ADOPTION OF OPEN ACCESS INITIATIVES IN DISSEMINATION OF SCHOLARLY RESEARCH BY ACADEMIC STAFF AT SELECTED UNIVERSITIES IN KENYA

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DECLARATION

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

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This research project has been submitted for examination with our approval as the University Supervisors.

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DEDICATION

This research project is dedicated to my parents Mr. David Rugut and Mrs. Sarah Rugut and to my loving siblings Stella Rugut, Eliud Kibiwot and Nathan Rugut who inspired me, God bless you.

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ABBREVIATIONS AND ACRONYMS

ANU	-	Africa Nazarene University
BOAI	-	Budapest Open Archives Initiative
CUEA	-	Catholic University of Eastern Africa
DOAR	-	Directory of Open Access Repositories
IR	-	Institutional Repository
IT	-	Information Technology
KLISC	-	Kenya Libraries and Information Services Consortium
OA	-	Open Access
OAI	-	Open Access Initiative
OAJ	-	Open Access Journals
OAP	-	Open Access Publishing
SPSS	-	Statistical Package for Social Sciences
UoN	-	University of Nairobi
WWW	-	World Wide Web

ABSTRACT

Literature has revealed that open access journals and institutional repositories provide an outlet used for dissemination of scholarly research. Although the introduction of these outlets in universities has led to increased access and dissemination of research findings, the usage of these outlets is yet to be realized. The aim of this study was to investigate the adoption of open access initiatives in dissemination of research findings by academic staff in selected universities in Kenya. The objectives of this study were; to establish the types of outlets accessed by academic staff, find out the extent to which academic staff were aware of open access, to determine the level of usage of OA outlets by academic staff in accessing and disseminating their research work and to find out the attitude of academic staff towards open access initiatives. The study utilized the theory of Technology Acceptance Model (TAM). Descriptive research design was used for this study. In total 301 academic staff from both University of Nairobi and Africa Nazarene University were selected using simple random sampling methods. Stratified sampling was used to stratify the academic staff according to their academic status and simple random sampling was used to get samples from each of the strata. Questionnaires, document and desk review were used to collect data and information. A Pilot study was conducted at Catholic University of Eastern Africa to assure validity and reliability. Analysis of data was through Microsoft excel and Statistical Package for Social Sciences (SPSS) and was presented in form of tables of frequencies and percentages, and charts. Descriptive statistics such as percentages and means were used for analysis. Findings from this study revealed that the attitude of academic staff towards OA was positive signifying acceptance of this mode of scholarly communication. However, traditional outlets were still the preferred mode of scholarly communication by academic staff and that open access publishing was low. The study recommends institutionalization of open access publishing in Universities in Kenya and training on open access issues to improve access and dissemination of scholarly research. This research will be useful to academic institutions, education and policy administrators and libraries in Kenya so as to improve the usage of open access outlets among academic staff.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter provides a brief background to the study and explains the problem that the study addresses. It also presents the study aim, objectives, research questions on which the study was based as well as the significance of the study. Finally, this chapter describes the theory upon which the study was based, conceptual framework and gives the definitions of terms as used in the project.

1.2 Background of the study

The development in information and communication technologies (ICTs) have led to changes in scholarly communication (Kaba and Said, 2015, p.94). The increasing price of both print and electronic journal has made it impossible and challenging for academic institutions to subscribe to information available online. This has led to a crisis in scholarly communication and limited access to research outputs therefore the rise of open access initiatives has provided a solution to the above crisis (Dulle, 2010, p.2).

Open access refers to work that is freely available to users through the internet without legal, technical or financial barriers (Budapest Open Access Initiative, 2002). International studies indicate that the number of open access publications in journals and repositories around the world has increased with the support of researchers, funding agencies, universities, scientific institutions and publishers. According to the,Directory of Open Access Journals (DOAJ) there has been an increased growth of Open Access

publishing in recent years in the form of either Gold Open Access or Green Open Access (Hu & Jiang, 2014a, p. 79). Several initiatives, declarations and statements have come up at international and national arenas on open access initiatives. The open Archive Initiative (OAI) was launched in 1999 and its aim was to facilitate proper discovery and dissemination of digital content while its mission was to promote and develop "interoperability standards" (Frass and Gardner, 2013).The Budapest Open Access Initiative was developed by the Open Society Institute (OSI) in 2002 and its goal was to achieve open access for scholarly literature (Trencheva and Todorova, 2014, p.365).

The initiative supports open access through promotion of institutional self-archiving and open access journals. The Berlin Declaration was set in 2003 when, German and international research organizations aimed at encouraging researchers to publish their research findings according to the principles of open access (Frass and Gardner, 2013). OA initiatives use modern information and communication technology to ensure that scholarly research can be accessed and is affordable worldwide (Lwoga, 2013). Therefore, open access has a large number of memberships since participation of scholars and their research work is made available to a wider audience. Other initiatives that came up include the Public Library of Science (PLos) and Bioline International (Marodza, 2013, p.262).

In Africa studies indicate that Africa as whole has not yet fully adopted new technologies, secondly research activities are still very low in Africa. Thirdly most of the research outputs generated in Africa are still under-utilized in the scholarly

communication (Ezema, 2010, p.324). Studies conducted in Kenya indicate that open access movement initiatives are yet to be fully embraced. Milimo (2013, p. 17) points out that research output should be available, accessible and applicable to impact the lives of Kenyans. One of the ways that is being used to enhance accessibility and visibility of research output is via open access outlets like institutional repositories and open access journals.

Researchers use various outlets to publish their research findings. In the past these outlets included the use of print books and journals. Other outlets included theses, dissertations, technical reports, conference proceedings and projects. These traditional outlets led to limited sharing of research findings to a wider audience since they are kept by libraries in respective universities under closed access and accessible to their students and academic staff (Ezema, 2010, p.324).

Open access outlets has provided solution to the above problem due to their numerous benefits which according to Reisfelder (2012) include low costs of production, increased access to research output and awareness of the community on advances in scientific research. The main outlets to facilitate open access adoption are: Open Access Journals (OAJ) (gold open access) and Institutional Repositories (IRs) (green open access) (Budapest, 2012). Directory of Open Access Journals (DOAJs) and Directory of Open Access Repositories (DOAR) are international databases that provide a list of all IRs and open access journals registered across the world. Therefore, they are an important indicator of usage of IRs. In Kenya advocacy for open access has been through

consortium such as Kenya Libraries and Information Services Consortium (KLISC). For scientists to be able to use open access electronic resources effectively, they must be aware of its existence and importance to research, be able to use Internet effectively by having great skills to search the Internet and be able to evaluate the information on the internet (Arunachalam, 2011). The research was vital because developing countries like Kenya are considered to have low research impact because of limited visibility of research output. Despite the promising potential of open access to improve scholarly communication in developing countries; this form of scholarly communication has been less exploited in such countries when it is compared with developing countries.

1.2.1 Context of the study

University of Nairobi

University of Nairobi was established in 1956 through transformation of Royal Technical College into the second university college in East Africa known as Royal College Nairobi. Royal College Nairobi was renamed University College Nairobi as the constituent college of the inter-territorial Federal University of East Africa. In 1970, the University College Nairobi was developed to the first national university in Kenya and was renamed the University of Nairobi. University of Nairobi has grown tremendously since then and has established various colleges and campuses within Kenya with over 300 training programs at Doctor of Philosophy (PhD), Master's, Bachelor's, Diploma and Certificate levels (UoN Portal, 2015). The university student population has grown to 84,000 students at present with 70,000 and 14,000 undergraduate and postgraduate students respectively. The university has launched several policy frameworks which include the: research policy, plagiarism policy, open access policy and intellectual

property policy. The university has rapidly evolved into world class institution, and was ranked number one (1) in Kenya and Eastern and Central Africa, position nine (9) among the top 1000 universities in Africa and 855 among the top 22,000 universities worldwide (Webometrics Ranking, 2014).

The University of Nairobi advocates for open and free access to information and ensures that its research output is disseminated owing to the fact that it has the largest annual research kitty of Ksh. 3 billion. This commitment is rooted in the university's vision and mission undergirded by the core values of innovativeness, professionalism and corporate social responsibility. The library has established the digital repository that provides long term preservation and showcases scholarly outputs in relation to teaching, learning, research, community service and consultancy. In addition, the library has continuously shown mutual support to the open access concept by holding successful open day and open access week every year since 2011 (UoN Library Portal, 2015).

Africa Nazarene University

Africa Nazarene University is a private Christian university and is an institution of the church of the Nazarene International. It was established in 1994 after being given a letter of interim authority by Commission for Higher Education in 1993 to establish the institution. The first batch of students to be enrolled for a degree program were 62 in number from eleven countries and they took courses in theology and business administration and a masters of arts degree in religion. In 2002 Africa Nazarene University was given a charter by the government of Kenya and it became the first

private university to receive the credentials under the new act. The university now has over 36 programs from several disciplines and 5 satellite campuses across the country and has a student population of over 4,000 students. Its mission is to provide a holistic education that develops individuals academically, spiritually, culturally and physically to enable the students to be equipped with excellent skills, competencies and Christian values. Its vision is to be a light to the people of Africa by providing education that is based on Wesleyan – holiness tradition.

Africa Nazarene University also supports dissemination of knowledge through open access policy that supports use of information by all (ANU Library, 2015) and was position 28 in the 2015 university rankings and in terms of openness ranking it was in position 19,663 in the world (Webometrics Ranking, 2015). ANU has a library called Grace Roles whose mission is to provide access to information sources and resources while its vision is to be a leader in provision of user- centered information services (ANU library portal, 2015).

1.3 Statement of the Problem

Access and dissemination of research findings is a major problem in Kenyan Universities like in other developing countries. For example low universities funds for libraries have made scholars to be unable to access recent subscription based scholarly works (Dulle, 2010, p.2). Researchers produce a lot of scholarly research in universities all over the world including Kenya. However the knowledge produced is accessible to the academic community and authorized members only. Researchers in other universities and the

general public cannot access the knowledge and information generated by the researchers in these universities (Ezema, 2013, p.324).

Research is therefore a key driving pillar of Universities all over the world and investment in the same will be irrelevant if the results are not disseminated to the public (Lwoga and Questier, 2014, p.117). This situation thus highlights the need for an effective process of knowledge dissemination from institutions of higher learning in Kenya. This study therefore sought to investigate the adoption of open access initiative in dissemination of scholarly research by academic staff at selected universities in Kenya.

1.4 Aim of the Study

The aim of this study is to examine the Adoption of open access initiatives in dissemination of scholarly research by academic staff at selected universities in Kenya.

1.4.1 Objectives

The specific objectives of the study were:

1. To establish the types of outlets used by academic staff in disseminating their research findings.
2. To find out the extent to which academic staff are aware of open access outlets.
3. To determine the level of usage of open access outlets in accessing and disseminating their research works.
4. To find out the attitude of academic staff towards open access initiatives.

1.4.2 Research Questions

1. What types of outlets are used by academic staff to disseminate their research findings?
2. What is the level of awareness of academic staff on open access outlets?
3. What is the level of usage of open access outlets by academic staff in accessing and disseminating their research works?
4. What attitude do academic members of staff have towards open access initiatives?

1.5 Significance of the study

It is expected that the findings of the study will be useful for academic institutions and libraries in Kenya so as to improve the usage of open access outlets among academic staff. This research will also be useful to universities in Kenya since they are ranked according to their visibility in the web. The increase in dissemination of scholarly research to institutional repositories and Open Access Journals (OAJ) will enable them to be ranked with other universities in the world. The study will also recommend suitable measures to facilitate increased usage of open access outlets by universities under study based on the findings. The findings will also help the universities to make decisions that will lead to high quality research and improved scholarly communication.

1.6 Scope and limitation of the Study

The scope of this study will be limited to university of Nairobi and Africa Nazarene University. Since open access is based on internet technologies the chosen universities

were considered to have these resources. A major limitation of this study was limited financial resources.

1.7 Operational Definition of Terms

Adoption: Full use open access outlets to access and disseminate scholarly research.

Disseminate: Refers to sharing of research among a large number of people.

Gold open access: It refers to the act of authors publishing in open access journals.

Green open access: It refers to act of authors depositing their scholarly work in institutional repositories.

Grey Literature: It refers to any publications that have not undergone the formal way of publishing such as research reports, thesis and conference proceedings

Institutional Repository (IR): A hub that is available online and is used for collecting, preserving and disseminating intellectual outputs in digital form and is also called the "Green Road OA".

