new innovations (Matheka et al, 2014, p. 41).

1.1.1 Context of the Study

The Kenya Institute of Management is a not-for-profit professional membership-based management and leadership development organization set up in 1954. The principal objective for which the Institute was founded was to disseminate knowledge, stimulate interest and promote research in effective management practices. It was established as the British Institute of Management ostensibly to address glaring gaps in management development in the country. Later in the 1960's the forum changed its name to the East African Management Forum and then the Kenya institute of management. The Institute is incorporated under the companies Act (cap 486) of the laws of Kenya as a company limited by guarantee. The consent for The Kenya Institute of Management (KIM) to issue diplomas and certificates is contained in legal notice no.375 of year 2002. The diploma programs were validated by the then Commission for Higher Education (CHE) and the reviewed content has been submitted to Kenya Institute of Curriculum Development (KICD) as required by law. The Institute is run by a council with delegated authority to various committees and the management subject to its memorandum and articles of association (MAA). The council, headed by the Council chairman, governs the institute. KIM has various standing committees for effective and efficient governance. Membership to the council is drawn from a broad spectrum of individual members, including the branches, which are represented by the chairman to their committees. The proceedings of its council are guided by the MAA with regular board reviews done to monitor the execution of its mandate. The Institute has an academic unit, the Kenya Institute of Management School of Management (KIMSOM) under which its academic and professional certifications are run.

The Kenya Institute of Management library network is comprised of twenty two branch libraries countrywide and a library secretariat office that is responsible for coordinating library services. The services include identifying relevant information resources, acquisition of information resources in print and online formats-that is the electronic resources and processing and dispatching the processed print information resources. In addition, the library secretariat is charged with the responsibility of policy formulation which includes collection development policy, reader's services policy, stock taking policy and weeding and disposal policy. The KIM library network has a total collection of thirty five thousand books in print and has subscribed to thirty seven electronic resources databases through the Kenya library information science consortium. The library network comprises of the head of library services, librarians at the secretariat and at the five main branch libraries, assistant librarians and library assistants.

1.2 Statement of the Research Problem

The anticipation of open access at various institutions of higher learning in Kenya has been very slow in spite of the global initiatives through workshops and trainings. One out standing feature of open access is the fact that it has low-barrier access to the intellectual content produced by various institutions which seek to increase the awareness of the existence of the institutions (Ezema, 2011).From a technological point of view, open access initiative in Africa are at a slow pace due to digital divide (Eve, 2014). This is to say that there are areas in Africa, Kenya in particular that lack access to stable internet connection, hardware resources such as computers, software for running the computer programmes. Digital divide therefore, prevents the free sharing of information due to the fact there are people who have access to internet while others lack access to the internet. Challenged by shrinking budgets libraries in Africa and especially Kenya are starting to accept the need for initiating open access at the libraries (Matheka, 2014).

This is due to the fact that electronic online databases such as Emerald are increasingly becoming expensive to purchase as an individual institution. However, even with libraries forming consortiums such as KLISC, the cost of purchasing the databases as a consortium has increased considerably. For instance, in the year 2010 the cost of subscribing to electronic databases was two hundred and fifty Kenya shillings for the thirty seven databases KIM has subscribed to. Currently, institute is acquiring the electronic databases at four hundred and eighty thousand Kenya shillings, (KIM, 2015).

The uptake of the open access through establishment of open access institutional repository at the Kenya Institute of Management has stagnated due to the fact that there is a gap in decision making on how to promote research content by the students as well as the academic faculty and staff in general. As a result this has affected the ranking and visibility of the institution and again lagging behind in curbing plagiarism. Additionally, the institute has no policy on how to deal with the hard bound copies produced by the students. This has been a challenge in that each branch of the institute has been forced to acquire more space at the cost of the institution for the purposes of storing hard bound projects for all its students since inception (KIM, 2015). Costly affair it is, since the institution has to cough up more money for additional space which can be catered for by an open access institutional repository. The foregoing issues bring to light the need to initiate an open access mandate to enable the Kenya Institute of Management library network to better deliver its services to its clients.

1.3 Aim of the Study

The purpose of this study was to determine uptake of open access initiatives and incentives in middle level college libraries in Kenya using the Kenya Institute of Management library network with the view to improve delivery of information services in libraries.

1.3.1 Objectives of the Study

The specific objectives of the study included to:

1. Explore the components of open access initiatives as a tool for validating quality of the research in middle level college libraries in Kenya
2. Assess the impact of open access incentives in improving delivery of services in middle level college libraries in Kenya.
3. Investigate ICT infrastructure and components necessary for the implementation of open access in middle level college libraries in Kenya.
4. Explore the use of information literacy as a model for sensitization of open access in middle level college libraries in Kenya.

1.4 Research Questions

The study sought to investigate the following questions:

1. What are the benefits of using a repository in evaluating the quality of research produced by the institution?
2. What are the incentives and initiatives required for open access implementation?
3. What are ICT components required for required for the implementation of open access?
4. How has Information literacy been used in sensitizing open access?

1.5 Significance of the Study

This study attempted to fill an information gap on the implementation of open access uptake in middle level colleges in Kenya. The study explored the importance of implementing open access and institutional repositories initiatives in middle level colleges in Kenya. This was achieved by examining the barriers to initiate open access in middle level colleges. It offered an opportunity for middle level colleges to address the issue of shrinking budgets in provision of information resources by offering an alternative for access of information resources free from financial and legal barriers. The study also sought to assess the quality and quantity of the research produced by students and staff at the Kenya Institute of Management. Additionally, the study brought to light the need for middle level colleges to confidently assume the role of publishing in their mother institution and to promote research and publishing in the institutions. Finally, the study presented suggestions to middle level college's, chief been to embrace the role of a copyright associate in the library department with the objective of curbing plagiarism.

1.6 Assumptions of the Study

The following were research assumptions of the study.

1. Uptake of open access improves the visibility of the middle level colleges in Kenya.
2. Information resources are freely available for all since there are no financial and legal barriers pegged on the information resources.
3. Open access is an economical solution to purchase of expensive information resources in both print and electronically.

1.7 Scope of the Study

The study was carried out at the Kenya Institute of Management and in particular the library network - country wide with the purpose of examining the initiatives applied in the uptake of

open access in middle level colleges in Kenya. Kenya Institute of Management is one of the leading middle level colleges in Kenya that offers management allied courses.

1.8 Limitations of the Study

The study encountered several challenges: availability of time in getting KIM staff to aid in information gathering. The availability of resources such as funds hindered the researcher from successfully getting response from all the respondents by travelling to the branches. Due to lack of enough data the study was aided by information resources from various scholars on open access uptake.

1.9 Definition of Operational Terms and Concepts

Challenge

Source of hindrance or slowness in uptake of OA initiatives in middle level colleges in Kenya.

Data mining

Analysis of harvested data to identify relationships in large quantity of data

Institutional Repository

Online and digital hub or portal established for purposes of collecting, preserving and disseminating intellectual output of institutions.

Kenya Institute of Management

A college that specializes in offer management courses in Kenya

Metadata

Data that describes about data

Middle level Colleges

Institutions that specialize in offering certificate and diploma courses only.

Open Access

The access of information that is free from any financial and legal barriers.

Open Access Initiatives

This are the strategies, components of implementing open access in academic libraries.

Open Access Journals

Journals that provide free access to articles where users access articles without any charges.

Web 2.0

Emerging methods of sharing, collaboration of information

1.10 Chapter Summary

This chapter gives detailed information that covers the background of the study, place of study, statement of the problem, aim of the study, objectives of the study, research questions, and assumption of the study, scope of the study, limitations to the study and significance of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter seeks to review literature on open access initiatives on service delivery in middle level colleges in Kenya. This was based on the objectives that drive the uptake and establishment of open access at the Kenya Institute of Management library network. The themes of the study included the incentives and initiatives that have been implemented by middle level colleges in availing information resources produced by their students and lectures with the main aim of establishing open access institutional repositories and its impact to the institutions. Additionally, this chapter sought to compare what different authors have contributed in terms of initiating open access institutional repositories.

2.1 Open Access Movement

Open Access movement has brought about innovativeness in terms of efficiency and efficacy in dissemination of research publications that is easily quantitatively measured by methods as webometrics such as high impact index (UNESCO, 2015). Technology has had a major impact on the development and movement on Open Access due to fast developments in the ICT field. Early years of the 21st Century were marked with the academic fraternity attaching themselves with Open Access movements within the world this meant that research was easily accessed globally by other researchers without any subscription cost. This was followed by the application of the rights that govern the producers of research literature and the users (UNESCO, 2015). Although the financial restrictions to access research was overridden by laws on copyright that prohibited the use opening up of research to the world and reuse of research publications. Various initiatives in the form of declarations in the 21st Century played a big role in the forming a strong

foundation for Open Access advocacy (UNESCO, 2015).The initiatives were as follows, Budapest Open Access Initiative in the year (2002).This declaration mainly proposed that researchers and the academic community to publish their research in academic journal articles at no cost for the purposes of promoting knowledge such as health related information (UNESCO, 2015).While the Berlin declaration which is the second initiative in the year of (2003) focusing on the impact of the internet towards Open Access movement. Therefore, the Berlin declaration was to advocate for internet use in the promotion of Open Access. In the same year the Bethesda declaration which stated that research publication should be published immediately from a broad perspective and in an efficient and effective manner (UNESCO, 2015).The three declarations received major support in terms been recognized by funding bodies academic researchers and societies from globally renowned scientist and academicians with national and academic institutions basing their Open Access mandates in line with the three declarations (UNESCO, 2015).