Innovation: A new method that is used to share research findings

Internet: It is a network that has several other networks and is used to link local computers to computer networks that are not near each other

Information and communication technology (ICT): It is both the internet and the World Wide Web (www) and is used to enable access and dissemination of information.

Open Access: It is referred to as a mode of scholarly communication that is used to share scholarly research to a wider audience without copyright restrictions and costs. The avenues for open access are Open Access Repositories (OARs) and Open Access Journals (OAJs)

Open access journals (OAJs): They are journals that have been peer reviewed andone can get them online for free.

Open access scholarly communication: It is the process through which researchers' access and disseminates their scholarly research through open access repositories and open access journals.

Outlets: An opening that something can be let out.

Researchers: They are persons who carry out research and they include academic staff.

1.8 Chapter Summary

This chapter first highlighted open access as a new mode for scholarly communication and is a solution to the problem of accessing and disseminating scholarly research in developing countries. In this chapter, it has been pointed out that open access initiatives are less adopted in developing countries compared to developed countries and that very few studies in developing countries and specifically Africa have researched on open access. The background of this study led to formulation of research problem, aim and objectives of the study and research questions formulated from the objectives. This chapter also provided the significance of study and operational definition of key concepts used in the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed literature on open access initiatives based on the objectives of study namely: Outlets used for dissemination of research findings, awareness of open access outlets, usage of open access outlets, attitude towards open access outlets and the skills needed by academic staff on open access.

2.2 Outlets used in dissemination of scholarly research.

There are several outlets that scholars use to disseminate their research findings. These outlets are traditional print based and those that use information and communication technologies. Traditional print based outlets are likely to be prone to communication breakdown hence a lot of scientific research can be lost. The two main publication outlets used by researchers are conferences and refereed academic journals and institutions of higher learning use journal articles in academic promotion and decisions concerning tenure (Okoye, 2011, p.2).

In particular, Maynard and O'Brien, (2010, p.385) indicate that traditional kinds of output include printed journal articles and printed books such as text books, conference proceedings and research monographs. Other traditional outputs used to a lesser extent include magazines, newspapers and professional journals. A similar study by Fry et al. (2009, p.2) explored types of scholarly research outputs used by researchers to disseminate their research work and reported that there was a large difference between

disciplines in terms of importance of types of outputs as resources used for research for example social sciences found monographs to be of importance than medical scientists. In addition, Nandez and Borrego (2013, p.3) revealed that academics also used social media tools as an outlet to disseminate their research findings however, the study found out that academics have not yet adopted open access initiatives and are yet to fully utilize open access outlets. Additionally (Mortland, 2012, p.36) revealed that social media such as facebook, pinterest, twitter and blogs were used by 94% of the respondents to reach their audience while traditional media like television, radio and newspapers were used by used by 64% of the respondents. Similarly Tenopir et al. (2009, p.6) noted that usage of electronic information by scholars had increased gradually over a period of time as academic libraries moved from print to electronic information.

Consequently Maynard and O'Brien, (2010, p.384) reported that the respondents preferred to use traditional outlets of print though they fully adopted electronic journals. They also found out that respondents disseminated their scholarly research on websites of other institutions, seminars and press conferences. A study by Obuh (2013, p.153) pointed out that open access has enabled scholarly research to be more accessible and that the delay in publishing process had been reduced significantly. Published journal articles are still considered as the preferred way that researchers use to disseminate their scholarly research despite novel ways brought by information communication technology (Research Information Network, 2009, p.4). Similarly (Sawant, 2012, p.21) reported in their findings that researchers used web 2.0 and that it had affected how they access and disseminate their research work worldwide.

2.3 Academic staffs awareness of open access outlets

The adoption of open access outlets depends on awareness of open access scholarly communication by scholars. However scholars have been able to benefit from open access initiatives without knowing this mode of scholarly communication. Studies on adoption of open access indicate that the general awareness of open access among the research community is gradually growing. A recent longitudinal study of research on OA journals since 1990s revealed that the rate of authors who were not aware about OA was as high as around 50% in the 1990s, but dropped to below 15% by 2007 (Xia, 2010, p.620).

African studies indicate that academics are becoming more aware of open access as is reported in a study that 60% of faculty were aware (Dulle, 2010, p.5). However other studies for example in USA indicate that academics are still not aware of open access issues like existence of an institutional repository in their institutions, self-archiving practices and whether there was an existence of an institutional repository in their universities (Kim, 2010; Mischo and Schlembach, 2011).

Similar findings were reported in developing countries like Malaysia that faculty did not know about self-archiving opportunities (Abrizah, 2012; Singeh et al., 2012), Cuba (Sánchez-Tarragó and Fernández-Molina, 2010). This led faculty to use other types of repositories like subject-based repositories since they were not familiar with institutional repositories. In a survey at the University of Cornel, data collected revealed that faculty had little awareness of and motivation to use university institutional repository hence they

resorted to use other types of repositories and websites. These included personal web pages and disciplinary repositories (Davis and Connolly, 2007, p.3). An explanation of the reason why these studies contradicted was that researchers from those continents found their awareness of open access through web based information but did not disseminate their research findings in open access institutional repositories. The above observations indicate that there is less understanding of the existence of open access initiatives therefore need for more awareness campaigns.

A study for example, by Vlachaki and Urquhart (2010, p.23), reveals that the number of Greek biomedical scientists who were aware of open access was low (58%). Other studies reported that the awareness of open access by the respondents was slightly above or below 60% (Dulle and Majanja, 2010; Anuradha et al, 2011; Vlachaki and Urquhart, 2010). Utulu and Bolarinwa (2009, p.16) also acknowledged that 65% of respondents were aware of pre-prints, 60% were aware of open access journals while 48% were aware of post prints. They also noted that there was a difference on how the respondents understood open access terms.

Several studies also indicate that researchers got information through a number of ways. A study by Anuradha et al., (2011, p.325) indicates that respondents got information about open access from libraries, colleagues and professional literature. A similar study by Garba, (2013, p.2) reported that respondents learnt about open access from professional literature in their research areas and colleagues.

In concurrence with the above findings, other studies pointed out that there were other ways that respondents learnt about open access and which included internet, information from publishers, university or library websites, publicity on campus newspapers and training by institutional repository staff (Greyson et al., 2009, Okoye and Ejikeme, 2010; Darvish, 2011: Obuh and Bozimo, 2012). It's also vital for researchers to have knowledge about the benefits of using open access outlets. Okoye and Ejikeme (2010) identified these benefits as: free publications for authors, increase in citation and publication of scholarly work, increased research impact, free access to research work online, quality of research work is high and impact of a researcher's career in terms of development.

2.4 Usage of open access outlets by academic staff

Literature show few authors publish their research in Gold open access journals and that researchers have also reported that there was a difference in the levels of researchers involvement in publishing. A recent study showed that more scholars were slowly getting involved in publishing their research work in open access journals over the years, but the level of publishing was not high at the end of the study (Xia, 2010, p.621).

A variety of other studies also report that academic staff do not increasingly publish in author paid Gold journals for example in the united Kingdom (Creaser et al., 2010); USA (Mischo and Schlembach,2011). Various studies that have been done in the developed world indicated that there was also a low uptake in usage of institutional repositories to disseminate research work and publishing in open access (Abrizah, 2012; Creaser et al,

2010; Dulle, 2010; Kim 2010; Kleinman, 2011; Swan, 2010). In developing countries studies also indicate that a number of faculties are yet to fully self-archive their research work (Lwoga et al., 2006; Dulle, 2010; Sánchez-Tarragó and Fernández-Molina, 2010; Singeh et al., 2012).

The above studies have shown that awareness of open access is still higher than self-archiving especially in Green OA. This therefore indicates that there is need to publicize the IRs so that researchers can self-archive their research work. Furthermore several researches reported that faculties are publishing their research work in research group websites, personal or departmental sites than in IRs (Covey, 2009; Creaser et al., 2010; Kim, 2010; Mischo and Schlembach, 2011).

The low uptake of OA is attributed to a number of factors about the quality of OA avenues such OA journals peer review process, perceived low prestige of OA journals, perceived lack of impact factor in publishing, lack of ICT infrastructure and copyright and plagiarism concerns (Dallmeir-Tiessen et al., 2011; Singeh et al., 2012; Mischo and Schlembach, 2011; Dulle, 2010; Lwoga 2013).

Studies also indicate that faculties self-archive their research work more than other publication type like in USA (Covey, 2009; Creaser et al., 2010). Utulu and Bolarinwa (2009, p.660) in their study reported that researchers' were more involved in open access. Gulet et al., (2010, p.2) reported that 49% of the participants used subscribed databases, while 42% relied heavily on OA resources. In addition, Gbaje (2010, p.7) reported that

scholarly journals disseminated their publications through traditional print methods while none of the scholarly journals disseminated electronically.

The usage of open access outlets differed between different disciplines (Zuber, 2008; Melero et al 2009). An investigation by Zuber (2008, p.11) revealed that the publishing in institutional repositories by different disciplines was as follows from the highest to the lowest: engineering, business, education, technology, physical sciences, humanities, social sciences, biology and agriculture, medicine, law, fine arts and communication, and athletics. Similarly a study done in Spain showed that institutional repositories contained more of humanities and social sciences content followed by engineering, life sciences, natural sciences and finally, fine arts and performing arts (Melero et al, 2009, p.4).

The above studies indicate that there is no consistency of research disciplines concerning usage of open access. This is because one may think that subjects such as physics which have had subject repositories for a longer period would be leading in open access initiatives' involvement. In contrast, the above studies show that other disciplines are also participating in open access publishing than in previous years. Knowing how researchers are involved in publishing in their research disciplines will facilitate marketing of open access to specific groups

The general tendency is that more researchers' are accessing and are publishing less in open access outlets. In support of this view, Dulle and Majanja (2010, p.71) observed that only 18.6% of the respondents said that they had published in open access outlets while

62.3% had access to open access materials and 37.7% stated that they had never accessed open access materials. Similarly a study by Ivwighreghweta and Onoriode (2012, p.2) further supported the above observation when they reported that majority of the respondents cited open access journals in their research (92%) which indicated that the level of usage was high. Although this trend was not predictable in the short term, eventually in the long term the more the users used open access materials may motivate them to publish in open access outlets.

Dulle (2010, p. 72) argued that researchers who had self – archived their research were likely to have used their fellow researchers' self-archived research work. This means that the more the researchers accessed open access materials the more they become aware of the available open access outlets and are able to disseminate and make their research to be open access. Promotion of open access initiatives will therefore be easy especially to users who are already using it than those that do not use it.

2.5 Attitude of academic staff towards open access outlets

Attitude is defined as the overall reaction of an individual towards using a system (Ogbomo and Ivwighreghweta, 2010, p. 130). Several studies have examined the attitude of respondents towards open access and the findings showed some insight regarding acceptance of this mode of scholarly communication. These studies include one by Frass and Gardner (2013, p.5) who investigated the view of author's on OA resources and reported that majority of the respondents believed that OA journals offer wider circulation (71%), faster publication time (61%) and higher visibility (55%) than

subscription journals and that only 15% of the respondents agreed they would want to publish in OA journals. A similar study by Stanton and Liew (2011, p.3) that majority of the respondents were positive towards OA materials. In addition, Dulle (2010, p.201) also acknowledged that most of the respondents provided positive answers on the entire attitude statements which showed that they accepted open access publishing and how it enabled them to make a choice on what platform to use.

Attitude of academic staff towards open access determines whether or not they will adopt open access initiatives. A study by Obuh (2012, p. 157) reveals that both junior and senior lecturers had positive attitude towards open access publications and their usage was 20%. In the same vein, Swan and Brown (2004) in their study on the attitude of researchers towards OA reported that 71% perceived that the readership of OA journals was higher than subscription based journals, 64% claimed that citation of their articles was more in open access journals, 87% perceived that publishing in open access outlets was faster, 92% agreed that OA ensures that there is free access to all the readers while 56% were concerned about the cost of subscription based journals to their institutions.

Other studies show that researchers are yet to fully embrace open access initiatives. Vlachaki and Urquhart (2010, p.20) argue that majority of the researchers are yet to adopt open access journals due to lack of awareness of the existence of these avenues and the benefits of open access initiatives. In a similar fashion, Coonin and Younce (2010, p.90) also reported that the respondents in their study who were senior lecturers had negative attitude towards open access copyright issues. They also reported that 69.1% of the

respondents claimed that publishing in OA journals would not affect the chance for their promotion and that 49.4% of respondents that it was more prestigious to publish in OA journals than in subscription-based journals. A valuable study that synthesizes many previous surveys is that undertaken by Xia (2010, p.621), in which he examined the pattern of how attitude of scholars towards publishing in open access journals was changing from the early 1990s. The findings was that the respondents were afraid that publishing in OA journals regularly could negatively affect their careers and that they would have high chances of being promoted and their tenure would be affected. The study however, gives little insight in the beliefs and attitudes of different levels of faculty.

Open access publishing is believed to have an effect on tenure and promotion. A study by Kim (2010, p.1909) shows that the 'green-road' of OA publishing (self-archiving), is most often believed to have little effect on the tenure and promotion process and although survey respondents did not see positive effects of self-archiving with respect to tenure and promotion, seven interviewees did note positive effects. These positive effects were that they thought that through self-archiving their research profiles were raised and that it increased the likelihood that their fellow researchers would read and discuss their research. A similar study surveyed 481 researchers from three different scientific disciplines in an attempt to find out the reasons why there was a gap between open access publishing and attitude (Mann et al., 2009). An article by Coonin and Younce (2010) also took the approach of surveying a specific academic discipline or disciplines. The study surveyed researchers publishing in OA journals: the study focused on authors in

education and showed the uptake of OA by researchers in humanities and social sciences which may be "behind" disciplines such as medicine and sciences.

2.6 Skills needed by academic staff on open access outlets.

Academic staffs need to have the right skills to use open access outlets, self-archive their research output and ability to access research outputs from open access outlets. Edem and Ottong (2010, p.543) investigated how academic staff accessed and used the internet and found out that (76.9%) of the respondents were highly skilled in access and use of internet while 23.91% of the respondents had inadequate/no skills; 39.13% had been trained on internet access and use while 60.87% of them learnt about internet informally through on job experience and from friends or colleagues. A similar study by Okoye and Ejikeme (2010, p.9) reported that the researchers were not aware of the existence of open access avenues and that they lacked skills to access and use the internet which was a challenge for adoption of open access initiatives.

Furthermore, Ivwighreghweta and Onoriode (2012, p.2) revealed that majority of the lecturers in their survey lacked skills and knowledge on open access. Matthew and Baby (2012, p.3) in their study on technological skills for librarians reported that majority (90.3%) of the librarians lacked ICT skills which was a challenge to its usage. Similarly Okendo and Mligite (2014, p.7) in their study found out that majority of the staff managed to access and disseminate on the internet when they are assisted by friends. However lack of knowledge and skills was a major hindrance to publishing in open access outlets by scholars in the sampled universities.

New and fast changing technology has led to a requirement that users must have skills on how to access and self-archive their research work. Hu and Jiang (2014, p. 80) carried out an investigation to discover the attitudes of users toward OA 94% of the respondents expressed an interest in participating in a lecture conducted by the staff about how to use OA resources. Meanwhile, according to Gbaje (2010), numerous efforts were made through workshops in 2008 and 2009 at the Ahmadu Bello University, to promote OA as a new technology for scholarly communication in Nigeria. The above studies show that for academic staff to fully adopt open access initiatives, it is important for them to have the necessary ICT skills to enable them to access and publish in open access outlets.

2.7 Theoretical framework

This study is based on technology acceptance model (TAM). It was developed by Fred Davis in 1986. The theory explains acceptance and use of a technology by the users and is used to explain and predict user behavior towards a new system or technology introduced in any organization. Open access initiatives are a new technology that facilitates free access to research outputs. This can be achieved via the internet which can be complex and tasking to the researcher therefore their attitude towards its acceptance and usage is predicted through Technology Acceptance Model (TAM). The following is a diagram on Technology Acceptance Model.

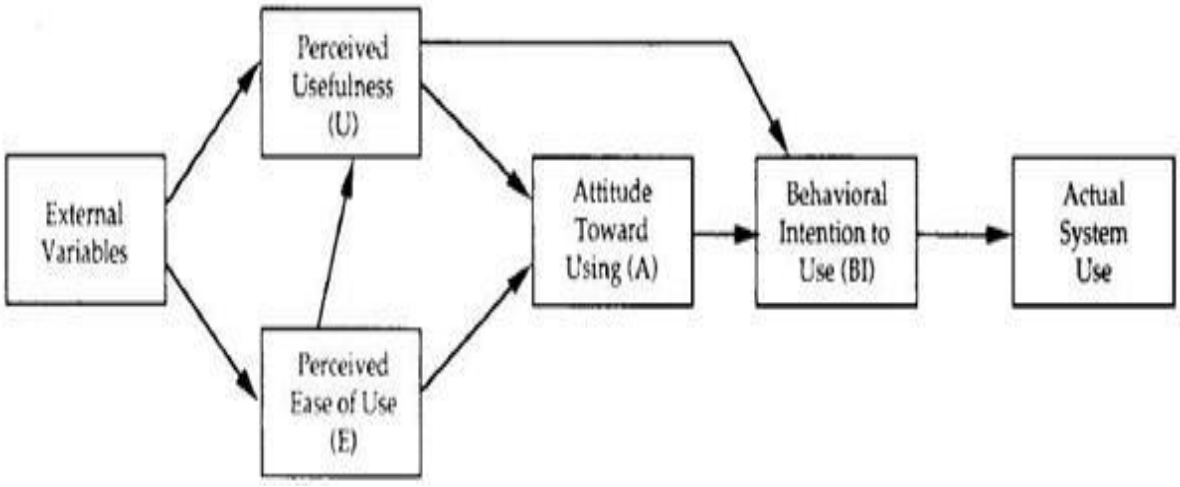

Figure 2.1: Technology Acceptance Model

Source: *(Davis, Bagozzi and Warshow 1989)*

Perceived ease of use influences the attitude of an individual. Dulle (2010) defines perceived ease of use of any system as the degree of use with regard to use of the system. In this study academic staffs are likely to show interest in usage of open access outlets if they are easy and less complicated to use. Perceived ease of use also affects behavioral intention and is guided by attitude (Holden and Karsh, 2010). The attitude of academic staff strongly influences their intention on whether or not they should use a technology. In this study it is expected that the academic staffs' attitudes towards open access initiatives will influence their decision on whether or not to use this avenue to access and disseminate research findings. A user will consider a system to be useful if it they find its use to be easier. Perceived usefulness of a system is defined as how one believes that a new technology would enable him or her to increase job performance. In this study it is expected that the academic staff will adopt open access initiatives if it will enable them to improve their research work (Dulle, 2010).

2.8 Conceptual framework

The conceptual framework below shows the relationship between independent variables, dependent variable and outcome. The following diagram illustrates the relationship between variables in the study.

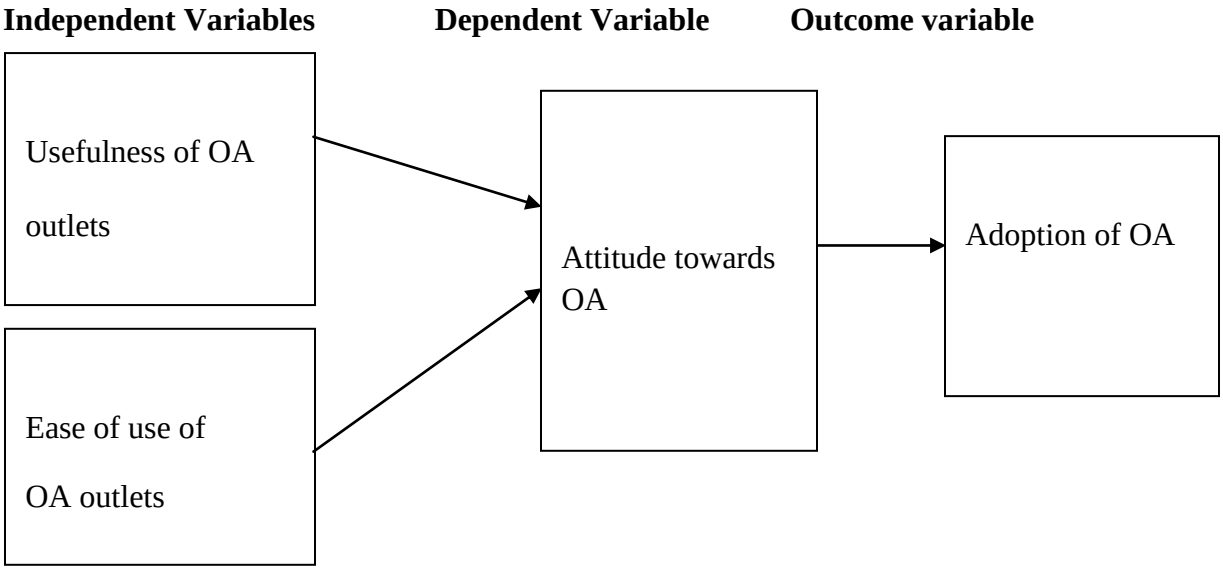

Figure 2.2: Conceptual Framework
Source: Researcher (2015)

2.9 Chapter Summary

This chapter reviewed literature related to the current study. The literature review also revealed many gaps that should be filled. Many of the studies on usage of open access journals and repositories have been done in developed countries. However a few of the studies in Africa such as in Tanzania, Nigeria and South Africa have also been done. There was need to carry out similar studies because the reviewed literature was skewed to developed countries.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methodology that was used in the study. It covers : research design, location for the study, target population, Sampling techniques, sampling size, data collection instruments, pilot study, data validity, data reliability, data collection techniques, data analysis, and ethical considerations.

3.2 Research Design

Research design is the strategy that a researcher uses to bring together the different components of the study and ensuring that they are in a logical manner (Kothari, 2014). This research was quantitative and used descriptive survey design. In descriptive survey design a researcher can be able to deduce information about a large number of people from the responses of a smaller group (Kamau et al, 2014). This design was suitable for the study because it described the state of adoption of open access initiatives by academic staff.

3.3 Location of the study

The study was done at University of Nairobi and Africa Nazarene University. The two Universities were chosen because they have an establishment of open access outlets.

3.4 Target Population

The target population involves all individuals, objects or things that the researcher reasonably generalizes his/her findings to (Mugenda, 2003). The target population was academic staff of University of Nairobi with a target population of 200 and Africa Nazarene University with a target population of 300. The respondents were: professors, associate professors, senior lecturers, lecturers and assistant lecturers, tutorial fellows and graduate assistants.

3.5 Sample and sampling technique

Sampling techniques is defined as a process of selecting a number of objects from a population which have same characteristics as the entire group (Kombo, 2006).

3.5.1 Sample size

A sample is defined as a subset of the total population drawn from a target population (Kothari, 2014). It enables the researcher to get results from part of the population and use it to generalize the entire population. A table on sample size determination developed by Krejcie and Morgan (1970) was used to obtain the required sample from the population. Basing on the table the population sample size for ANU academic staff was 169 while that of University of Nairobi was 132.

Table 3.1: Sample size

Institution	Target Population	Table Sample Size
ANU	Academic staff-300	169
UON	Academic staff-200	132
TOTAL	**500**	**301**

KEY

ANU- Africa Nazarene University

UON- University of Nairobi

3.5.2 Sampling technique

University of Nairobi and Africa Nazarene University were chosen using convenient sampling and were expected to provide a platform that would enable the researcher to examine the adoption of open access initiatives by academics. The researcher used simple random sampling to get a sample of the academic staff.

3.6 Data collection methods

Data collection is defined as gathering of information to serve or prove some facts. The researcher used a research assistant to distribute and collect the questionnaires at University of Nairobi (UoN) and Africa Nazarene University (ANU).

3.7 Research instruments

Researcher needs to develop instruments which to collect the necessary information (Kothari 2014). The researcher acknowledged the various options available for as instruments for data collection, each with its advantages and limitations. However due to

the nature of information that was sought and the population size, the study used questionnaires as instruments for data collection.

3.7.1 Questionnaires

Questionnaire is a set of questions written to the respondents so that they can write their answers with a reason of collecting data for a survey or statistical study (Kothari, 2014). A structured questionnaire was used for the purpose of this survey. The questionnaires were used since they could be easily administered. Questionnaires also afford confidentiality of responses when compared to other methods. The questionnaire is the most prevalent method of gathering information. According to Kamau (2014, p. 81), questionnaires are recommended in research because it can determine the knowledge of people, their thoughts and their actions.

Academic staffs were given questionnaires which were used to collect data because the sample was large. It saves on time because many respondents answer questions at the same time and it also helps to avoid bias. The questionnaire was designed to address the specific objectives and research questions and therefore it assisted the researcher to determine the adoption of open access outlets by academic staff.