One of the earliest initiative in terms of a repository was arXiv repository in the year 1991 developed and initiated to advocate for self-archiving of electronic materials in the field of mathematics, physics and computer related studies (UNESCO, 2015).Open Access can be accessed through the gold and green models of accessing research. However, there are other models that have been used by commercial publishers these include, Open Access-hybrid, delayed Open Access, Short-term Open Access, Selected-Open Access and lastly Partial-Open Access (UNESCO, 2015). Moreover, the 21st century was marked with other initiatives that were related to the registration of institutional repositories in various online directories. During the same period DOAJ recorded 9750 academic Open Access journals while OpenDoar had 2600 Open Access repositories by March of 2014.It is worthy to note about the emergency of

predatory Open Access database which have an APC cost that is usually pegged on the publisher and authors (UNESCO, 2015). However, DOAJ is always at hand to notify the academic communities of the various predatory databases and journals by excluding them from the Open Access regulatory bodies. Various academic institutions have introduced open access initiatives by either signing international declarations. For example, the formation of Coalition of Open Access Policy Institutions (COAPI) by the European Universities Association (Caruso, 2013, p. 13). These universities have gone further to request authors and the academic community to have their research deposited in their academic institutional repositories, a good example is the Harvard's open access policy model of the year 2010 (Caruso, 2013, p. 13). Universities have gone further by establishing mandates that require authors to have their green open access articles for those authors that they support financially. Gargouri, (2012) studied the uptake of open access in universities and found that, universities that had open access mandates ranked at 60% use of Open Access compared to universities that lacked open access mandates was at 15%. This shows that mandates play a major role in advocating for open access initiatives in academic institutions since the mandates not only guide the implementation of open access but also act as incentives for researchers to publish their articles in open access initiatives (Caruso, 2013, p. 13). Academic institutions that have embraced open access have set aside funding in support of open access initiatives.

2.2 Quality and Quantity of Research Publications

For both scientific and student academic research to be considered open access it should be free from financial barriers but at the same time can be accessed digitally (Eve, 2014, p. 1). Research whether academic or scientific go hand in hand with open access. Consequently, research work is fundamentally based to unearth new aspects in life or a given field, disapproving published

research work. In addition, published and shared research can be used for citation and acknowledging findings on a given field, seek to identify new findings and its value (Eve, 2014, p. 28) and provision of references for use with current literature. Bonilla-Calero, (2012, p. 51) points out that quality of research has been evaluated by use of such databases as Web of Knowledge, Scopus. However, open access can be used to measure or evaluate quality and quantity of research by increasing the visibility and advocating of emerging publication methods. Crawford, (2014, p. 56), alludes that open access cannot be implemented and sustained without creating awareness and involving such stakeholders such as community scholar's and researchers in various fields. Crawford (2014, p. 57), furthers this argument by identifying areas that need to be made clear to researchers. Researchers need to know open access journals that are relevant to their respective disciplines, in relation to this researchers could make use of open access institutional repositories by enlightening the academic fraternity on the benefits of using institutional repositories.

Moreover, researchers and scholars need to realize that open access widens their target audience and improves journal citation impact, it up scales a researcher's career due to increased retrievable journals, their visibility, increased use and increased citation by academic fraternity. Various studies have indicated there been a symbiotic relationship that shows a strong relationship with open access in relation to increase in the citation count from 50%-250% (Crawford, 2014, p. 58). Additionally, increased utilization of open access is due to the fact that even the well-funded universities and middle level colleges are having trouble with increased subscription fees for online journals. This is to say that the more open access is used the more online journals will be available for the general public. Suber, (2012, p. 104) articulates that student academic projects, dissertation and thesis form the main ingredients for an academic

institutional repository due to their invisible nature. He further argues that the three if well fine-tuned and monitored all through the final package can beckon the use of open access due to their high quality but low access and visibility. Suber, (2012, p. 105) qualifies that open access can benefit the provision of online thesis and dissertations through routine self-archiving. This in turn attracts and directs the publication to the right audience. Publication of online dissertations and thesis in open access institutional repository will seek to create an image of high quality and standard that will attract more funding for increased research. Suber (2012, p. 117), argues that open access will benefit medical research for the simple reason that non-medical professionals always seek to understand various medical conditions that may be affecting them or their relatives in a bid to self-medicate. Thus open access operates on a symbiotic relationship by benefiting both the researchers and the general public.

Moreover, implementation of open access will foster collaboration of e-research partnership between the local government and university as well as other institutions (Shari, 2012, p. 593). Shari (2012), further argues that government based research sectors in the developing countries have intensified the need to utilize e-research to foster collaboration. Sale, (2013), advances this idea by suggesting that implementation of e-research will make scientist and scholars to feel obliged in sharing their work through the current technology because of its effective and efficient mode. However, open access initiative and access to open data in relation to promoting research access should be carefully approached without so much excitement. This is to say that the main aim of hosting and implementing free access to research should follow the rules and principle of scientific research to avoid unworthy publications that are not up to standard (Lindenmayer, 2013, p. 338).

2.3 Open Access Incentives and Library Services

Promotion and advocacy of open access initiatives can be sustained by use of provision of incentives to the researchers and also publishers. This is to say that researchers, authors as well as publishers need to be enticed with rewards. There are various rewards that are used to entice researchers. For instance publishing in a journal database with a high impact factor will create increased visibility for the researcher globally. For example, very recently Oxford University Press has announced to its members that it has a rating of 21.8% of journal ranking on a single subject basis (OUP, 2015). Again researchers could be rewarded on financial terms against their publications (Lapinski et al, 2013). One way to achieve this is by making publications in mega journals where submission time is fast and is varied in terms of the range in scholarly disciplines (Biork & Solomon, 2012). To further this development Norman (2012) states that mega journals have various components such as good sound science, credible academic editors, fast turnaround time. Recent trends indicate that researchers have realized that the journal titles to which they have made publications on are diminishing in relevance in terms of prestige and are more focused and concerned on the high impact they stand to attain through open access usage journals that are not title based (Lozano et al., 2012).

Open access implementation and sustainability cannot be solely based on the incentives to drive to the right audience but also requires the efforts of librarians to promote acceptability of scholarly publications (Mullen, 2015, p.30). Instructional librarians have several vehicles to promote open access such as information literacy training and library and information science education. Instructional librarians should take advantage of the open access on the reduction in cost of subscribing to serials and online journals. Secondly, reference and instructional librarians are able to avail the subscription based and open based online articles and package the

information and share it with the different library clients (Mullen, 2015, p. 30). Additionally, there are various ways in which librarians can package and avail the open access information to the library user and these results to an increase in research sensitization, self-archiving as well as publishing that will result to high impact citation. For this to be achieved Hoba (2015) argues that reference librarians should be instrumental in advocating for a library mandate that will seek to enhance promotion and use of open access with main consideration of policy formulation to support toll free online information materials. Hoba (2015) further alludes that reference librarians should encourage implementation of an open archive institutional repository combined with the relevant search engines and open access journals. Consequently, (Mullen, 2015, p. 30) emphasizes that reference librarians can evangelize about open access through awareness during information literacy, use of the virtual system such as Skype, webinars and also the reference section. Again the library OPAC with the help of online guides can be able to manage and provide for a wider range of information.

To strengthen the virtual platform of information sharing Mullen, (2015, p. 32) suggests that reference librarians should be at the forefront in advocating for the implementation of institutional repositories. This will enable them to harness, manage academic research and expose the information in terms of full text either in html or pdf to the immediate academic community. Provision of scholarly index and databases against what the library can access and provide to its immediate users is another important aspect for promoting open access. The indexes can be supported by integrating various open access databases such as Google scholar, DOAJ. Mullen, (2015, p. 35) stresses that reference librarians can further enlighten library users by vetting open access online databases that the scholarly community would wish to have their research published and to gain high impact citation. They are able to scrutinize journals of high

repute as well as open access indexes so as to advise their clients on quality and reliable information resources. A study by Science-Metri on heads of library services in universities were to provide information on the rewards and incentives associated with open access in their institutions. The study revealed that 49% stated that their institutions had no rewards for authors, 36% stated that there was lack of policies in their institutions. While 15% stated that self-archiving was a requirement by the institution while 14% stated that authors received funding from the mother institution (Caruso, 2013, p. 19).

2.4 Information Literacy

Mullen (2015, p.35) suggests, that librarians should advance from the traditional form of training of information literacy from the subscription journals to include open access information resources databases. This enlightens researchers of high repute who are concerned with high impact citation and metrics. In most cases librarians are known to conduct orientation to new students and lecturers at the beginning of the semester. Information literacy should be a continuous form of education training to enlighten on the change in curriculum, new online publications, publishing issues, plagiarism issues and also on access of open access online books from book boon website. Furthermore, reference librarians can create awareness of open access can be by entailing marketing strategies such as use of posters such as those of online open access databases for example Hinari medical database, brochures, monthly library bulletins and also hosting a library- open access week to create awareness of the toll free online information resources (Mullen,2015, p. 36).

Various literature have examined the librarians' influence in the teaching aspect of information literacy in different scenarios or situations. Changes in the education sector and due to the emerging technologies have resulted to librarians inheriting a new role of teaching. This is due to

the provision of information literacy education sessions into condensed programs, integration of information literacy in the curriculum and designing of an information literacy course outline, introduction of distance learning (Vassilakaki, 2015, p.41).These responsibilities have brought about the assimilation of librarians to be incorporated as teachers in the education system due to their relation with teaching. Thus the need for collaboration between the academic faculty and librarians in taming students from use of google over institutional repositories (Vassilakaki, 2015, p. 41).However, there are factors that affect the teaching role of librarians these include: lack of the academic faculty in accepting librarians as part of the teaching team, lack of the institutions in streamlining the roles of the academic faculty and that of the librarians, Lack of an agreement and collaboration between the academic faculty and the librarians, lack of scheduling for information literacy as part of the course content, lack of teaching skills by librarians, lack of pedagogical skills for information literacy, unwillingness by librarians to incorporate expertise in information literacy delivery and continuous development of their teaching skills (Vassilakaki, 2015, p. 41).

However, recently studies have indicated that librarians have renewed their interest in gaining pedagogical skills and improving in their information literacy training. Several studies have been conducted on librarians and their contribution to the education sector in terms of teaching information literacy in middle level colleges. A study conducted by Montiel-Overall and Grimes (2013) on teachers in primary school with regard to information literacy, revealed that a lot of time was used to enlighten teachers as well as librarians in in terms working as a team and thus the senior staff in the schools were not aware of the librarians contribution to teaching neither were they considered as part of the academic faculty (Vassilakaki, 2015, p. 43).

Similarly, Julien and Genuis (2011) examined the both professional and non-professional librarians in Canadian institutional libraries. The study revealed that librarians were positive on offering instructional services but were faced with poor acceptance by the institution, emerging changes in technology, limited collaboration with the students and lack of proper training skills in teaching. A survey examined by Abrizah (2010) revealed that librarians had several jobs descriptions regarding instructional training these included having skills to use current technological developments, advocacy, marketing as well as the implementation of institutional repositories with the need to increase the visibility of the their academic institutions (Vassilakaki, 2015, p. 43). Additionally, Casella and Morando (2012) state that there is need for librarians to align themselves with competences allied to their role as librarians such as scholarly communication, copyright issues and digital preservation methods and managerial skills for managing their staff in libraries (Vassilakaki, 2015, p. 44). Shumaker and Makins (2012), examined the role of librarians in information literacy based on four themes namely; contribution by librarians, advocacy methods, evaluation managerial skills. They found out that librarians offered information literacy on verbal terms without any practical aspect. Edwards (2011), examined the contribution by librarians and use of Medline course. The study revealed that though librarians offered guidance to students on how to access information the same students indicated that librarians were insignificance in relation to accessing the information (Vassilakaki, 2015, p. 46). Both Hofman (2011) and Norelli (2010) conducted studies which revealed librarians need to have their roles defined and to have separate roles from the academic fraternity.

2.5 ICT Infrastructure

The emerging trends in ICT and the changing roles for librarians have meant that librarians assume the role of publishing through involvement in creation of metadata, data mining, promoting and disseminating research, assisting researchers in self-archiving and working with publishers to have the research published in institutional repositories (UNESCO, 2015, p. 13). Due to advancement in ICT, gathering, archiving, disseminating and communicating of information has become easier and a cost effective mode of sharing information. In terms of publishing, ICT plays a vital role in hosting of online journals or self-archiving of journals through the functions of publications which includes registration, peer review and sharing of information (UNESCO, 2015, p. 14). Aside from archiving information librarians by fostering open access will by default promote preservation of online information resources by storing research for use and re-use (Kumar, 2015, p. 26). Academic librarians and in particular reference librarians can preserve information resources in digital systems such as Dspace and dogmaster. Recent technologies in the ICT sector have been advanced by models such as Web 2.0 technology, which in turn has led to the introduction and use of social media applications to bolster sharing of knowledge and information resources in real-time (UNESCO, 2015, p. 15). Use of Web 2.0 technology in promoting open access means dissemination of information will be applied through web applications such as skype for video, Webinars. Additionally, media tools such as face book, blogs, cloud computing have revolutionized sharing of information, storage of information and facilitating discovery of information (Priem, 2012). Similarly, computer networking cannot only be restricted to connectivity of facilities in the office but extends its use by providing for connectivity through mobile phones that is accessing information via mobile phones. Networking has recently affected mobile operators by hosting mobile virtual operators

which has in turn led to increased competition in offering information via mobile phones. Open access has also resulted to the need for providing and sourcing for funds to initiate broad band connectivity. However, Open Access has been well facilitated through networking by use of such models as TCP/IP networking in office connectivity. (OECD, 2012, p.4.).It is worthy to note the new trends that facilitate open access in terms of e-learning. This has been facilitated through multimedia tools for communication such as communication of information through videos, animations and webcasting. This requires a higher bandwidth a fact that most academic institutions have not achieved due to financial constraints. A higher bandwidth is important for downloading the videos and animations as well as storage of the same information in that format (Abrizah, 2010).The introduction of digital form of information has led to increased use of repositories in embracing open access initiatives in academic institutions. Priem (2012) states that data mining or text mining of articles in journal database improves research efficiency through unearthing and producing new information which supports the research procedures of publishing and reduces cost but also aides in innovation. The more a website is visited the more does the ranking of the institution increases. This then publicizes the institute activities, location, services offered and vacancies. In this case, respondents were required to rate how effective websites are to the implementation of open access in institutions in relation to institutional repositories. Another example is that of google scholar which provides information about an author's profile by providing information on the author's citation impact and research history (UNESCO, 2015 .P.21).

Science-Metrix conducted a survey of head of library services in universities and other academic institutions on what type of repository their institutions had implemented for use on open access. The study revealed that 72% were of the opinion that central repositories were widely used while

15% reported that their institutions had not implemented any open access institutional repositories (Caruso, 2013, p. 18). Various issues affect the use of repositories for digital content. For example, intellectual property rights, preservation of data and the development of infrastructure such as technical issues on metadata, the embargo period and collaboration of academic institutions via their institutional repositories in sharing of digital information and metadata. Metadata application brings about efficiency in discovery of information and consistency, quality, preservation of student projects (Caruso, 2013, p. 18). Several studies have highlighted the various challenges librarians have encountered in terms of technology and in relevance to institutional repositories, virtual libraries. Creaser, (2010) observed that with the constant change in library user needs and technology libraries such as federated or hybrid searching have been forced to change their strategy of searching information by subscribing or purchasing federated search systems offered by library vendors. Priem (2012) states that intranet can be well applied in use of open access by hosting publishing of information, information collaboration, use of e-tools such as OPAC in the library and e-learning. These federated systems improve on seamless searching across many databases. Additionally websites can be used to implement open access by hosting a web portal that archives research and provides open access to research as opposed to having institutional repository. Abrizah (2010) addressed the need for librarians to train researchers on proper self-archiving skills and the need to sustain an institutional repository which in turn would increase the visibility of institutions globally (Vassilakaki, 2015, p. 43).

2.6 Empirical and Intellectual Studies

Various literature shows that factors such as copyright, plagiarism affect the uptake and implementation of Open access. Studies reveal that infringing the copyright- rights of a publisher

affects the academic staff in self-archiving (Lwoga, 2014). Kim (2011) explored at 17 Carnegie universities offering doctorate programmes about factors inhibiting academic staff against publishing in their institutional repositories their works due to infringement of copyright laws. Further Abrizah (2012), identified that low uptake of open access can be instigated by factors such as time line required to deposit manuscripts in institutional repositories and technical issues. The study revealed that cost issues affected both the uptake and application of open access in academic institutions.

Studies reveal that open access uptake can be influenced by offering academic incentives such as preservation of the publication in electronic format, global accessibility, academic reputation and high citation factor (Kim, 2010). However, a study conducted in University of California indicated that academic staff were ignorant in publishing their manuscripts to open access due to the high focus placed on print materials production rather electronic materials. However, Cullen and Chawner (2011) are of a different opinion in that focusing on both print and electronic publications can hinder or promote academic staff in publishing their research in open access (Lwoga, 2014). Another study focusing on academic reputation covering over 3000 academic faculty indicated that increased visibility of researchers publications and academic reputation as the main incentives of self-archiving their publications (Creaser, 2010). The findings of the research indicated that publishing their research in open access would bring about increased publicity and high impact citation. Reference librarians need to advocate for open access because they are best placed in the self-archiving environment. Bolarinwa and Utulu (2011) conducted a survey study on reference librarians in private Universities in Nigeria in relevance to the uptake of open access in academic libraries and found out that they were enthusiastic of the idea but promotion of open access was mild. Similarly, Mecer (2011) studied the behaviors of reference

librarians in terms of publishing and self –archiving. The study revealed that as much as reference librarians were stakeholders in uptake of open access they lagged behind in availing research produced by lectures in institutional repositories. This meant that reference librarians lagged behind in publications via open access as well providing options for access to content (Lwoga, 2014). Bjork (2010) reported that 20 percent of research published in the year 2008 was open access. While Gargouri (2012) had a different variation of 22 percent of the articles produced in the same year were considered to be open access. Elsevier (2013) explored the uptake of various open access models globally and revealed that 5.5 percent of the journals were Gold open access, 0.5 percent were hybrid journals and 5 percent of the Green open access manuscripts. However, the study concluded that the open access models uptake had been studied at different time lines, different methodologies of measurement and could have been re-used in various other open access models (Pinfield, 2015).

The same year in 2008, Archambault (2013) conducted another study which was funded by the European Commission. The study revealed that open access had reached its peak with 48 percent of the published research in 2008 availed in open access by the year 2012. The study was based on 22 subjects of study and further revealed variations on the various subject areas that were used for the study with a conclusion that most of the research published under the study were considered as open access (Pinfield, 2015). The findings showed that the various subject areas such as science had 64 percent in open access, research on biology was 57 percent, biomedical research had 61 percent and mathematics combined with statistics had 56 percent. However, it is worthy to note that the study conducted by Archambault (2013) was limited due to the difference in application of his study between the publishing period and gauging the accessibility of the research in open access (Pinfield, 2015). Similarly, Chen (2014) not long ago conducted a study

that revealed a similar growth of open access which is now at the peak in providing access to scholarly research.

Nicholas (2014) examined attitudes towards uptake of open access based on academic staff in the United States and United Kingdom and revealed that the academic staff were cautious with open access publication due the question of quality of the publications to be included in open access and how the quality of research was gauged and what standards were used to gauge the research. The study revealed that academic staff mistrusted the publication of their research in open access due to lack of sensitization which led to lack of understanding of what open access is and its economic benefits as well as academic incentives. The study further revealed that poor quality research was due to the fact that authors were supposed to pay for their publications to be considered as open access. This was found to be in contrast with the benefits of open access to the author and end user (Pinfield, 2015). It is worthy to note that these studies while revealing high levels of sensitization and usage also portray a different picture whereby there are similar high levels of lack of understanding of the purpose of open access (Nault, 2011).

In a different study, Frass and Gardener (2013) studied the opinions of the researchers on open access use and uptake. This is was done by use of a questionnaire based on a survey method which revealed that most of the respondents were of the opinion that open access provided for more accessibility at 71 percent, high speed publication at 61 percent and 55 percent of increased accessibility as well as visibility (Kaba, 2015). However, the study also revealed that 15 percent preferred to publish their research work in open access. A study based on students under the doctorate programme understanding of open access by Stanton and Liew (2011) revealed that most of the students interviewed had a positive attitude towards open access. The study was conducted by use of interviews and questionnaires. The study also revealed that poor

acceptability of open access could be improved by librarians advocating for the purposes of free accessibility (Kaba, 2015). Gul (2010) explored the purposes of academic staff member's use of open access in promoting academic research. The survey was conducted at University of Kashmir based on the disciplines of science in general and a bias of social science of academic staff on their utilization of open access tools. This study was conducted through an online database. The study revealed that 49 percent of respondents used the electronic databases while 42 percent used open access models. It further revealed that 63 percent of the academic staff on science with a bias of social aspect used open access as compared to 29 percent of the science students (Kaba, 2015). Van de Merwe (2013) examined in two studies on academic staff use open access in teaching at the Durban University of Technology. One of the studies revealed that half of the respondents used open access in teaching by use of quizzes and provision of notes for instructional purposes with online materials been the most popular. The other study examined on the uptake of open access in terms of how they perceived the initiatives. The study revealed that academic staff were aware of the benefits of open access but at the same time there was low use of the open access models. This was further emphasized by lack of support by the management of the institution (Kaba, 2015).