The questionnaires were closed ended, self-administered and contained two sections. Section A was about general information, open access outlets, section B was about awareness of open access, section C was about usage of open access outlets by academic staff while section D was about attitude of academic staff towards open access and

section E about skills for academic staff. Closed ended questions were used because they are easy to administer to users since choices are provided for users to select and are easy to analyze.

3.7.1 Pilot study

A pilot study is done prior to a planned project to enable the researcher to test aspects of a research design and to enable the researcher to make necessary adjustments before embarking on the actual study. The location of the pilot study was at Catholic University of Eastern Africa (CUEA) and was purposively chosen because it was considered to be similar to the actual sample of the study. This was because it was among the top private universities in Kenya according to webometrics, 2015 Kenyan University ranking. It also has adequate ICT infrastructure to support usage of open access initiatives. During the pilot study the researcher was able to find out deficiencies in the questionnaire such as unclear directions. Comments and suggestions by respondents were seriously considered and therefore helped to improve the questionnaire. The pilot study therefore enabled the researcher to come up with a final questionnaire that yielded reliable and valid data.

3.7.2 Validity

It refers to how well a test measures what it is supposed to measure by describing the quality of data collection instruments (Mugenda, 2003). The researcher ensured data validity by using data collection instruments that addressed the research objectives and questions. Validity was upheld by ensuring that the research instruments were designed in a way that they measured what it was supposed to measure. The supervisor checked

the questionnaire before it was used to collect data. The comments, corrections and suggestions therefore helped in validating the instrument. Validity was also tested through administering questionnaire to a small group who did not form part of the study.

3.7.3 Reliability

It refers to the consistency of research if another researcher is able to repeat the same research using the same design and come up with the same results (Mugenda, 2003). To ensure reliability the researcher carried out a pilot study to check for consistency of the results. The researcher compared findings from the pilot study with the specific objectives to ensure that the research instruments were reliable.

Possible weaknesses, inadequacies and ambiguities that were revealed through pilot study were corrected. Responses from different respondents were compared and necessary adjustments done to suit the requirements of the study. The researcher used test-retest technique by administering the questionnaire twice to the same group to ensure reliability and then correlating the scores from both testing periods. Necessary adjustments were done to enhance reliability. Cronbach's statistic is the most common measure of internal consistency ("reliability") and was therefore adopted due to the nature of the research instrument. Internal consistencies of all variables are considered acceptable as shown since they exceed 0.70, signifying tolerable reliability.

Table 3.2: University of Nairobi Cronbach Alpha Results

Variables	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
Outlets	0.820	0.803	10
Awareness	0.517	0.506	8
Usage	0.798	0.751	11
Attitudes	0.821	0.814	12

The instruments gave a Cronbach's coefficient alpha value of 0.7227 implying it was above the recommended value and therefore suitable for administration.

Table 3.3: African Nazarene University Cronbach Alpha Results

Variables	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
Outlets	0.947	0.943	10
Awareness	0.800	0.768	8
Usage	0.775	0.769	11
Attitudes	0.738	0.772	12

The overall reliability for the academic staff in the ANU was 0.902 based on Cronbach's alpha, 0.882 based on standardized items and with 41 numbers of items tested. The overall reliability level of consistency on all items was 0.902.

3.8 Data Collection procedures

Data collection refers to gathering of data from various sources to prove some facts (Kombo, 2006). Data was collected through questionnaires designed as per objectives of

the study. The researcher used a research assistant to distribute and collect the questionnaires in ANU and UON.

3.9 Data Analysis

Data collected were grouped as per the objectives of study after which frequency distribution graphs, tables and charts were used to present the data. Other data frequencies were calculated into percentages so as to facilitate better interpretation of data. The researcher used Microsoft Excel to draw graphs, tables and pie charts and SPSS was used to analyze and come up with tables. These, together with a study of relevant sources of literature were used to interpret the data. The data was be cleaned, edited, coded before being entered into the statistical software for analysis.

3.10 Ethical considerations

In this study, the researcher was honest and objective in the collection of data and interpretation of research findings. Permission was sought from the relevant authorities in the institutions. The researcher ensured that the information from respondents was confidential and was used only for academic purposes. The respondents were not expected to give their personal information whose use in the study could lead to infringement of their privacy. A letter of introduction and authorization was taken from the university. The researcher also ensured no form of plagiarism was practiced.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATIONS AND DISCUSSIONS

4.1 Introduction

This chapter provides an overview of the demographic characteristics of the respondents' results and the discussions of the same. After editing and coding, the collected data was analyzed by Statistical Packages for Social Sciences which provide descriptive analysis and statistical interpretation which are then used for graphical analysis. The analytical methods used are descriptive analysis used to count data and the correlation which is used for testing associations of respondents. The findings of the study are discussed per objectives relevant to the research questions and the responses obtained from the academic staff.

4.2 General information

A total of 301 questionnaires were administered to University of Nairobi and Africa Nazarene University academic staff. 155 of the respondents participated in the study. The combined return rate for the study was 51.5%, where 54.5% of the respondents were from University of Nairobi while 49.1% were from Africa Nazarene University. According to Baxter and Barbie (2004), a 50 percent response rate is considered adequate for analysis and reporting. The return rate was considered sufficient to represent academic staff in those institutions. The Table 4.1 summarizes the findings.

Table 4.1: Response rate

Institution	Targeted Respondents	Returned questionnaires	Response Rate
University of Nairobi	132	72	54.5%
Africa Nazarene University	169	83	49.1%
Overall	**301**	**155**	**51.5%**

The general information of interest to the researcher included the academic status, gender of respondent, their age and their research discipline. The findings indicate that professor represented 13(8.4%) of the respondents, associate professors 4(2.6%), senior lecturers 15(9.7%), lecturers 66(42.6%), Assistant Lecturer 23(14.8%), Tutorial Fellow 13(8.4%) and Graduate Assistant 19(12.3%). These findings imply that the majority of the respondents were lecturers followed by the assistant lecturers. The Table 4.2 below presents the academic status of respondents.

Table 4.2: Academic Status Distribution of Respondents

Academic Status		Frequency	Percent
	Professor	13	8.4
	Associate Professor	4	2.6
	Senior Lecturer	15	9.7
	Lecturer	66	42.6
	Assistant Lecturer	23	14.8
	Tutorial Fellow	13	8.4
	Graduate Assistant	19	12.3
	Total	153	98.7
Missing	System	2	1.3
Total		**155**	**100.0**

The study also sought to find out the gender of the respondents. This was to find out the gender balance of the respondents. The findings indicate that the male respondents represented 101(65.2%) while the female represented 50 (32.3%) of the study. These study findings indicate that slightly more than half of the respondents were male and a clear indication of male dominance in the academic field.

The study sought to also find out the age of the academic staff and figure 4.1 below shows the frequency of the age categories of respondents to find out the dominant age group of the academic staff in the institutions. The academic staff in the ranges of 20-30 represented 7(4.5%) of the study while in the 31-40 ranges was represented by 66(42.9%). The academic staff in the age ranges of 41-50 years represented 388(25.2%) while 51-60 represented 28(18.2%) and those above 60 years representing 11(7.1%) of the study. 4(2.6%) of the respondents failed to indicate their age ranges which was deemed by the researcher to be private or personal. From the findings it can be noted that majority of the respondents were aged from 31-40 (42.9%) while those aged 20-30 were the minority group.

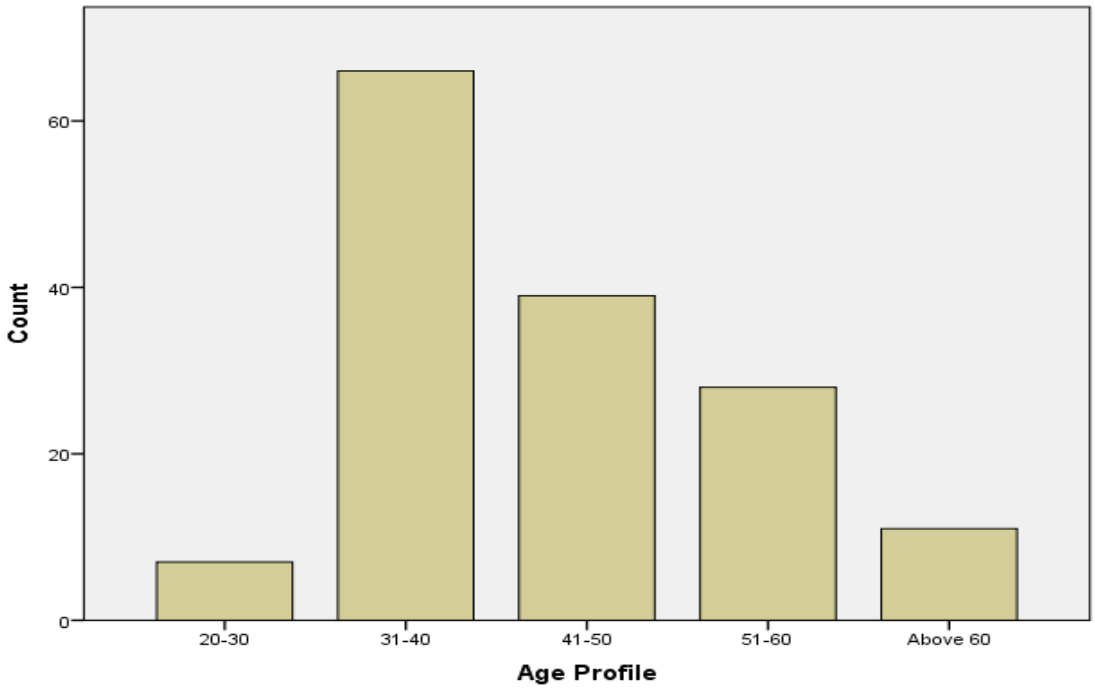

Figure4.1: Age profile Distribution of Respondents

4.2.1 Research Discipline

In Figure 4.2 below, the academic staffs were asked to specify their research discipline. From the entire number of respondents, Education was represented by 35(22.7%), religion 3(1.9%) Engineering 9(5.8%), Social Sciences 13(8.4), Sociology 1(.6%), Information Science 13(8.4%), Computer Science 2(1.3%), Religion 24(15.6%), History 1(.6%), Geography 8(5.2%), Business 17(11%), Peace & Conflict 1(.6%), Economics 9(5.8%), Mass Communication 6(3.9%), Archaeology 2(1.3%), Literature 3(1.9%), Human resource 2(1.3%) and Statistics 3(1.9%). The findings of this study show that majority of respondents were in the education discipline (22.7%) followed by religion (15.6%) and business (11%) respectively which indicated a difference in disciplinary

self-archiving practices. Similarly other studies have reported significant disciplinary differences in self-archiving practices (Hulela, 2010; Kim, 2010).

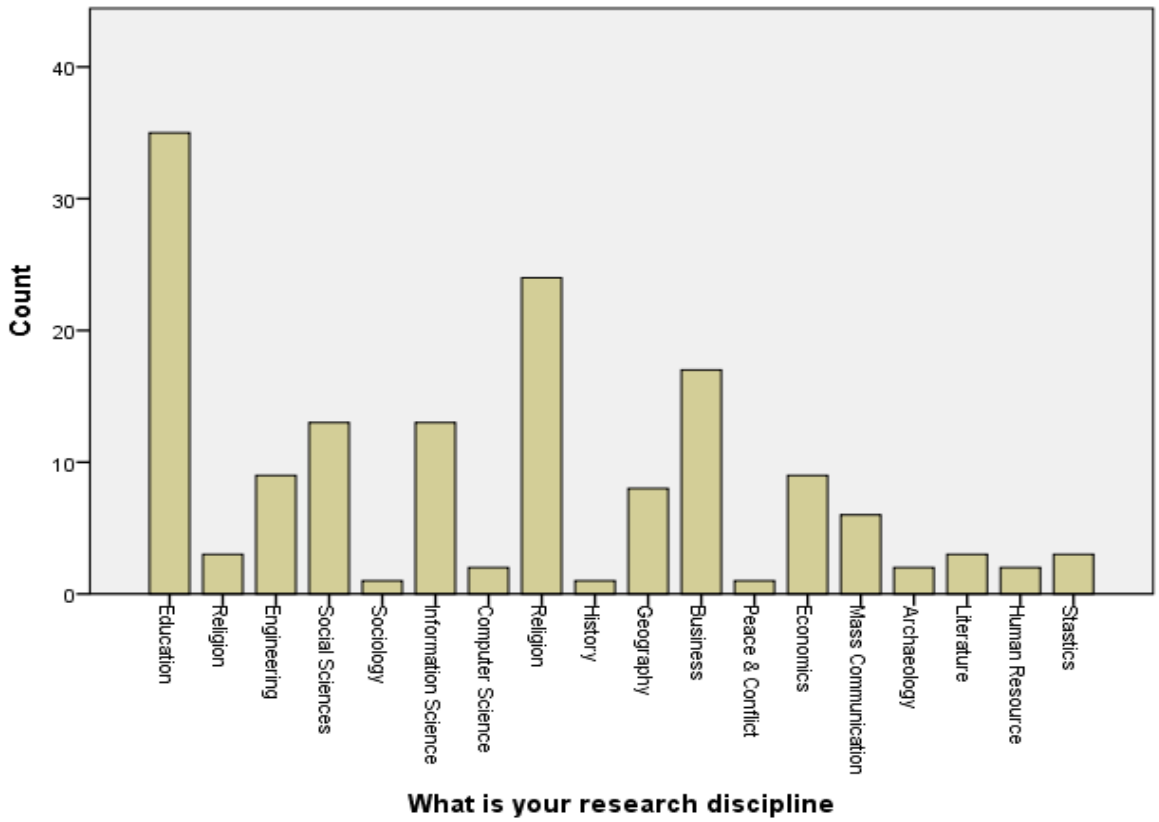

Figure 4.2: Research discipline

4.3 Study Findings

The findings of the study indicate the responses gotten from the respondents as discussed.