Dulle, (2010) in Tanzanian conducted a study on open access initiatives on academic staff of public universities in Tanzania. The study revealed that 72 percent of the academic staff were aware of open access information resources and that they had a positive attitude towards open access. In contrast, the study also identified that open access initiative was based on inadequate research facilities, lack of information resources to build on open access and lack of skills on how to publish in online format (Kaba, 2015, p. 96). Similarly, Lwoga 2014, conducted a study of academic staff awareness and perceptions towards open access and use of open access for

academic communication in Tanzanian universities offering health science studies. The findings of the study revealed that most of the academic community in the health science universities were informed of open access but noted that very little in terms of research was provided for in open access (Kaba, 2015, p. 96). The study further revealed that senior members of the academic faculty were inclined on higher rate to use open access information resources as compared to their companions in lower grades. The respondents further revealed that there were various impediments to open access implementation. These were related to information technology issues such as the lack of infrastructure, poor advocacy of open access, author's requirement to pay for publishing their research in open access platforms, copyright protection as well as curbing plagiarism (Kaba, 2015, p. 97).

2.7 Conceptual Framework

A number of variables were involved in this study in terms of the independent variables and the dependent variable, which included the following independent variables as open access initiative and ICT infrastructure. The dependent variables included evaluating quality of research, visibility of the institution and service delivery of library services.

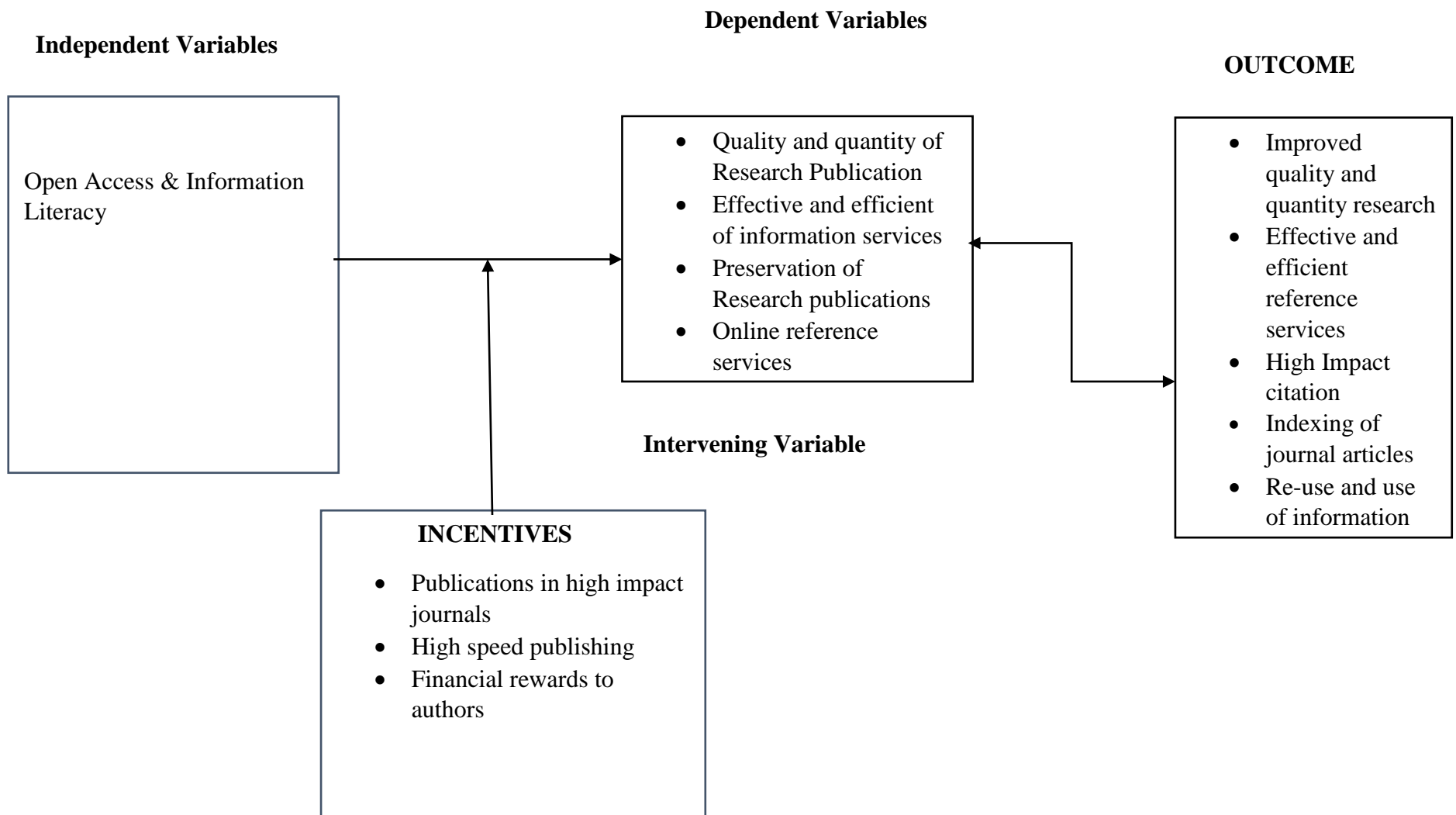


Fig 2.1 Conceptual frame work

Source: Author 2016

Change in the independent variables will have a far reaching effect on the dependent variable. This is to say that quality of the research will improve with the implementation of open access as a tool for storing, accessing student's projects and improving service delivery.

2.8 Research Gaps

There are various research gaps in the context of this study. The main gap in open access is the embracement of open access as a platform for communication and its implementation. This gap has been necessitated by researchers who lack awareness of open access, lack of trust on the quality of open access journal articles in relation to copyright issues and the lack of any profit from open access journal publishing (Caruso, 2013). A lot has been researched on open access uptake as well building an institutional repository in relation to universities. However, little has been researched on middle level colleges such as the Kenya Institute of Management in terms of managing research produced by its student. Paradoxically such colleges have gone a step further in establishing research departments which are rarely known due to the poor approach such institutions have taken in terms of publishing research. Again little has been done in terms of having the library of the institution playing a central role in publishing by creating a channel in which the students at KIM would be able to publish at international journals. In relation to library very few have been researched in sharing of these publications through inter-library loan (Chadwell, 2014).

2.9 Chapter Summary

This chapter discusses in literature reviewed on the impact of open access in middle level colleges and the various arguments by scholars and the studies conducted by the researchers. Further, it brings to light the variables involved and how they inter-relate with each other. Additionally, methods of how to create awareness of open access and the infrastructure required for smooth implementation of open access. It also discusses the various methods used to increase visibility of open access by implementing an institutional repository.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

This chapter explains and justifies the research design chosen, independent and dependent variables, location of the study, and target population. The sampling techniques and sample size as well as research instruments are also covered. It also explains how validity and reliability was established. Finally, data collection techniques, data analysis and logistical and ethical considerations are discussed.

3.1 Research Design

The descriptive research design was used in collecting the data from respondents. Kothari (2014, p. 35), states that-research design as the process of proper arrangement of all the required conditions and data analysis in an economical manner but relevant to a qualitative and quantitative study. This study was about assessing the impact of open access initiatives and incentives in middle level colleges. A descriptive study was carefully designed to ensure complete description of the situation, making sure that there is minimum bias in the collection of data and to reduce errors in interpreting the data collected.

3.2 Area of Study

The unit of research was the Kenya institute of management library network country, with twenty branch libraries, these includes Nairobi, Thika, Nyeri, Nanyuki, Naivasha, Machakos Chuka, Embu, Meru, Kakamega, Kisumu, Kericho, Kabarnet, Kapsabet, Eldoret Nyahururu, Nakuru, Narok, Kigali and Mombasa. Each of these branches libraries have one to two staff working in the libraries. The library network enabled the researcher to get various opinions on how uptake of open access would be of benefit to the Institution.

3.3 Target Population

The target population of the study comprised of the Kenya Institute of Management head of library services the library staff in all the branches and lectures. This population assisted in achieving a representative of the whole library staff involved in the research. The study population entailed one hundred and fifty five KIM staff. It is important to note that the target population was based from all the twenty branches/ campus.

3.4 Sample and Sampling Techniques

The study used purposive sampling method because the population is scattered in various locations and because of the small size of the target population. The study sought to explain how purposive sampling can be applied practically to collect and analyze data. This enabled the study to get an in-depth analysis of the required information.

3.4.1 Sample Size

The sample was represented by the section of individuals who were selected from the target population within the Institute and served to represent the total population. The accuracy of the results dictated the level of generalization to be applied so as to act as the representation of the whole target population (Kothari, 2014). For this particular study the sampling method to be used was the representative sampling method. The sample size was mainly based on librarians, school of management staff and academic staff since they are the best suited population in terms of initiating and sustaining open access uptake in middle level colleges. The sample size was achieved through use of Cochran's formula of both Infinite and finite population formula. According to Cochran 1963 the sample size can be achieved by using the infinite population formula to calculate the finite sample.

To calculate the required sample size the following formula was used. Where = Sample size,
N is the target population,

Z = the standard normal deviate, which is always at 1.96 and thus corresponds to 95% confidence level.

P = the proportion in the target population which is usually estimated to have a specific characteristic.

q = 1-p for a binomial distribution.

e = tolerance at a desired level of confidence, use 0.5 at 95% confidence level.

Infinite population. Since the population of the study was not more than 10,000 which is calculated by use of the infinite Cochran formula and in order for the researcher to get (n). This is to say that the formula had to be calculated so that it could be used to calculate a small population than 10,000 to get the sample population. First the infinite was calculated to get (n) which is 385. Having calculated the infinite population then the sample size was arrived at by subtracting (1) from (385) to get (384). Then (384) was divided by (155) which is the total population of the study which resulted to (2.5). Then (2.5) was added to (1) to get (3.5). Then (385) was used to divide by (3.5) which resulted to (110) as the sample of the total population.

For populations greater than 10,000

$$No = \frac{Z^2 pq}{e^2} = \frac{(1.96)^2 (0.5) (0.5)}{(0.5)^2} = 385$$

Finite Population for less than 10,000

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

$$1 + \frac{n_0 - 1}{N} = \frac{385}{155}$$

$$N = \frac{385 - 1}{\frac{385}{155} - 1} = 110$$

Thus the sample size of the total population is 110.

Table 3.1: Sample Size

	Respondents	Target size	Sample size
1	Librarians	10	7
2	School of management	10	7
3	Senior library assistants	20	14
4	Lecturers	80	57
5	Library assistants	35	25
	Total	155	110

Source: Author (2016)

3.4.2 Sampling Techniques

A suitable representative part of the population was sampled from the total population of the librarians and staff from the school of management department and lectures. The population is believed to be homogenous and this resulted in the application of a homogenous sampling technique.

3.5 Data Collection Methods

The study entailed the use of survey where questionnaires were used to collect data from the respondents. The study also entailed the use of telephone where the respondent would need more clarification on how to respond to various questions because some of the respondents are yet to interact with the concept of uptake of open access in middle level institutions. Some of the data was collected through documentary evidence that were relevant to the study been conducted.

3.5.1 Questionnaire

The research entailed primary as well as secondary sources in data collection. The primary data was collected using multiple choice and open-ended questionnaires. This is because it is easier to prepare and distribute and the respondent is left to fill in at his or her own spare time. Secondary data was also collected from the relevant sources that is reports, newsletters and brochures.

3.5.2 Document Review

The study reviewed existing information resources related to the case study and variables in order to gather more information on the topic. Comparison of different findings formed the corner stone of the study. The researcher also had his input of his opinion regarding various arguments and studies that were used in this study either to agree or contrast on various points.

3.6 Research Instruments

The study entailed the use survey with the help of questionnaires as the research instruments for the purpose of gathering the required data on the uptake of open access in middle level colleges.

The questionnaires was based on open ended questions, dichotomous questions.

3.6.1 Pilot Study

It is necessary to conduct a pilot study before embarking on the main research. This enabled the researcher to carry a pilot survey at the Nairobi Institute of Business Studies in Nairobi. The

purpose of the pre-test is to identify the gaps in the questionnaire and give directions for fine tuning the data collection instruments.

3.6.2 Validity

In this study, validity of data collection instruments were based on the findings of the pilot study by making the necessary changes on the questionnaire and also to fill in the gaps identified during the pilot study.

3.6.3 Reliability

The study involved experienced professionals in the library and information science as well as professionals in the information and communication technology professionals. This assisted in fine tuning the research instruments for the collection of data before administering the questionnaires to the respondents.

3.7 Ethical Considerations

Ethical aspect of the study were supported by use of a letter of introduction form the University of Nairobi as a request for permission to conduct the study. Additionally, a covering letter was used to introduce the purpose of the study and the questionnaires was handled with confidentiality and distributed directly to the respondents in their respective work station and collected at a specified date and time.

3.8 Data Collection Procedures

In this study, data was collected through self-administered questionnaires by distributing the questionnaires to the sample population during the normal working hours and some via e-mail where applicable especially for those in the branch network of the Kenya Institute of Management library network. The questionnaires were then be collected and also mailed back to the researcher from the respondents personally.

3.9 Data Analysis and Presentation

This involved qualitative and quantitative analysis. The data collection was based on the objectives of the study. The study used, tables as well as bar graphs to present the findings. Both descriptive and inferential statistical techniques were used in the data analysis. Once the questionnaires are administered and collected from the respondents, the raw data collected was systematically organized in a manner to facilitate analysis. This involved data cleaning which includes editing, and tabulation to ensure completeness and consistency of the questionnaires. Tables were used to compare the different results established by the research in relation to the objectives of this study. Each research question was analyzed carefully to enable the researcher arrive at the conclusion and recommendation of this research.

3.10 Chapter Summary

This chapter represented the research methodology which was used in the study. It covered in detail the research design, the study area, the target population, the sampling technique, the sample size, data collection methods, data collection instruments, data analysis, pre-test, validity, reliability, and ethical issues concerning the research.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter seeks to interpret data collected during the data collection period of the study. The main aim of the study was to assess uptake of open access initiatives and incentives in middle level colleges in Kenya and suggested methods of advocating for open access. To achieve this the study was founded on four objectives which included: explore the components of open access initiatives as a tool for validating quality of research produced in middle level college in Kenya; assess the impact of open access incentives in improving delivery of services in middle level college libraries in Kenya; investigate ICT infrastructure and components necessary for the implementation of open access in middle level college libraries in Kenya; explore the use of information literacy as a model for sensitization of open access in middle level college libraries in Kenya. This chapter presents data based on the four objectives of the study as well as the research questions of the study.

4.1 Presentation of Data from Questionnaire and Interviews

To a large extent the study employed the use of questionnaires mainly in the form of google forms and interviews to examine the uptake of Open access initiatives and incentives in middle level colleges in Kenya with a view of analyzing the applicable strategies for advocating and sustaining open access initiatives. The study was based on a sample size of 110 respondents. From the total sample 3 librarians, 2 members of staff from the school department and 2 lecturers were interviewed while the rest 103 were assessed using the questionnaire. The return rate for respondents surveyed using the questionnaire was 77 questionnaires were returned presenting a return rate of (76.4%) percent. Additionally, the librarians, staff members and lecturers were

available for the interview enabling the study to achieve 100 percent return rate. This chapter elaborates the analyses of data from the interview schedules and questionnaires used in the study. The questionnaire was segmented into two portions which were based on the objectives of the study. Part A was based on the general information of the respondents. Part B was based to gather information on initiatives and incentives that support uptake of open access.

4.2 General Information

The study was aimed at examining the period that the respondents had worked for the institution. This was important due to the fact that the longer the staff and academic faculty had worked with the institute was bound to present the history of any initiatives that had been employed in achieving any means of open access. It also enabled for reliable information regarding the study in relation to advocacy of open access in the institution. As illustrated in table 4.1 pg. 42, it was revealed that majority of the respondents had worked for long with the institute. The study revealed that majority of the respondents worked between 12 years to 16 years at (47.6%) making it the highest category, 8years to 12 years had a percentage of (23.8%), respondents who had worked for the institute for 4years to 8 years were at (16.7%) while respondents who had worked between 0 years and four years had a percentage of (11.9%). One of the staff members interviewed stated that; *“Majority of the staff had been in partnership with the institute between the periods of 12 to 16 years”*. The longer the staff had worked with the institution meant that the respondents would provide reliable information based on any initiatives on implementation of Open Access. As indicated in chapter 3 pg. 36.

Table 4.1: Tenure of Employment with the Institute

	Frequency	Percent	Valid Percent
0-4 years	10	11.9	11.9
4-8 years	14	16.7	16.7
8-12 years	20	23.8	23.8
12-16 years	40	47.6	47.6
Total	84	100.0	100.0

Source: Author (2016)

4.2.1 Designation of the Respondents

Further the study examined both the designation and job description of the respondents who participated in the study with the objective of establishing whether the respondents were the major stakeholders of the institute in relation to the implementation of open access initiative. The purpose was to identify whether their job descriptions allowed them to interact with library services and emerging library initiatives such as open access initiatives. This is well displayed in table 4.2, pg.43, the categories include the librarians, school of management staff, senior library assistants, lecturers, library assistants participated in the study at (10.7%), (10.7%), (11.9%), (40.5%), (26.2%) .The results revealed that lectures were majority in the study followed by library assistants. As in indicated in chapter 3 pg. 36 the targeted respondents were suitable for conducting the study.

Table 4.2: Designation of Respondents

	Frequency	Percent	Valid Percent
Librarians	9	10.7	10.7
School of Management	9	10.7	10.7
Senior library assistant	10	11.9	11.9
Lectures	34	40.5	40.5
Library assistants	22	26.2	26.2
Total	84	100.0	100.0

Source: Author (2016)

4.2.2 Evaluation of Quality Research

The study sought to evaluating policies outlining the process of evaluating the quality of research produced by the institution as well as research produced by diploma students with the aim of providing avenues that would increase the amount of research produced and improving on its quality. As illustrated on table 4.3 pg.44, the study revealed that (28.6%) strongly agreed that there were measures for evaluating student research which was evaluated in terms of the quality of research produced, (23.8%) of the respondents agreed that there were measures put in place to evaluate student research, (19%) were neutral meaning that they were not sure whether evaluation of research was properly utilized, while (14.3%) strongly disagreed and another (14.3%), disagreed that the evaluation of research was fully implemented. From the review of

literature (Bonilla-Calero, 2012) pg. 15, open access can be used to measure quality of research by increasing visibility of the research word. One of the lecturers interviewed reported that; *“The institute had policies and guidelines of for guiding students on how to write their research projects and that it was mandatory for the students to attend for attachment for six months.”*

Table 4.3: Policies-Evaluation of Student Research

	Frequency	Percent	Valid Percent
Strongly Agree	24	28.6	28.6
Agree	20	23.8	23.8
Neutral	16	19.0	19.0
Strongly Disagree	12	14.3	14.3
Disagree	12	14.3	14.3
Total	84	100.0	100.0

Source: Author (2016)

4.2.3 The Library has a Digital Copyright Policy

This study examined the purpose of a digital copyright policy in terms of whether the respondents agreed or disapproved the use of copyright policy as a method on how to control use of digital content in order to assure the authors that research published in open access was secure. The findings are illustrated in table 4.4. pg. 45. The study revealed that (35.7%) strongly disagreed that the library had a digital copyright policy, (21.4%) disagreed, (16.7%) were neutral, while (13.1%) strongly agreed and another (13.1%) agreed that the library has a digital copy right policy. The literature reviews indicates that mandates aid in advocating and guiding the implementation for open access (Caruso, 2013) pg. 14. One of the librarians

reported that; *'To date the library lacked a digital copyright policy and that it was operating on policy proposals which were yet to be implemented by the school department.'*

Table: 4.4: Digital Copyright Policy

	Frequency	Percent	Valid Percent
Strongly Agree	11	13.1	13.1
Agree	11	13.1	13.1
Neutral	14	16.7	16.7
Strongly Disagree	30	35.7	35.7
Disagree	18	21.4	21.4
Total	84	100.0	100.0

Source: Author (2016)

4.2.4 Access to Local Content that supports Research fully/ Open Access Incentives

In terms of initiatives and incentives offered by open access by the institution the study sought to examine whether the institution offered any rewards to those publishing. The study revealed that the institute has various publications as well as a research department and several members of staff had published their research. The following was realized from the findings on access of local content of research produced by the institution as illustrated on table 4.5.pg 46. This study examined the use of incentives such as accessibility of research produced by the institution in terms of enabling access to local content of research information. From the table, (46.4%) strongly agreed that open access would increase visibility of access to local content, (21.4%) agreed, (17.9%) strongly disagreed, (10.7%) disagreed, while (3.6%) were neutral. According to

the literature review publishing in a journal database with a high impact factor will create increased visibility for the researcher globally (OUP, 2015) pg. 17. One of the librarians interviewed noted that; ‘*Student research projects would be accessible to the local community of the institution with the use of open access.*’

Table 4.5: Access to Local Content

	Frequency	Percent	Valid Percent
Strongly Agree	39	46.4	46.4
Agree	18	21.4	21.4
Neutral	3	3.6	3.6
Strongly disagree	15	17.9	17.9
Disagree	9	10.7	10.7
TOTAL	84	100.0	100.0

Source: Author (2016)

4.2.5 Universal Access to Information

The findings in relation to universal access of information is as illustrated in table 4.6.pg 47. Majority of the respondents at (39.3%) felt that open access would bring about universal access of information, (22.6%) agreed that universal access of information was guaranteed, (20.2%) strongly disagreed, (15.5%) disagreed while (2.4%) were neutral on whether global visibility would be realized through open access Crawford (2014) pg. 15. reiterates that open access widens the target audience of research work and the citation impact; A staff member from the

school department reported; *‘Universal access of research would increase the visibility of the institution and on an individual capacity of staff members’*.