4.3.1 Types of outlets used to disseminate research findings

In the first objective, the study sought to establish the types of outlets used by academic staff in disseminating their research findings. First, the academic staffs were asked to identify the outlets they used in disseminating their research findings.

Majority of the staff 58 (37.7%) responded to have used Print books, print journals, institutional repositories and OAJs in their dissemination of research work followed by 23 (14.9%) who reported to use Open Access Journals. The respondents who had never published their research work represented 21 (13.6%). Those who used print books were 15 (9.7%), Printed Journals with commercial publishers13 (8.4%) while Print Books, printed Journals 12 (7.8%) and use of Institutional Repositories represented 12 (7.8%) respectively. The findings concur with Maynard and O'Brien (2010) who observed that traditional scholarly output were widely used such as printed books and journals. The Table 4.3 below shows types of outlets used by academic staff in disseminating their research findings.

Table 4.3: Types of Outlets

Outlet used to disseminate research findings	Frequency	Percent
Print Books	15	9.7
Print Journals with commercial publishers	13	8.4
Institutional Repositories	12	7.8
Open Access Journals	23	14.9
I have never published	21	13.6
Print books, print journals, institutional repositories, OAJ	58	37.7
Print Books, Print Journals	12	7.8
Total	**154**	**100.0**

4.3.2 Awareness of Open Access Initiative by Academic Staff

In the second objective the study sought to find out the extent to which academic staffs were aware of open access outlets. The table 4.4 below shows the responses elicited from the respondents awareness to open access publishing as a way of depositing scholarly works in specified outlets. Academic staffs who reported to be aware of OAP were requested to tick those that they were aware of. Majority of the respondents 111 (72.1%) said yes while the rest 41(26.6%) indicated that they were not aware of open access publishing. This shows that most academic staffs were aware of Open Access Publishing. These findings were similar to one reported by Dulle (2010) where the level of awareness was reported to be 72.1% among the researchers and Lwoga (2013) where most faculty (93.5%) were familiar of OAP. The findings were illustrated in table 4.4 below.

Table 4.4: Awareness of Open Access Publishing

Open Access Publishing awareness		Frequency	Percent
	Yes	111	72.1
	No	41	26.6
	Total	152	98.7
Missing	System	2	1.3
Total		**154**	**100.0**

4.3.3Benefits of open access

Academic staff's awareness of the benefits of open access as a new technology is important in supporting its adoption. Academic staff members were asked to indicate the benefits of open access that they were aware of from a list of statements. In table 4.5 below, the results from the study indicate how the academic staff benefited from

depositing research material on open access journals. Majority of the respondents 49 (31.8%) indicated that it provided a wider dissemination of research platform, 27 (17.5%) indicating that it helped reduce cost, 19 (12.3%) indicated it increased visibility of academic staff, 8 (5.2%) said it increased citation of a researchers work and 2 (1.3%) said it helped retain copyright by publishers.

On the flipside of the benefits, 4 (2.6%) of the respondents were not aware on any of the above benefits. The study thus reveals that generally there was a low level of awareness of the benefits of open access publishing ranging between 31.8% and 1.3%. The failure to inform academic staff about the benefits is a constraint to its utilization. The low percentage of awareness of the benefits of OAP implies that academic staffs were not likely to gain from open access outlets since the awareness of the benefits increases their usage. Researchers who agreed of open access outlets were likely to publish their research works in open access outlets. These study findings therefore concurred with results of previous studies (Creaseret al., 2010; Cullen and Chawner, 2011; Hulela, 2010). The results were summarized in table 4.5.

Table 4.5: Benefits of open access

Benefits of open access		Frequency	Percent
	Reduced cost	27	17.5
	Increased visibility of academic staff	19	12.3
	Wider Dissemination of research	49	31.8
	Increased citation of a researchers work	8	5.2
	Retention of copyright by publishers	2	1.3
	I am not aware of the above benefits	4	2.6
	Total	110	70.8
Missing	System	45	29.2
Total		**155**	**100.0**

4.3.4 Awareness of availability of institutional repositories

The study sought to determine the awareness of existence of IRs by academic staff in their university libraries which was necessary to find out the extent of their adoption. Majority of the respondents 123(79.6%) indicated to be aware of its existence while 32(20.4%) were not aware. This indicates that most of the academic staffs were aware of the existence of institutional repositories in their universities. The adoption of IRs by academic staff to disseminate their research depends on their awareness of its existence. In order for a technology to be used, the users must be aware of its existence. The findings concur with Lwoga and Questier (2014, p.127). Table 4.6 shows the responses from academic staffs about their awareness of the availability of an institutional repository in their university.

Table 4.6: Institutional Repositories

Institutional Repositories	Frequency	Percent
Yes	123	79.6
No	32	20.4
Total	**155**	**100.0**

4.3.5 Awareness of open access journals

The study sought to know the nature of awareness to open access journals by the academic staff. The results indicate that majority 123 (79.6%) of the academic staff were well aware of open access journals while 32 (20.4%) were not aware of it. This shows that academic staffs were aware of the existence of open access journals. Similar to previous studies conducted in Africa (Dulle, 2010; Xia 2010), majority of the respondents were found to be more aware of OA journal as compared to other open access initiatives. The table 4.7 below shows the findings on awareness of OAJs by academic staff.

Table 4.7: Awareness to open access journal

Awareness To open access journal		Frequency	Percent
Valid	Yes	123	79.6
	No	32	20.4
	Total	155	100.0

4.3.6 Sources of information about open access

Library staff play a vital role in providing information about OAJs to academic staff therefore it was necessary to find out the sources of information about open access by academic staff. The findings reveal that the internet 33(21.4%) was the greatest source of

information, followed by the librarian 28(18.2%) and Contact from an IR staff member 26(16.9%). Publicity on a university/library website 25(16.2%) was also identified while Presentation by an IR staff member at a faculty/university meeting 19(12.3%) and Participation in an initial meeting of the IR 1(.6%) featured on the source of information. This shows that the internet was the most accessible and useful source of information to the respondents. Only 18.2% of the academic staff obtained information about OAJs from librarians which indicated that there was need for librarians as the custodians of OAJs to inform the academic staff of their existence.

Other studies have also reported several sources of awareness about OA by faculty which included university/library website, IR staff, internet, seminars/workshops, conferences, bronchures/leaflet, mass media, university newspaper (Dulle, 2010; Hulela, 2010; Kim, 2010; Sánchez-Tarragó and Fernández-Molina, 2010). The findings indicated that academic staff used different sources to be familiar with OA issues hence OA advocators such as librarians can use different approaches to educate the academic staff. The table 4.8 shows the source of open access information from the respondents.

Table 4.8: Source of Information to Awareness

Source of Information to Awareness	Frequency	Percent
Through publicity on a university/library website	25	16.2
Contact from an IR staff member	26	16.9
Presentation by an IR staff member at a faculty/university meeting	19	12.3
Librarian	28	18.2
The internet helps me to get this awareness	33	21.4
Participation in an initial meeting of the IR	1	.6
Total	133	85.7
Missing System	22	14.3
Total	**155**	**100.0**

4.3.7 Usage of IR AND OAJ

The third objective sought to determine the level of usage of open access outlets in accessing and disseminating their research works. The objective was achieved by asking the respondents to respond to questions that best described usage of IR and OAJ. These together with other items were each rated on a 5-point Likert scale ranging from: 1= Strongly Agree to 5= Strongly Disagree and the results summarized below in table 4.9

4.3.8 Usage of contents in institutional repositories

From the findings, 103 (66.2%) of the respondents indicated to have used the information materials while 51(33.1%) had not used the information materials. This showed that majority of the academic staff admitted to using institutional repositories. Table 4.9 shows the responses to use of materials deposited in the institutions repositories

Table 4.9: Usage of IR

Usage of IR	Frequency	Percent
Yes	103	66.2
No	51	33.1
11	1	.6
Total	**155**	**100.0**

4.3.9 Publishing of research work in institutional repositories

The study also sought to find out whether academic staff published their research work in institutional repositories. Majority of the academic staff 106 (68.2%) indicated to not posting their work on institutional repositories while 44(28.6%) indicated to be posting their research work. This was in contrast to use of institutional repositories which was high. This showed that majority of academic staff accessed content found in IRs rather than depositing their research work in IRs. This indicated that research work by these academic staffs cannot be accessed by other researchers and that provisions to posting research work have not been adequately highlighted. The low publishing on open access outlets and increased use will lead to lack of research disseminated to these outlets. It will also lead to duplication of research work due to unavailability of information on research done by other scholars.

A similar finding from a study in Tanzania indicates that researchers mainly used OA to access information rather than to disseminate their scholarly research (Dulle, 2010). This confirmed what other authors had confirmed with regard to deposition of research findings in institutional repositories. Dulle (2010, p.176) reported that majority (81%) of the researchers acknowledged to have never published in open access institutional

repositories. Faculty publications in open access avenues are vital to the success of adoption of open access initiatives (Lwoga, 2006). The table 4.10 below summarizes the findings.

Table 4.10: Institutional Repository Publishing

Institutional Repository Publishing	Frequency	Percent
Yes	44	28.6
No	106	68.2
Total	150	97.4
Missing System	5	2.6
Total	**155**	**100.0**

4.3.10 Rating of publishing process

The study sought to find out the opinion of academic staff with regard to the process of self-archiving their work in institutional repositories. Table 4.11 show the ease in the process of publishing research work in the institutional repositories. The respondents indicated the process being easy 34(22.1%), fairly easy12 (7.1%) and very easy 5(3.2%). The findings indicated that majority (22.1%) of the academic staff who had posted their work in IR said they found the process to be easy.

Table 4.11: Publishing process

Publishing process	Frequency	Percent
Very easy	5	3.2
Easy	34	22.1
Fairly Easy	12	7.1
Total	51	32.5
System	104	67.5
Total	**155**	**100.0**

4.3.11 Reason for not publishing in institutional repositories

The study further sought to find out the reasons why academic members of staff were not publishing their research work in institutional repositories. Majority of the staff 47(30.5%) indicated they do not have the skills to post their work in a repository while 26(16.9%) didn't know what a repository was. Over half of the respondents 81(52.6%) did not respond. The main reason why academic staff did not post their work in institutional repositories was because they did not have the skills.

The lack of awareness of the existence of institutional repository was as a result of inadequacy of communication by academic libraries hence the inability of academic staff to post their research work. The lack of knowledge and understanding of self-archiving practices by the researchers necessitates the need for making programs to facilitate the awareness of open access to enhance more uptakes at the universities. The table 4.12 below shows the reason as to why the respondents never post research material in the institutional repositories.

Table 4.12: Reason to Not Publishing Research Materials

Reasons	Frequency	Percent
I don't know what a repository is	26	16.9
I do not have the skills to post my work in a repository	47	30.5
Total	73	47.4
Missing System	81	52.6
Total	155	100.0

4.3.12 Access of information materials available in other university's institutional repositories

The study also sought to find out whether academic staff accessed contents available in other university institutional repositories. 121(76.6%) indicated to access other university repositories while 31(20.1%) did not access. This is to show that besides their institutional repositories access; they also accessed content from other universities. This was good indication of interest by academic staff to access institutional repositories of other universities. Table 4.13 shows the response from the academic staff access to other university repositories.