Table 4.6: Universal Access to Information

	Frequency	Percent	Valid Percent
Strongly Agreed	33	39.3	39.3
Agreed	19	22.6	22.6
Neutral	2	2.4	2.4
Strongly Disagree	17	20.2	20.2
Disagree	13	15.5	15.5
TOTAL	84	100.0	100.0

Source: Author (2016)

4.2.6 Provides the Platform to Publish Research

The study sought to examine the response from the respondents about open access been a platform for publishing their research as an incentive. This question was relevant in assessing how the respondents would embrace open access initiatives and incentives in terms of publishing their research so as to gain more visibility and high citation. Table 4.7 pg. 48, illustrates the findings. From the study it was realized that (40.5%) strongly agreed that open access was a platform for enabling publishing of research, (26.2%) agreed to open access been a platform for publications, (1.2%) were neutral on the publishing nature of open access,(19%) strongly disagreed while (13.1%) of the respondent disagreed. The literature review shows that open access attracts and directs research to the right audience (Suber 2012) pg. 16. One of the

librarians noted that: ``Open access is a platform for publishing research that will enable the library to provide publishing services to its immediate community.''

Table 4.7: Platform for Publishing Research

	Frequency	Percent	Valid Percent
Strongly Agree	34	40.5	40.5
Agree	22	26.2	26.2
Neutral	1	1.2	1.2
Strongly Disagree	16	19.0	19.0
Disagree	11	13.1	13.1
TOTAL	84	100.0	100.0

Source: Author (2016)

4.2.7 Creating of an Institutional Digital Repository

The study also sought to Investigate ICT infrastructure and components necessary for the implementation of open access at the institute with the main aim of identifying whether the institute had the technological capacity to implement and sustain open access initiative. The study revealed by assessing the various ICT components such as digital repositories for the implementation open access. From table 4.8.pg.49, (50%) of the respondents were of the opinion that use of digital repository was highly effective initiative for promoting open access initiative, (27.4%) of the respondents reported that digital libraries were moderately effective, (11.9%) reported that digital repositories were not effective while (10.7%) thought that digital repositories were not effective in implementing open access initiatives. The literature review

indicates that reference librarians should encourage implementation of an open archive institutional repository combined with the relevant search engines. From the literature review it is evident that institutional repositories creates an image of high standard that attracts funding (Suber, 2012) pg. 16. From a librarians point of view; ``*Stated the stakeholders were aware of the benefits of digital repositories in relation to open access implementation.*''

Table 4.8: Institutional Digital Repositories

	Frequency	Percent	Valid Percent
Highly effective	42	50	50
Moderately effective	23	27.4	27.4
Not effective	9	10.7	10.7
Not Aware	10	11.9	11.9
TOTAL	84	100.0	100.0

Source: Author (2016)

4.2.8 Webometric Ranking

The study sought to evaluate on how the respondents viewed implementation of open access in relation to having an institutional repository in place and whether this would improve the visibility of the institution globally and thus elevate its ranking status in Africa. From table 4.9. pg.50, the study revealed that (41.7%) implementation of open access would be highly effective in improving the ranking of the institution, (21.4%) rated open access implementation as moderately effective in ranking of the institution, (19.0%) rated open access implementation as not effective and (17.9%) were not aware of its impact in relation to webometric ranking. From

the literature review from various studies state that open access has a strong relation to the increase in the citation count (Priem, 2012) pg 24. A lecturer reported that; *“open access implementation would improve the ranking of the institution regionally and globally”*.

Table 4.9: Webometric Ranking

Frequency	Percent	Valid Percent	
Highly effective	35	41.7	41.7
Moderately effective	18	21.4	21.4
Not effective	16	19.0	19.0
Not Aware	15	17.9	17.9
TOTAL	84	100	100

Source: Author (2016)

4.2.9 ICT Components: Intranet

The study sought to investigate about intranet a component of ICT and its relevance to open access. From table 4.10 pg. 51 it indicates that (51.2%), of the respondents indicated a highly effective relation of intranet and open access due to the fact that the institute has intranet connectivity, (34.5%) stated moderately effective, (10.7%) were not aware whether intranet was necessary for the implementation of open access, while (3.6%) thought that intranet was not effective in the implementation of open access. The literature review shows that intranet can bring about e-learning in the institute, collaborative publishing and hosting published information (Priem, 2012) pg. 23. A member of staff from the school department stated; *“Intranet was well established in facilitating for exam processes.”*

4.2.9 Intranet Implementation

Table 4.10: Intranet

	Frequency	Percent	Valid Percent
Highly effective	43	51.2	51.2
Moderately effective	29	34.5	34.5
Not effective	3	3.6	3.6
Not Aware	9	10.7	10.7
TOTAL	84	100.0	100.0

Source: Author (2016)

4.2.10 Virtual Libraries

The study examined virtual libraries as an ICT component for implementation of open access. The findings are illustrate in table 4.11 pg. 52. The study revealed that (44%) ranked virtual libraries as a highly effective method in implementing open access, (27.4%) indicated moderately effective, (15.5%) stated not effective while (13.1%) were not aware of use of virtual libraries in the implementation of open access. From the literature review indicates reference librarians should be at the forefront in advocating for the implementation of institutional repositories so as to strengthen virtual platform of information sharing (Mullen, 2015 p.18.) One of the lecturers interviewed stated that; *“Virtual libraries were an important component in implementation of open access and accessing research outside the institution.”*

Table 4.11: Virtual Libraries

	Frequency	Percent	Valid Percent
Highly effective	37	44.0	44.0
Moderately effective	23	27.4	27.4
Not effective	13	15.5	15.5
Not Aware	11	13.1	13.1
Total	84	100.0	100.0

Source: Author (2016)

4.2.11 Websites

The more a website is visited the more does the ranking of the institution increases. In this case, respondents were required to rate how effective websites are to the implementation of open access in institutions in relation to institutional repositories. From table 4.12 pg. 53, (54.8%) of the respondents rated websites as highly effective in hosting of open access, (29.8%) rated moderately effective while (8.3%) indicated that they had no idea whether websites would be of importance to open access and (7.1%) indicated that they were not effective. Further the literature review indicates that websites such as the google scholar which provides information about an author’s profile by providing information on the author’s citation impact and research history (UNESCO, 2015 .p.23).A school of management staff; ``stated that websites were a critical component when hosting platforms that are web based’’.

Table 4.12: Websites

	Frequency	Percent	Valid Percent
Highly effective	46	54.8	54.8
Moderately effective	25	29.8	29.8
Not effective	6	7.1	7.1
Not Aware	7	8.3	8.3
TOTAL	84	100	100

Source: Author (2016)

4.2.12 Internet Bandwidth

Another ICT component examined was internet bandwidth. When hosting platforms on the intranet or website it is important for the network to have a good bandwidth in relation to the number of users as well as programs that are hosted on the intranet. From table 4.13 pg.54, the study on internet bandwidth revealed that (51.2%) rated bandwidth as a critical factor in having a strong intranet, (23.8%) rated bandwidth as moderately effective in promotion of open access accessibility. (13.1%) rated bandwidth as not effective in supporting the use of open access and hosting of institutional repositories while (11.9%) had no idea as to the extent bandwidth would support open access and institutional repositories. The literature review indicates that a higher bandwidth is important for downloading the videos and animations as well as storage of the same information in that format (Abrizah, 2010) pg. 23..From the librarians interviewed one of them stated that; *“A highly effective bandwidth was important in assisting a twenty four hour access to the Institute’s website.”*

Table 4.13: Internet Bandwidth

	Frequency	Percent	Valid Percent
Highly effective	43	51.2	51.2
Moderately effective	20	23.8	23.8
Not effective	11	13.1	13.1
Not Aware	10	11.9	11.9
TOTAL	84	100	100

Source: Author (2016)

4.2.13 Networking

For proper online communication the library and the institute as whole need to have a well coordinate network system. Networking is an important aspect in communication of office equipment such as printers, telephone lines. From table 4.14 pg. 55, (46.4%) indicated that networking was highly effective, (17.9%) rated networking as moderately effective, (15.5%) rated networking as not effective while (20.2%) had no idea on how networking affected implementation of open access. From the literature review it is noted that Open Access has been well facilitated through networking by use of such models as TCP/IP networking in office connectivity (OECD, 2012 p.12.).A member of the school staff stated that: *“Connection between the computers especially the server was important since it would host the institutional repository”*.

Table 4.14: Networking

	Frequency	Percent	Valid Percent
Highly effective	39	46.4	46.4
Moderately effective	15	17.9	17.9
Not effective	13	15.5	15.5
Not Aware	17	20.2	20.2
TOTAL	84	100	100

Source: Author (2016)

4.2.13 Marketing and Promotion

Proper advocating of open access initiatives and its use is based on how the staff especially the library staff were utilizing their time in promoting open access to the institution. The study indicated in table 4.15 pg. 56, that (38.1%) rated marketing and promotion as highly effective tools for advocating for open access, (32.1%) rated marketing and promotion as moderately effective while (16.7%) had no idea on how they could use marketing on advertising and (13.1%) thought that marketing and promotion of open access was not effective. In the literature review Nault, (2011) pg. 26. argues that where studies revealed high levels of sensitization and usage also portray a different picture whereby there are similar high levels of lack of understanding of the purpose of open access One of the lecturers stated that; ``*Marketing is a critical factor in promoting open access*''.