Table 4.13: Access to Other University Repositories

Access to Other University Repositories		Frequency	Percent
	Yes	121	76.6
Valid	No	31	20.1
	Total	152	98.1
Missing	System	3	1.9
Total		**155**	**100.0**

4.3.13 Process of accessing contents in other universities' repositories

It was also deemed necessary to find out how academic staff's view with regard to process of accessing contents in other universities' repositories. The respondents indicated the process being easy 62(39%), fairly easy 42(26.6%) very easy 11(6.5%) and not easy 7(4.5%). Table 4.14 show the ease in the process of accessing contents from other universities repositories.

Table 4.14: Process of accessing contents in other universities repositories

Ease of process		Frequency	Percent
	Very easy	11	6.5
	Easy	62	39.0
	Fairly Easy	42	26.6
	Not Easy	7	4.5
	Total	122	78.6
	Missing System	33	21.4
Total		155	100.0

4.3.14 Reason for not publishing in open access journals

The study also deemed it necessary to find out why academic staff did not publish in open access journals. The findings on table 4.15 shows that on a five point scale, the academic staffs scored Mean = 3.47 in "Open access publishing is not compatible with the existing scholarly communication". "Long term availability of open access publications is not guaranteed" (mean= 3.09) while "Open access publication are considered of low quality as compared to subscription based publications (mean=3.06). Open access publication are likely to be misused or plagiarized scored (mean = 2.95) and the least association being Lack of adequate skills to publish in open access outlet

(mean=1.81). Generally the study found out that the main reason for failure to use open access outlets was due to lack of adequate skills to publish in open access outlet with (54.5%) of respondents who strongly agreed and agreed with the statement. The findings are presented in table 4.15.

Table 4.15: Skills for publishing in open access outlet

Statement	**SA Freq (%)**	**A Freq (%)**	**U Freq(%)**	**D Freq (%)**	**D Freq (%)**	**Mean**	**Sd**
Lack of adequate skills to publish in open access outlet	63(40.9)	21(13.6)	4(2.6)	2(1.3)	12(7.8)	1.81	1.33
Open access publication are considered of low quality as compared to subscription based publications	17(11)	27(17.5)	11(7.1)	11(7.1)	28(18.2)	3.06	1.530
Long term availability of open access publications is not guaranteed	16(10.4)	35(22.7)	6(3.9)	5(3.2)	31(20.1)	3.09	1.770
Open access publication are likely to be misused or plagiarized	20(13)	27(17.5)	16(10.4)	2(1.3)	30(19.5)	2.95	1.560
Open access publishing is not compatible with the existing scholarly communication	11(7.1)	19(12.3)	15(9.7)	10(6.5)	37(24)	3.47	1.486

4.3.15 Access of research work published in open access journals by academic staff

The study also sought to find out whether academic staff accessed research work published in open access journals since publishing in OAJs indicates its adoption. 122(78.6%) of them indicated to have accessed the published works while 33(21.4%) had not accessed the works**.** The results in table 4.16 show the responses by the respondents on access of published works in open access journals.

Table 4.16: Published works access

Published works access	Frequency	Percent
Yes	122	78.6
No	33	21.4
Total	**155**	**100.0**

4.3.16 Reasons for lack of access to published works in open access journals

It was also necessary to find out the reasons why academic staff did not access published works in open access journals. The result from table 4.17 gives reasons as to why published works were not accessed by the respondents. 27(16.2%) indicated to not having the skills required to access such works while 12(7.8%) said they are not aware of existence of open access journals. The main reason for lack of publishing in OAJs was lack of skills by academic staff.

Table 4.17: Reasons for not accessing Published Works

Reasons for not accessing Published Works	Frequency	Percent
I do not have the skills to access such works	27	16.2
I am not aware of existence of open access journals	12	7.8
Total	39	25.3
Missing System	116	74.7
Total	**155**	**100.0**

4.3.17 Ease of using open access outlets

The study sought to find out the difficulty or ease of using open access outlets. The findings on Table 4.18 shows that on a five point scale, the academic staffs scored Mean = 2.88 in "I clearly understand the implications of publishing in open access outlets". "I believe the interaction with open access publication system to be clear and understandable for publication of scholarly contents (mean=2.43) while "learning to publish my work in open access outlets would be easy for me" scored a mean = 2.41. "It is easy for me to become skillful at publishing my work in open access outlets "(mean-2.29) and the least association being I find it easy to access open access scholarly contents from the internet (mean=2.28).

The findings reveal that the majority of the respondents believed that they were not likely to face difficulties when using open access outlets. Majority of the respondents (78.6%) agreed with the statement that it would be easy for them to be skillful at publishing their work in open access outlets followed by (76%) of the respondents who strongly agreed or agreed with the statement that learning to publish their work in open access outlets would be easy for them. Despite the above findings that the respondents were unlikely to face

difficulties when using open access outlets,a larger number of them would find it easy to access rather than to disseminate their research work in open access outlets. The researchers expected ease or difficulty of using open access outlets to access or disseminate their research work may either facilitate or hinder them from adopting open access initiatives. These findings were similar to other technology acceptance studies whereby the studies established that the difficulty or ease of using a technology strongly affects the behavioral intention of the user to use a technology (Dulle and Minishi-majanja, 2011; Lwoga and Questier, 2014). The findingsare illustrated in table 4.18.

Table 4.18: Difficulty or ease of using open access outlets

STATEMENT	**Sa Freq (%)**	**A Freq (%)**	**U Freq(%)**	**D Freq (%)**	**D Freq (%)**	**Mean**	**Sd**
I believe the interaction with open access publication system to be clear and understandable for publication of scholarly contents	43(27.9)	58(37.8)	20(13)	7(4.5)	25(16.2)	2.43	1.375
It is easy for me to become skillful at publishing my work in open access outlets	34(20.8)	89(57.8)	8(5.2)	3(1.9)	21(13.6)	2.29	1.224
Learning to publish my work in open access outlets would be easy for me	28(24.7)	79(51.3)	12(7.8)	1(.6)	22(14.3)	2.41	2.031
I find it easy to access open access scholarly contents from the internet	38(24.7)	74(48.1)	13(8.4)	5(3.2)	19(12.3)	2.28	1.247
I clearly understand the implications of publishing in open access outlets	31(20.1)	44(29.2)	27(17.5)	11(7.1)	39(25.3)	2.88	1.482

4.3.18 Attitudes of academic staff towards IROAJS

The fourth objective sought to find out the attitude of academic staff towards open access initiatives. The objective was achieved by asking the respondents to respond to questions that best described their library environment. These together with other items were each rated on a 5-point Likert scale ranging from: 1= Strongly Agree to 5= Strongly Disagree.

The finding showed that on a five point scale, the academic staffs scored Mean = 4.19 in accessing and use of open access is a good idea and publishing in open access outlet is a good idea mean = 4.16. Open access is beneficial to the scholarly community (mean=4.01), publishing in open access outlets would make my work more interesting (mean=3.88) and the least association being publishing in open access is easy for me (mean=3.35). It was noted that majority of the respondents were positive in almost all the attitude statements provided except the second statement where more than half (59.7%) of the respondents either strongly disagreed, disagreed or were neutral. These results were in tandem with those of other scholars where the respondents were positive with almost all the attitude statements (Coonin and younce, 2010; Dulle, 2010).

The results are summarized below in table 4.19.

Table 4.19: Attitudes of academic staff towards IROAJS

STATEMENT	SD Freq (%)	D Freq (%)	N Freq (%)	A Freq (%)	SA Freq (%)	MEAN	SD
Publishing in open access outlet is a good idea		5(32)	29(18.8)	56(36.4)	64(41.6)	4.16	.844
Publishing in open access is easy for me	16(10.4)	35(22.7)	41(26.6)	41(26.6)	19(12.3)	3.35	3.516
open access is beneficial to the scholarly community	2(1.3)	9(5.8)	25(16.2)	66(42.9)	51(33.1)	4.01	.925
Accessing and use of open access is a good idea	2(1.3)	4(2.6)	23(14.9)	57(37)	65(42.2)	4.19	.882
publishing in open access outlets would make my work more interesting	2(1.3)	18(11.7)	50(32.5)	30(32.5)	33(21.4)	3.88	3.402

4.3.19 Skills for academic staff

ICT infrastructure is important in providing a platform on which academic staff can access and disseminate their research in open access outlet. This study therefore sought to find out whether academic staffs had the necessary skills needed to use the computer and the internet. 100(63.6%) indicated not to have been trained while 42(27.3%) had been trained by the librarian. The table 4.20 below indicated the responses received on training by library staff on how to access and disseminate research in institutional repository

Table 4.20: Training for academic staff on IRs

Training for academic staff	Frequency	Percent
Yes	42	27.3
No	100	63.6
Total	142	92.2
Missing System	13	7.8
Total	**155**	**100.0**

4.3.20 Internet usage skills

Internet usage skills are an important asset in facilitating usage of open access outlets. This view is supported by Dulle (2010) who noted that in order for researchers to benefit from open access initiatives researchers should improve their information and computer literacy skills. The study therefore deemed it necessary to find out how academic staff acquired internet usage skills. 116 of the respondents had acquired it through self-learning, 40 had been trained by university computing center while 59 had been trained by the university library. Internet usage skills have been acknowledged as the key determinants for full exploitation of information available on the internet.

Table 4.21 shows the acquisition nature of internet usage skills.

Table 4.21: Internet usage skills

Internet usage skills	Yes	No	Missing
Self-learning	116	1	37
Training by university computing center	40	4	110
Training by the university library	59	5	90

4.3.21 Academic staff training on OAJs

Librarians are supposed to impart academic staff with skills on accessing and publishing in open access journals. The study therefore sought to find out whether academic staff had been trained on OAJs. 55(34.4%) responded that they had received training from the librarian while 99(64.3%) said they had not received any training from the librarian. The need for librarians to train the academic staff on aspects of open access and creation of awareness was echoed by Anuradha et al (2011). The results show that library staffs need to provide training to academic staff to accelerate the adoption of open access and remove the barriers. The failure to train the academic staff on open access publishing may result to low adoption of open access initiatives by academic staff. Table 4.22 indicates responses elicited from respondents who were trained by the librarian.

Table 4.22: Academic staff training on OAJs

Academic staff training		**Frequency**	**Percent**
	Yes	55	34.4
Valid	No	99	64.3
	Total	154	99.4
Missing	System	1	.6
Total		**155**	**100.0**

4.3.22 Lack of training as a hindrance to access OAJs

The study also sought to find out whether the lack of training of academic staff was hindering them from accessing OAJs. 61(39%) of the respondents said it was a hindrance to not been trained by the library staff on how to access and publish in OAJ while

52(33.8%) it was not in any way a hindrance. Table 4.23 indicated the lack of trainings as a hindrance to access OAJs.

Table 4.23: Trainings as a hindrance to access OAJs

Trainings as a hindrance to access OAJs		Frequency	Percent
	Yes	61	39.0
Valid	No	52	33.8
	Total	113	72.7
Missing	System	42	27.3
Total		**155**	**100.0**

4.3.23 Internet usage skills in terms of accessing scholarly works

Academic staff were also requested to rate themselves in terms of accessing scholarly work. The respondents indicated the skills being very good 28(18.2%), good 74(48.1%) fair 44(27.9%) and poor 9(5.2%). Table 4.24 show the rating on internet usage skills in terms of accessing scholarly works.

Table 4.24: Internet usage skills in terms of accessing scholarly works

Internet usage skills	Frequency	Percent
Very Good	28	18.2
Good	74	48.1
Fair	44	27.9
Poor	9	5.2
Total	154	99.4
Missing System	1	.6
Total	**155**	**100.0**

4.3.24 Internet Usage Skills in terms of disseminating scholarly works

Academic staff were further asked to rate themselves with regard to internet usage skills in terms of disseminating their scholarly work. The respondents indicated the skills being very good 29(18.8%), good 69 (44.8%) fair 44 (26.6%) and poor 11(7.1%). The findings in table 4.24 and table 4.25 show that majority of the respondents rated themselves as having very good and good internet usage skills in terms of access (66.3%) and dissemination of scholarly works at (63.6%), Table 4.25 show the rating regarding internet usage skills in terms of disseminating scholarly works.