Table 4.15: Marketing and Promotion

	Frequency	Percent	Valid Percent
Highly effective	32	38.1	38.1
Moderately effective	27	32.1	32.1
Not effective	11	13.1	13.1
Not Aware	14	16.7	16.7
TOTAL	84	100	100

Source: Author (2016)

4.2.14 Web 2.0

Communication of information is not only based on equipment's but also on modern ICT based platforms such skype, facebook and in koha OPAC, use of videos such as webinars in training on library skills. The literature review shows that Web 2.0 has revolutionized sharing, storing and discovering information (Priem, 2012) .pg. 22.From table 4.16 pg. 57, the study revealed that (34.5%) of the respondents strongly agreed to web 2.0 as a tool of communication, (22.6%) agreed to Web 2.0 use on open access, (14.3%) were neither sure on the applicability of Web 2.0 use with open access while (17.9%) strongly disagreed and (10.7%) did not agree.

Table 4.16: Web 2.0

	Frequency	Percent	Valid Percent
Strongly Agree	29	34.5	34.5
Agree	19	22.6	22.6
Neutral	12	14.3	14.3
Strongly Disagree	15	17.9	17.9
Disagree	9	10.7	10.7
TOTAL	84	100	100

Source: Author (2016)

4.2.15 METADATA

The study further sought to examine the importance of metadata in implementation of open access and institutional repository. Metadata is a key point when indexing and describing the information resources that are uploaded on the institutional repository in terms of aiding in identifying of research articles. From table 4.17 pg. 58, (26.2%) of the respondents strongly agreed that metadata was important in describing and identifying information in digital repositories, (21.4%) agreed, (27.4) were neutral on use of metadata while (15.5%) strongly disagreed and (9.5%) disagreed. From the literature review brings about efficiency in discovery of information, quality and preservation of information (Caruso, 2013) pg. 23. One of the librarian stated that; `` *Metadata as a key component of describing information captured in a repository for ease in organizing the same information.*''

Table 4.17: Metadata

	Frequency	Percent	Valid Percent
Strongly Agree	22	26.2	26.2
Agree	18	21.4	21.4
Neutral	23	27.4	27.4
Strongly Disagree	13	15.5	15.5
Disagree	8	9.5	9.5
TOTAL	84	100	100

Source: Author (2016)

4.2.16 Data Mining

Data mining was another key ICT factor examined since it involved how data is retrieved from the system, the kind of tools used to retrieve data or information from the repository. The study sought to examine whether the respondents were of the opinion that datamining was a key component for use with repositories. Table 4.18 pg. 59, revealed that (51.2%) of the respondents strongly agreed to datamining as a key component of open access and accessing information,(25%) agreed,(8.3) were neutral while (11.9%) strongly disagreed and (3.6%) disagreed. From the literature review datamining improves research efficiency through unearthing and producing new information which supports the research procedures of publishing and reduces cost (Priem 2012) pg.22. One of the lecturers stated that; *“Datamining was important in facilitating discovery of information.”*

Table 4.18: Data Mining

	Frequency	Percent	Valid Percent
Strongly Agree	43	51.2	51.2
Agree	21	25	25
Neutral	7	8.3	8.3
Strongly Disagree	10	11.9	11.9
Disagree	3	3.6	3.6
TOTAL	84	100	100

Source: Author (2016)

4.2.17 Federated Search Feature

Lastly, the study sought to examine the application and relation of federated search from the respondents. Federated search engines assist in searching in various databases as well as repositories rather than having to search in various databases. From the study in table 4.19 pg. 60, it was noted (42.9%) strongly agreed that federated search improves searching capabilities, (27.4%) also agreed, (15.5%) were neutral, while (7.1%) strongly agreed and (7.1%) agreed. Literature shows that federated searching systems improves and provides seamless searching across many databases (Creaser, 2010) pg. 23. One of the lecturers stated that; ``*Federated search improves efficiency in searching*''

Table 4.19: Federated Search Feature

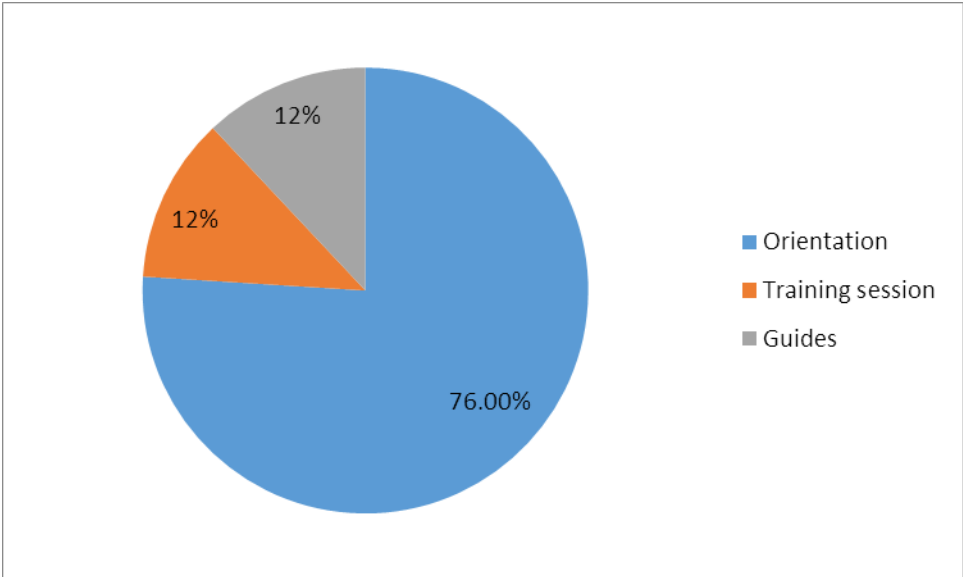
	Frequency	Percent	Valid Percent
Strongly Agree	36	42.9	42.9
Agree	23	27.4	27.4
Neutral	13	15.5	15.5
Strongly Disagree	6	7.1	7.1
Disagree	6	7.1	7.1
TOTAL	84	100	100

Source: Author (2016)

4.2.18 Information Literacy and Sensitization of Open Access

The study also sought to identify the methods of information literacy used to sensitize on open access use and implementation. The study as indicated in fig 4.1 pg. 61, revealed that orientation was the most widely used method of conducting information literacy with (76.00%) rating. While assessment of whether staff were adequately trained was at (12%), the study also examined the use of guides in training of information literacy at (12%) use for information literacy. This is because the training lacked a well-established designed curriculum for training information literacy issues such as citation of reference. Additionally, training of e-resources was very minimal and the library lacked the effort to train academic faculty and students due to the fact that they lacked the necessary skills to establish an information literacy course From the literature review librarians should advance from the traditional form of training of information literacy from the subscription journals to include open access information resources databases (Mullen, 2015) .pg. 19.

Fig. 4.1 Information Literacy Sensitization



Source: Author (2016)

CHAPTER FIVE

SUMMARY OF THE FINDINGS, AND RECOMMENDATIONS AND CONCLUSIONS

5.1 Introduction

This chapter highlights the summary of the findings, the discussions of the study and conclusion and recommendations. The study provides recommendations based on the uptake of initiatives and incentives of Open Access initiatives to be implemented in middle level colleges for the promotion and sustainability of Open Access. The study also has provided suggestions on uptake and implementation of Open Access as well as suggesting areas of study for the uptake of Open Access. The purpose of this study was to determine uptake of Open Access initiatives and incentives in middle level colleges in Kenya using the Kenya Institute of Management.

Objectives of the study included to:

1. Explore the components of open access initiatives as a tool for validating quality of the research in middle level college libraries in Kenya.
2. Assess the impact of open access incentives in improving delivery of services in middle level college libraries in Kenya.
3. Investigate ICT infrastructure and components necessary for the implementation of open access in middle level college libraries in Kenya.
4. Explore the use of information literacy as a model for sensitization of open access in middle level college libraries in Kenya.

5.2 Summary of the Findings

The study's findings were summarized as follows:

5.2.1 Components of Open Access Initiatives for validating Quality Research

The first objective of this study was to explore the components of open access initiative as tools for validating quality research production in middle level colleges. The study revealed, as indicated in table 4.3 pg. 44, (28.6%) strongly agreed that there were measures for evaluating student research which was, (23.8%) of the respondents agreed that there were measures put in place to evaluate student research, (19%) were neutral meaning that they were not sure whether evaluation of research was properly utilized, while (14.3%) strongly disagreed and another (14.3%), disagreed that the evaluation of research was fully implemented. This indicates that the institute has outlined policies on research publication particularly to guide the diploma student projects. The institute has policies in place but the number of research publications was very low. Furthermore, the study revealed that the institute has a research department which is charged with the responsibility of offering research consultancy services to other institutions. Additionally, research produced for scientific purposes was found to be minimal due to the nature of the institution as a Management based institutions. Moreover, the institute is part of a middle level college and this proved to be the reason as to which no scientific research is produced other than student projects with a few individuals having their publications in databases such as Emerald. In terms of maintaining quality research the study found that apart from the academic policies on maintaining of quality of research produced still the academic fraternity faced major challenges in terms of curbing plagiarism. This is to say that the school of management department are yet to use a plagiarism checker software despite the fact that some of the librarians had an idea of the need to have such a software. Therefore the school faces a

challenge in curbing plagiarism due to lack of a plagiarism policy as well as copyright policy. Furthermore, the study revealed that there was no current institutional repository for the library in place although there were plans to implement one that is Dspace. Additionally, the study revealed that the institutional repository would enable and encourage an inter-disciplinary approach to research. Implementation of an institutional repository meant that research publications would be visible globally and this would be enhanced by publishing proper research that is peer-reviewed.