Table 4.25: Internet Usage Skills in terms of disseminating scholarly works

Internet usage skills	Frequency	Percent
Very Good	29	18.8
Good	69	44.8
Fair	44	26.6
Poor	11	7.1
Total	153	98.7
Missing System	2	1.3
Total	155	100.0

4.3.25 Usefulness of Open Access

In this study it is expected that the usefulness of open access outlets would increase its adoption by academic staff. It was therefore important to find out whether academic staff considered open access outlets to be useful in scholarly communication. The findings on Table 4.26 shows that on a five point scale, the academic staffs scored Mean = 2.88 in open access outlet enables scholars to Publishing more quickly and publishing in open access increases research impact by such works being highly used and cited mean = 2.32.

Open access enables researchers in developing countries to access literature more easily(mean=2.22), open access outlets improves accessibility to scholars literature because it is free and without access limitation (mean=2.17) and the least association being publishing in open access outlets exposes scholars to a large potential readership (mean=2.06). The above findings show that majority of the academic staff positively agreed with all the statements about the usefulness of open access outlets in scholarly communication. The highest was the third statement with (79.9%).

Table 4.26: Usefulness of Open Access outlets in scholarly communication

STATEMENT	Sa Freq (%)	A Freq (%)	D Freq (%)	SD Freq (%)	I Don't Know Freq (%)	Mean	Sd
Open access outlet enables scholars to Publishing more quickly	39(25.3)	47(30.5)	15(9.7)		52(33.8)	2.88	1.639
Publishing in open access increases research impact by such works being highly used and cited	42(27.3)	70(45.5)	15(9.7)	2(1.3)	24(15.6)	2.32	1.321
open access outlets improves accessibility to scholars literature because it is free and without access limitation	46(29.9)	77(50)	9(8.8)		21(13.6)	2.17	1.255
open access enables researchers in developing countries to access literature more easily	62(40.3)	48(31.2)	17(11)		26(16.9)	2.22	1.419
publishing in open access outlets exposes scholars to a large potential readership	67(43.5)	50(32.5)	16(10.4)		20(13)	2.06	1.314

4.4 Inferential statistics

Inferential statistics makes inferences about populations using data drawn from the population in an effort to reach conclusions that extend beyond the immediate data alone.

4.4.1 Correlation analysis

In this section, the results that address the research questions are presented and Pearson's correlation test was used to answer the research questions of the study. To investigate the relationships among the constructs a Zero-order correlation table was generated where the **correlation coefficients** measures the strength of association between two variables. Pearson correlations were run to establish the relationships between the study variables so as to answer the objectives of the study. A positive correlation indicates the extent to which those variables increase or decrease in parallel; a negative correlation indicates the extent to which one variable increases as the other decreases.

Table 4.27: Correlations

		Outlets	Awareness	Usage	Attitude	Skills
Outlets	Pearson Correlation	1	.136	.224**	.072	.171*
	Sig. (2-tailed)		.090	.005	.374	.033
	N	155	155	155	155	155
Awareness	Pearson Correlation	.136	1	.519**	.140	.283**
	Sig. (2-tailed)	.090		.000	.083	.000
	N	155	155	155	155	155
Usage	Pearson Correlation	.224**	.519**	1	.208**	.308**
	Sig. (2-tailed)	.005	.000		.009	.000
	N	155	155	155	155	155
Attitude	Pearson Correlation	.072	.140	.208**	1	.096
	Sig. (2-tailed)	.374	.083	.009		.234
	N	155	155	155	155	155
Skills	Pearson Correlation	.171*	.283**	.308**	.096	1
	Sig. (2-tailed)	.033	.000	.000	.234	
	N	155	155	155	155	155

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The correlation summary above in table 4.26 indicates a moderate but significant association between the independent and dependent variables. From the correlation results, it was found that outlets has a significant positive effect on open access dissemination of scholarly research in the universities ($r = 0.171$, $\alpha = 0.33$) this shows that there is a significant relationship existing between the outlets and dissemination.

The study also determined whether awareness aspects had any significant effects on open access dissemination of scholarly research in the universities. The correlation results indicated a positive significant relationship ($r = 0.283$, $\alpha = 0.00$). The study also determined whether usage aspects had any significant effects on open access dissemination of scholarly research in the universities. The correlation results indicated a positive significant relationship ($r = 0.308$, $\alpha = 0.00$). Finally the study also sought to determine whether attitude had a significant effect open access dissemination of scholarly research in the universities and found a positive significance ($r = .096$, $\alpha = 0.234$).

Table 4.28: Descriptive of the correlation

	Mean	Std. Deviation	N
Outlets	.41	.494	155
Awareness	.50	.502	155
Usage	.59	.494	155
Attitude	.06	.235	155

From the above table 4.27, it was established that usage had the highest association to open access dissemination of scholarly research in the universities, followed closely by awareness, then outlets and the least association was identified as being the attitudes of academic staff towards the OAJ.

4.5 Regression Analysis

Regression analysis was used to determine the extent to which usage of open access initiatives, predict dissemination of scholarly research by academic staff in the universities. The results obtained are shown by table:

Table 4.29: Regression Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.356[a]	.126	.103	.468

a. Predictor : skill

b. Predictor: (constant) usage, outlet attitudes awareness

Source: Research data, 2015

The square value of, r^2 = .126 indicate that when all the variables are combined, the multiple linear regression model could explain for approximately 13% of the variation in dissemination of scholarly materials in the university library.

Table 4.30: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.752	4	1.188	5.429	.000[b]
	Residual	32.823	150	.219		
	Total	37.574	154			

a. Dependent Variable: Skills

b. Predictors: (Constant), Attitude, Outlets, Awareness, Usage

The Anova results shown in table 4.29 indicated an overall significance of 0.000. The overall relationships between the dependent and independent variables will be of the most

importance in a linear regression model. A negative value simply means that the expected value on the dependent variable will be less than 0 when all independent/predictor variables are set to 0.

Table 4.31: Multiple linear regression results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.		
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.347	.064		5.378	.000		
Outlets	.103	.078	.103	1.317	.001	.949	1.054
Awareness	.162	.088	.164	1.841	.008	.729	1.371
Usage	.194	.092	.194	2.115	.016	.690	1.449
Attitude	.053	.164	.025	.324	.010	.955	1.047

The findings in the multiple linear regression results showed there was significance between outlet (p = 0.0.01) and dissemination of scholarly materials in the university library. The findings also indicated a significant relationship between awareness (p = 0.008), usage (p= 0.016) and attitude (p= 0.010).

The prediction equation is performance = .347 + 0.103 (Outlets) + 0.164(Awareness) +.196 (Usage) + .025 (Attitude) telling you that outlets is predicted to increase by.347 when the dissemination of open journals goes up by one, increase awareness by 0.103 when dissemination of open journals goes up by one, and usage is predicted to increase by 164. Usage is bound to increase by .194 and attitude by .025. The standard error (0.064),being an estimate of the standard deviation of the coefficient, is a random

variable with a mean of zero and which captured the variables that could not be quantified. If a coefficient is large compared to its standard error, then it is probably different from 0.

The VIF value for all the independent variables were lesser than 10, and the Tolerance was also less than 0.1, thus there was no concerns over multicollinearity. This led to the conclusion that outlet, awareness, usage, attitude and skills were all important factors in the dissemination of open journals in universities. The independent variable which was most important in the dissemination of open journals in universities was also determined. This was obtained by the beta value where upon the results in table 4.30 identified usage as the most important variable of the study followed by awareness, then outlets and attitude in that order. The beta value for these variables 0.194, 0.164, 0.103 and 0.025 indicate that dependent variables would change by a corresponding number of standard deviation when the respective independent variable changed by one standard deviation.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter highlights the summary, conclusions and recommendations of this study. This chapter also suggested areas for further research. The aim of this study was to investigate the adoption of open access initiatives in dissemination of research findings by academic staff in selected universities in Kenya.

5.2 Summary of key findings

To answer the objectives the researcher targeted academic staff in selected Universities in Kenya. Data was collected from 155 academic staff in selected universities in Kenya. The study's findings are summarized as follows:

5.2.1 Outlets Used by Academic Staff

First the study sought to find out the types of outlets used by academics to access and disseminate their scholarly research. The study revealed that majority (37.7%) of the academic staff indicated that they had used print books, print journals, institutional repositories and OAJs in their dissemination of research work. The findings indicated that academic staff still used traditional outlets which consisted of print books and journals while others reported to use both print books and print journals (25.9%). The findings concur with Maynard and O'Brien (2010) who observed that traditional scholarly output were widely used such as printed books and journals.

5.2.2 Academic Staff Awareness of Open Access Outlets

The second objective of this study was to find out the extent to which academic staffs were aware of open access outlets. Firstly, the study found out that the awareness of OAP as a way of depositing scholarly work was high (73.1%). Similarly, the awareness of institutional repositories was high (79.6%) while that of open access journals was also high (79.6%). The findings compared to previous studies indicate that there has been an improvement of open access awareness overtime. For example studies done in South Africa before 2007 showed that less than 60% of the respondents were aware of open access (Lwoga, 2006; Moller, 2006).

Thirdly, the awareness of the benefits of open access publishing was low ranging between 31.8% and 1.3%. Lack of knowledge by academic staff about the benefits of open access may lead to lack of adoption of open access initiatives. This was a challenge to the adoption of open access since the academic staff cannot access research from other scholars and cannot be able to disseminate their research on open access outlets. This therefore meant that they were not likely to use OA outlets hence the adoption of open access outlets was likely to be low.

5.2.3 Usage of Open Access Outlets by Academic Staff

The third objectiveof this study was to find out the level of usage of open access outlets by academic staff. The study established that academic staff were users of open access outlets but were not disseminating their research to open access outlets. Majority of academic staff (66.2%) accessed information materials available in institutional

repositories but a few (33.1%) did not access. Furthermore majority of the respondents 106 (68.2%) did not publish their work in open access outlets. Moreover majority (22.1%) of academic staff who published their work in institutional process indicated that the process of posting was easy. The study also found out that majority of the staff (30.5%) did not have the skills to post their work in a repository. In a similar study by Obuh and Bozimo(2012, p.58), it was reported that fewer researchers (mean=1.1) disseminated their findings through open access outlets.

5.2.4 Academic Staff Attitude on Open Access Outlets

The fourth objective of this study was to find out the attitude of academic staff towards open access initiatives. The study found out that majority (50% and above) of academic staff had a positive attitude of academic staff towards open access except for the statement that publishing in open access was easy where more than half (59.7%) of the respondents either strongly disagreed, disagreed or were neutral.

In terms of usefulness of open access outlets in scholarly communication the study found out that majority of the academic staff positively agreed with all the statements about the usefulness of open access outlets in scholarly communication. The highest was the third statement with (79.9%). The above results showed that academic staff preferred using traditional outlets compared to open access to disseminate their research works since they thought that publishing in open access was not easy for them.

5.2.5 Academic Staff's Skills

Additionally the study sought to find out the skills of academic staff, which would enable them to access and disseminate their research work in open access outlets. The study found out that (63.6%) of academic staff had not been trained on how to access and disseminate their research in IRs while (27.3%) had been trained. On how to access and publish in OAJs the response showed that majority (64.3%) said they had not been trained while (34.4%) of the respondents had been trained. On internet usage skills 116 of the respondents had acquired it through self-learning, 40 had been trained by university computing center while 59 had been trained by the university library.

5.3 Conclusions

Based on the above findings and discussions, this study makes the following conclusions: From the above findings this study concluded that the academic staff still preferred and relied on traditional outlets other than open access. This was attributed to the low quality of open access publications and that publishing in open access was not easy for them. There was also low awareness of open access outlets especially with regard to publishing and benefits of open access. On usage of open access outlets by academic staff the study concluded that academic staff did not publish on open access journals and did not self-archive their research works on institutional repositories due to lack of skills on how to post their work in a repository. Furthermore, the academic staff had inadequate skills on use of open access outlets due to lack of training. Finally, the study found out that academic staff had positive attitude towards open access outlets which was a good indicator that they were willing to adopt open access initiatives. In order to reap

maximum benefits from open access outlets, Universities need to urgently address the reasons behind minimal utilization of open access outlets.

5.4 Recommendations

Based on the study findings the following recommendations were made by the researcher.