5.2.2 Open Access Incentives and delivery of Library Services

The second objective of this study was to assess the impact of open access incentives in improving delivery of services in middle level college libraries. The study findings as indicated in table 4.5., pg. 46. This was examined by assessing whether open access would improve access to local content that is student projects, whether open access will bring about universal access to local content there by increasing the visibility of the institution and the individual authors and whether open access was a platform for research publication. From the table, (46.4%) strongly agreed that open access would increase visibility of access to local content, (21.4%) agreed, (17.9%) strongly disagreed, (10.7%) disagreed, while (3.6%) were neutral. The findings revealed that incentives such as implementation of an institutional repository would provide increased access to local materials. This is to say that the respondents felt there was need to have more accessibility of student projects published in an institutional repository rather than having them shelved while others were put in stores and later destroyed by shredding. Most of the respondents were of the opinion that such initiatives would improve service delivery of library services such as access of projects in electronic format anywhere provided there was intranet connectivity.

5.2.3 Implementation of Open Access and ICT infrastructure

The third objective was to investigate the ICT infrastructure components of necessary for open access implementation of an institutional repository. The findings were to study the necessary requirements of ICT components to implement Open access in relation to an institutional repository. In relation to table 4.8 pg. 49, table 4.10 pg. 51 to 4.18 pg. 59, majority of the respondents were of the opinion that various ICT components such as having a virtual library would improve access of research materials anywhere within the institute's branches countrywide where (44%) ranked virtual libraries as a highly effective method in implementing open access, (27.4%) indicated moderately effective, (15.5%) stated not effective while (13.1%) were not aware of use of virtual libraries in the implementation of open access. This would be very important for the institute in providing library services in real-time especially to its members and the academic fraternity. Various ICT components were examined in terms of their relation with open access initiatives and incentives. Federated searching where it was noted that (42.9%) strongly agreed that federated search improves searching capabilities, (27.4%) also agreed, (15.5%) were neutral, while (7.1%) strongly agreed and (7.1%) agreed- this is because federated searching allows for ease in searching seamlessly, metadata (26.2%) of the respondents strongly agreed that metadata was important in describing and identifying information in digital repositories, (21.4%) agreed, (27.4) were neutral on use of metadata while (15.5%) strongly disagreed and (9.5%) disagreed., internet bandwidth (51.2%) rated bandwidth as a critical factor in having a strong intranet, (23.8%) rated bandwidth as moderately effective in promotion of open access accessibility. (13.1%) rated bandwidth as not effective in supporting the use of open access and hosting of institutional repositories while (11.9%) had no idea as to the extent bandwidth would support open access where and datamining that (51.2%) of the respondents

strongly agreed to datamining as a key component of open access and accessing information, (25%) agreed, (8.3) were neutral while (11.9%) strongly disagreed and (3.6%) disagreed - were found to be aspects of high importance. Web 2.0 aides in providing various ways of publishing information such as in webinars, 34.5%) of the respondents strongly agreed to web 2.0 as a tool of communication, (22.6%) agreed to Web 2.0 use on open access, (14.3%) were neither sure on the applicability of Web 2.0 use with open access while (17.9%) strongly disagreed and (10.7%) did not agree, networking is a key component when it comes to linking of ICT equipment's. While metadata was found to be critical in describing and organizing information in an institutional repository and datamining was identified as a key component in finding information in repositories

5.2.4 Role of Information Literacy and Open Access

The fourth objective was to assess the information literacy as a model for sensitizing open access use. The main objective was to identify the methods used to train staff and students on such issues as how to cite and reference, use of electronic resources as well whether there was a designed course for information literacy. The study in fig. 4.1 pg. 60, revealed that revealed that orientation was the most widely used method of conducting information literacy with (76.00%) rating. While assessment of whether staff were adequately trained was at (12%), the study also examined the use of guides in training of information literacy at (12%) use for information literacy. Thus there lacked a designed course for information literacy training and that orientation to new students was the only method used as an information literacy training. Again the study revealed that library staff were not well acquitted on how to design, prepare and undertake an information literacy course as well as training. Thus there was need to focus on information literacy for effective promotion of open access.

5.3 Conclusion

In reference with the findings and discussions in the previous sections this study makes the following conclusions:

- In conclusion, libraries in middle level college lag behind in promoting open access initiatives. Majority of the studies conducted are mainly based on universities with a lot of emphasis on the universities in terms of promoting scientific research. Middle level colleges have restricted themselves to offering diploma and certificate courses which are less demanding in terms of promoting scientific research. This is one of the reasons as to why such institutions have not taken seriously issues regarding scientific publication.
- Moreover, librarians in middle level colleges lag behind in promoting open access initiatives not because they are not aware but because of ignorance in promoting information literacy in their institutions. In contrast, universities are guided by guidelines from the commission of university education and these guidelines have specifications for the kind of qualification required for universities. This then alludes to the fact that university libraries have academically qualified staff for various positions, a fact that is different in middle level college libraries.
- Additionally, training levels in universities are higher than those in middle level colleges. This means that library staff in universities are able to implement various initiatives due to frequent training while staff in middle level colleges rarely receive training to improve their participation in promoting various initiatives in the library sector as well as their institutions. Librarians in middle level colleges also lag behind in training of information literacy, a key factor in promoting library activities as well as open access initiatives.

5.4 Recommendations

The study recommends several aspects that middle level college library should embrace in promoting open access initiatives. It is important for library staff to constantly upgrade their academic qualifications not for their personal use but also for the development of the institution.

5.4.1 Information Literacy

It is also important for library staff to gain more knowledge on how to design an information literacy course designed to offer information literacy programmes within the institutions. Additionally, journal subscription has increased considerably over the years and so have print materials. This then is the main reason for promoting open access initiatives so as to have access to local content which is affordable to the middle level colleges.

5.4.2 Publishing by Library Department

Additionally, librarians should strive to establish a publishing sector for the library that will be charged with responsibility of promoting open access initiatives to the academic fraternity and also seek to increase the institutions visibility globally.

5.5 Suggested Areas For Further Study

The following are the suggested areas of study in relation to implementation of open access in middle level institutions with the view of promoting open access and institutional repositories.

5.5.1 Open Access in middle level colleges

There is need for middle level colleges to embrace open access by first conducting more research on its implementation in the institutions and the benefits that open access implementation will bring to this institutions such webometrics ranking. Conducting research on open access will enable the institutions to identify the requirements such as the ICT components required, resources such as finance and staffing.

5.5.2 Online Publishing

With the high cost of purchasing print materials it is imperative of middle level colleges to embrace open access with the view of reducing the budget for purchasing information resources by implementing online publishing of open access. This is to say that more research needs to be

conducted on online publishing with regard to open access, copyright issues, the need to have a copyright associate within the institutions

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APPENDIX I: PERMIT



UNIVERSITY OF NAIROBI

FACULTY OF ARTS

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Our Ref: UON/CHSS/DLIS/303

Date 30/08/2016

Address

Dear Sir/Madam,

RE: PETER KINYUA

REG NO. C54/78066/2015

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

His topic is "**Open Access Uptake Initiatives in Middle Level Colleges in Kenya: Case of the Kenya Institute of Management Library Network**"

Any assistance accorded to him will highly be appreciated.

Regards,

A handwritten signature in blue ink, appearing to be 'D. Njiraine'.

Dr. Dorothy Njiraine

Ag. Chairperson

Department of Library & Information Science (DLIS)

APENDIX II

QUESTIONNAIRE FOR STAFF

Instructions

Please indicate your response by ticking the provided boxes . For questions that require suggestions or comments, please use the provided space.

Background Information

1. Position

- a) Head of school
- b) Head of library
- c) Librarian
- d) Assistant librarian
- e) Senior library assistant
- f) Library assistant
- g) Any other
(please specify).....

2. Education qualification:

3. Working experience:

- a) 0-2 years
- b) 3-5 years
-

c) 6 years and above

4. Specific job description:.....

5. The statements to this question relates to the availability of resources used to promote quality research in academic institutions. Use the following scale to rate the resources below
 Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1.

	STATEMENT	5	4	3	2	1
	Policies outlining the process of evaluating student research					
	The library has a digital copy right policy					
	Publish articles online					
	Creation of an institutional digital repository					
	Webometric ranking					

6. Statements to this question relate to the rate at which open access incentives would attract Researchers to publish in open access. Use the following scale to rate the resources.
 Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1.

	STATEMENT	5	4	3	2	1
	Provides access to local content that supports research fully					
	Enables universal access to information and knowledge					
	Provides the platform to publish research					

7. How would you Rate the following ICT components in relation to implementation of open access initiatives. On a scale of rate the usefulness of the components; 4. Highly effective, 3. Moderately Effective, 2. Not effective 1. Not aware

STATEMENT		1	2	3	4
	Digital repositories				
	Intranet implementation				
	Virtual libraries/ Online libraries				
	Websites				
	Internet bandwidth				
	Networking				

8. Using the following scale rate whether marketing and promotion can be used to advocate for open access implementation. 4. Highly effective, 3.Moderatel Effective, 2. Not effective
1. Not Aware

9. To what extent does web 2.0 technologies apply to the implementation and use of open access institutional repositories. Use the following scale to rate its usefulness.
Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1.

10. Rate the following ICT technological aspects in relation to open access promotion. Using the scale of 1-4, where 4. Highly effective, 3.Moderately Effective, 2. Not effective 1. Not Aware

STATEMENT	1	2	3	4
Metadata				
Data mining				
Fedearated search facility				

11. State the level at which the following methods are used to offer information literacy sensitization

- (a) Orientation
- (b) Training sessions
- (c) User guides

12. State the how the student project are stored and the frequency of their production

.....

APENDIX III

INTERVIEW SCHEDULE LIBRARY STAFF

1. What are the method used to offer information literacy training to the staff and students?
.....
2. State the events used to promote Open Access initiatives by the library
.....
3. Identify the open source software used by the library as a component of Open Access initiative
.....
4. Highlight the training programmes offered to the library staff.....
.....
5. State the benefits that the library will benefit with the implementation of an institutional repository
.....
6. Identify the incentives that that have been used to promote research publication in the institution
.....
7. Highlight the extent to which Open Access implementation will assist in preservation and storage of student research
.....
8. State the promotional materials used to promote open access in the institute.....
9. Identify the methods used to evaluate student research projects at the institute
.....
10. Highlight the cost benefits that the Institute will benefit from the implementation of an Institutional repository.....
11. Identify the various publications produced by the institute departments that should be Hosted on open access.....
12. Highlight the training requirements for staff pertaining to the implementation Open Access implementation at the Institute.....

13. Identify how students will benefit in having their research published in Open Access institutional repository.....
14. State the how frequently the student projects are produced.....
15. State the ICT requirements for implementing an institutional repository.....

Thank you for taking your time in answering the questionnaire.