5.4.1 Outlets Used by Academic Staff

The study revealed that majority of the academic staff used traditional print books and journals. To address this issue the study recommended that:

Education and training

Academic staff should be trained on the types of open access outlets available. In particular academic staff should be trained on how they can access and publish their research work in open access outlets. Academic staff should endeavor to acquire the necessary ICT skills in order to enhance their adoption of open access initiatives. Librarians and other information professionals should encourage academic staff to attend training sessions on open access.

Promotion of OA

Universities should also promote open access outlets and ensure that these outlets are available in their institutions. The use of open access outlets should be used as a criterion for promotion of academic staff.

Marketing of OA

Measures of marketing open access outlets should also be put in place to encourage academic staff to publish in open access outlets. Librarians on the other hand should advice the researchers on the possible open access outlets they can use to disseminate their scholarly research.

5.4.2 Academic Staff Awareness of Open Access Outlets

The following recommendations were made with reference to awareness of open access outlets by academic staff:

Advocacy Campaigns

Awareness and understanding of OA by academic staff is critical for its adoption. According to Obuh and Bozimo (2012) the lack of publishing in OA outlets by scholars is because they are not aware of this mode of scholarly communication. The low involvement by academic staff in publishing in OA outlets necessitates the need for OA advocacy. Advocacy campaigns should therefore be directed to academic staff and should be done at both institutional and National levels. At the National level the OA advocacy should be led by Kenya Library Association (KLA). At the institutional level librarians and other information professionals should be at the forefront to advocate for OA.

Marketing of OA outlets

The library should engage in vigorous marketing of open access outlets and self archiving issues and its benefits to the academic staff. This can be done through channels such as information literacy classes, library website, university website, library orientations and

emails. A link to open access information sources should also be provided on the university and library website.

Review of information literacy programs

This should be done by librarians to ensure that open access issues are input. The reason why some researchers were not publishing in OA may not be because they are opposing it but due to their being unfamiliar with the benefits of that mode of scholarly communication. This new form of scholarly communication can therefore be adopted if academic staffs are made aware of the benefits of open access through information literacy programs.

Workshops and Seminars

Librarians and other information Professionals should also organize for workshops or seminars to create more awareness and deeper understanding of open access. Specific training sessions for academic staff should also be conducted for demonstrations on access and publishing in OA outlets.

5.4.3 Usage of Open Access Outlets by Academic Staff

It was also established that majority of the academic staff accessed OA information but did not publish in these outlets. This was due to lack of skills by academic staff to post their work in institutional repository, fear of open access works being plagiarized, concerns that open access works are of low quality and that their long term availability was not guaranteed. The recommendations were:

Current Awareness and Selective Dissemination of Information

It is recommended that librarians should emphasize the benefits of open access to academic staff through current awareness and selective dissemination of information so as to encourage them to use open access outlets. This will remove the misconceptions such as issues of plagiarism, quality and long term availability of open access works. Librarians should also guide and encourage the academic staff to publish in open access journals. Academic staff should also be trained on usage of internet due to the changing digital environment which may lead to difficulty in access and dissemination of research in OA outlets.

Policies

University management should also formulate policies that would encourage mandatory dissemination of research findings in open access outlets which will lead to growth of IRs. Policies that support open access publishing in terms of career development should be considered. Open access policies and information literacy policies should also be formulated. Management should also equip universities with infrastructure that will promote use of open access outlets.

5.4.4 Academic Staff Attitude on Open Access Outlets

The study revealed that majority of the academic staff had a positive attitude towards open access outlets though they were not publishing in these outlets except for the statement that publishing in open access was easy where more than half (59.7%) of the respondents either strongly disagreed, disagreed or were neutral. This showed that academic staff found the process of publishing as not easy. Perceived usefulness and ease

of use are used to determine attitude. Academic staff with negative attitude should be convinced about the usefulness of OA outlets which may make them to develop positive attitude towards them. In order for academic staff to find it easy to use the OA outlets there is need for training on OA to positively influence their behavioral intention. The ease of use or difficulty of open access outlets may either deter or facilitate the adoption of open access. It's therefore important to ensure that open access platforms are user friendly to facilitate easy access and publishing of scholarly research. The attitude of academic staff towards open access is fundamental on whether or not to use or publish in open access outlets.

5.4.5 Academic Staff's Skills

It was also established that academic staff lacked adequate skills on how to access and disseminate their research on open access outlets. Very few had been trained on OAJs and IRs and that they lacked adequate internet usage skills. It was therefore recommended that academic staff should strive to acquire necessary internet surfing skills to enhance their usage of open access outlets. Researchers spend much time looking for information and online publishing is also new to majority of them hence there is need to device mechanisms that will be used to impart such skills to academic staff.

Academic staff should specifically be trained on issues of self-archiving, benefits of open access initiatives and issues of copyright. The training should be done in interval basis to acquaint the academic staff with effective internet searching skills. Interdepartmental training on academic staff should be a continuous exercise until full exploitation of all

open access initiatives is achieved. Librarians and ICT officers should upgrade their skills and training modules on online information search and publishing techniques so that they can be able to train the academic staff.

5.5 Areas for Further Research

The researcher recommended that research in the following areas was important:

Investigation of the impact of librarians' competencies in fostering the adoption of open access initiatives, a comprehensive survey of adoption of open access in all universities in Kenya and determination of best practices for the development of open access institutional repositories for universities in Kenya.

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APPENDICES

APPENDIX I: INTRODUCTORY LETTER TO ACADEMIC STAFF QUESTIONNAIRE

University of Nairobi
Department of Library & Info. Sciences
P.O. Box 390009-00100,
NAIROBI.
Dear Sir/ Madam

RE: REQUEST

My name is Viola Rugut. I am a master's student at university of Nairobi. I am currently undertaking a research titled: ***Adoption of open access initiatives in dissemination of research findings by academic staff at selected universities in Kenya.***

The purpose of this letter is to request you to complete the attached questionnaire which will enable me to collect data regarding the topic under investigation. From the findings, I hope to make recommendations on what can be done to accelerate the adoption of open access initiatives by academic staff at Universities in Kenya. I also want to assure you that the information collected will be strictly confidential and used exclusively for academic purposes.

Thank you in advance.

Yours Faithfully,

Viola Chepkoech Rugut

APPENDIX II: QUESTIONNAIRE FOR ACADEMIC STAFF

Dear respondent,
I am a student at the University of Nairobi pursuing a Masters Degree in Library and Information Science. I am conducting research on usage of open access initiatives in dissemination of scholarly research by academic staff at selected universities in Kenya. The information provided will remain anonymous.

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

Section A: General Information
1) Academic Status in the university (Please Tick in the available box)

Current Position	**Tick as Appropriate**
Professor	
Associate Professor	
Senior Lecturer	
Lecturer	
Assistant Lecturer	
Tutorial Fellow	
Graduate Assistant	

2. Your gender: Male ☐ Female ☐

3. Which age profile do you belong to? (Tick one)
20-30 yrs ☐ 31-40 yrs ☐ 41-50 yrs ☐ 51-60 yrs ☐ ≥ 61yrs ☐

4. What is your research discipline? (e.g. education, religion)
……..

5a) What outlets do you use to disseminate your research findings?

Print Books	☐
Print journals with commercial publishers	☐
Institutional Repositories (IRs)	☐
Open Access Journals (OAJs)	☐
I have never published	☐

Section B: Awareness of open access initiatives by academic staff
6a) Are you aware of open access publishing as a way of depositing scholarly work in open access outlets?
Yes ☐ No ☐

6b) If your answer is yes which of the following benefits of open access are you aware of? (You can tick more than one box)

BENEFIT	**TICK (as appropriate)**
Reduced Cost	
Increased visibility of academic staff	
Wider dissemination of research	
Increased citation of a researcher's work	
Retention of copyright by authors	
I am not aware of the above benefits	

7 a) Are you aware of institutional repositories?

Yes ☐ No ☐

7b) Are you aware of open access journals?

Yes ☐ No ☐

7c) If your answer is yes to question 7 above, where did you get this awareness?

i. Through publicity on a university/library web site ☐
ii. Contact from an Institutional Repository staff member ☐
iii. Presentation by an Institutional Repository staff member at a faculty/University meeting ☐
iv. Publicity through campus newspapers ☐
v. The librarian ☐
vi. The Internet helps me to get this awareness ☐
vii. Participation in an initial meeting of the IR ☐

Section C: Usage of IRs and OAJs

8). Do you use materials deposited in the institutional repository of your university?

Yes ☐ No ☐

9a) Do you post your work in an institutional repository?

Yes ☐ No ☐

b) If your answer to question 9a is yes, how did you find the process of posting your work?

Very easy ☐ Easy ☐ Fairly easy ☐ Not easy ☐

c) If your answer is No, Please give reasons why?

i. I do not know what a repository is ☐
ii. I do not have the skills to post my work in a repository ☐

10 a) Have you accessed content from other universities' repository?

Yes ☐ No ☐

b) If your answer is yes, how was the process?
Very Easy ☐ Easy ☐ Fairly Easy ☐ Not easy ☐

11 If you have never published in open access journals, what could be your reason? (*Tick one box against each statement - Key:1 = Strongly agree; 2 = Agree; 3 = Disagree; 4 = Strongly disagree; 5 = I do not know/no opinion)*

Statements	**1**	**2**	**3**	**4**	**5**
Lack of adequate skills to publish in open access outlets					
Open access publications are considered of low quality as compared to subscription based publications					
Long term availability of open access publications is not guaranteed					
Open access publications are likely to be misused or plagiarized					
Open access publishing is not compatible with the existing scholarly communication					

12a) Do you access published works in open access journals?
Yes ☐ No ☐

b) If your answer is No, please give reasons?
I do not have the skills to access such work. ☐
I am not aware of existence of open access journals. ☐

13) To what extent do you agree or disagree with the following statements regarding your expected difficulty or ease of using Open access outlets (*Tick one box against each statement - Key:1 = Strongly agree; 2 = Agree; 3 = Disagree;4 = Strongly disagree; 5 = I do not know/no opinion)*

Statements	**1**	**2**	**3**	**4**	**5**
I believe the interaction with open access publication system to be clear and understandable for publication of scholarly content (e.g web interfaces)					
It (is) will be easy for me to become skillful at publishing my work in open access outlets					
Learning to publish my work in open access outlets (is) would be easy for me					
I (will) find it easy to access open access scholarly content from the internet					
I clearly understand the implications of publishing in open access outlets					

Section D: Attitude of academic staff towards IRs and OAJs

14. Please indicate the extent to which you agree or disagree with the following statements about your attitude towards accessing or disseminating scholarly information through open access outlets.
(Strongly agree= 5, agree=4, Neutral=3, disagree=2, strongly disagree =1)

Statement	**Strongly Agree(5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly disagree(1)**
Publishing in open access outlets is a good idea.					
Publishing in open access is easy for me					
Open access is beneficial to the scholarly community.					
Accessing and use of open access materials is a good idea.					
Publishing in open access outlets would make my work more interesting.					

Section E: Skills for Academic staff

15) Have you been trained by library staff on how to access and disseminate your research in your universities' institutional repository? Yes ☐ No ☐

16) How did you acquire the Internet usage skills? *(Tick ALL that apply)*

Statements	**Yes**	**No**
Self-learning		
Training by the University Computing Centre		
Training by the University Library		

17 a) Have you been trained by the library staff on how to access and publish in OAJs?
Yes ☐ No ☐

b) If your answer is No, do you think the lack of training is hindering you from accessing OAJs? Yes ☐ No ☐

18) How do you rate yourself regarding Internet usage skills in terms of accessing scholarly information? (Tick appropriate box)
Very good ☐ Good ☐ Fair ☐ Poor ☐

19) How do you rate yourself regarding Internet usage skills in terms of dissemination of scholarly information (Tick appropriate box)

Very good ☐ Good ☐ Fair ☐ Poor ☐

20) To what extent do you agree or disagree with the following statements about the usefulness of Open Access outlets in scholarly communication. *(Tick one box against each statement - Key:1 = Strongly agree; 2 = Agree;3 = Disagree; 4 = Strongly disagree; 5 = I do not know/no opinion)*

Statements	**1**	**2**	**3**	**4**	**5**
Open access outlets enable scholars to publish more quickly					
Publishing in open access outlets increases research impact by such works being highly used and cited					
Open access outlets improve accessibility to scholarly literature because it is free and without access limitations					
Open Access enables researchers in developing countries to access literature more easily					
Publishing in open access outlets exposes scholarly work to a large potential readership					

APPENDIX III: SAMPLE SIZE TABLE

Sample Size for a given population Size

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	197
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Source: Krejcie and Morgan (1970)