



**Evaluation of the Development and Use of the Institutional Repository by Staff and
Students at the University of Fort Hare in Eastern Cape, South Africa**

By

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DECLARATION

I, Kisemiire Christine Kagoro, declare that this dissertation is my own work and has not been submitted for another degree in any institution. Any resource used in the writing of this dissertation has been acknowledged by means of complete and proper referencing.

Researcher's signature..... Date

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DEDICATION

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LIST OF ABBREVIATIONS AND ACRONYMS

A&I	: Abstracting and Indexing
AAU	: Association of American Universities
ACRL	: Association of College and Research Libraries
ACRL	: Association of College Libraries
ARL	: Association of Research Libraries
ASSAF	: Academy of Science of South Africa
CARL	: The Canadian Association of Research Libraries
CSIR	: Council for Scientific Research and Industrial Research
CURL	: Consortium of University Research Libraries
DI	: Diffusions of Innovations
DIT	: Diffusion of Innovations Theory
eIFL	: Electronic Information for Libraries
EIR	: Online for Dictionary and Information Science
EU	: European Union
GMRDC	: Govan Mbeki Research Foundation
ICT	: Information and Communication Technologies.
IITA	: International Institute of Tropical Agriculture
IR	: Institutional Repository

IT	: Information Technology
JISC	: Joint Information Systems Committee
LIS	: Library and Information Science
MIT	: Massachusetts Institute of Technology
MM	: Mixed Method
NRF	: National Research Foundation
OA	: Open Access
OAI	: Open Archive Initiative
OAIS	: Open Archival Information System
OAP	: Open Access Process
PEOU	: Perceived Ease of Use
PU	: Perceived Usefulness
SARIS	: South African Research Information Service
TAM	: Technology Acceptance Model
TRA	: Theory of Reasoned Action
UCT	: University of Cape Town
UFH	: University of Fort Hare
UK	: United Kingdom
UNVLA	: University of Nevada Las Vegas
UP	: University of Pretoria

USA : United State of America

WWW : World Wide Web

ABSTRACT

This study sought to evaluate the development and use of Institutional Repository by staff and students at the University of Fort Hare (UFH) in Eastern Cape, South Africa. In this study, staff comprised of academic staff (lecturers) and library staff. The aim of this study was to investigate the development and use of Institutional Repository at UFH. To achieve the objectives, both qualitative and quantitative research methodologies were employed. Data was collected through questionnaires and face-to-face interviews. Purposive sampling technique was used to select the participants of the study. Qualitative data was analysed thematically while, quantitative data was analysed statically by help of SPSS software. The results showed that: library staff and management are aware and provide support for the development and use of the Institutional Repository at the UFH; awareness level of IR among lecturers and students is still low; the infrastructure available for the use of IR is not well developed; and lastly, library users which consist of students and academic staff face various barriers in the use and support of IR development. The study recommended for dynamic training, and marketing of IR through seminars and workshops should be started by expert affiliations and universities administration to advance the idea of IR among the University community. Low levels of awareness of the university repository, funding and shortage of library staff remains an issue and could be addressed by further investigating the effectiveness of different communication channels. It is pertinent that the findings of this study would be useful in various tertiary's institutions of higher learning across the globe in order to embark on IR.

Keywords: Institutional Repository, Development and Use, Academic Libraries, Stakeholders, Staff, Students and Communication Technologies.

CHAPTER ONE

BACKGROUND TO THE STUDY

1.0 Introduction

Globally, the emergence of information and communication technologies (ICT) has had a significant impact on the information landscape especially in institutions of higher learning. Callicott, Scherer, and Wesolek (2016) note that, as a result it has improved the sharing of knowledge and increased collaboration among academic institutions. These ICT developments would be attributed to the development and use of Institutional Repository (IR) in universities today. Institutional Repository initiatives consist of a suite of services intended to support the preservation and organization of, and access to the intellectual output of the institutions in which they are housed (Callicott, Scherer and Wesolek, 2016). The Institutional Repository typically refers to the software infrastructure on which these initiatives depend (Callicott, Scherer and Wesolek, 2016).

Moreover, institutional repositories (IRs) were developed to be a solution to some of the problematic aspects of scholarly communication in the digital age. Specifically, they were to be seen as a way to introduce competition to a monopolistic traditional publishing system by offering the possibility of immediate publication, long-term preservation, and barrier-free global access to these scholarly works (Callicott, Scherer and Wesolek, 2016). In this regard, academic libraries and research institutions of all sizes are embracing institutional repositories. The Institution Repository was born out of the increased concern by authors, academics, and librarians due the commercialization of most of the scholarly work (Mohammed, 2013). For instance, libraries were expected to pay exorbitant subscription fees to access journal articles and this limited researcher's accessibility to scholarly resources.

According to Varghese (2008), access of information in society is now greatly distributed and is populated by storage towers of: full text repositories maintained by commercial and professional society publishers; present servers and Open Archive Initiative (OAI) provide sites, specialised Abstracting and Indexing (A&I) services; publisher and vendor vertical portals; local, regional, and national online catalogues; web search and meta search engines; local e-resources registries and digital content databases; campus Institutional Repository systems; and learning management systems. On this note, information societies like universities are embracing the development and use of open access institutional repositories. According to Varghese (2008), Institutional Repository produce, collect, preserve and distribute electronically soft copies of the research output of an institution mainly theses and dissertations, journals, among others (Varghese 2008:85). With regards to that, many higher learning institutions in Africa and South Africa in particular has made it compulsory that research output be submitted to the IR (Matizirofa, 2016).

1.1 The Necessity for Institutional Repositories

The fundamental development of Institutional Repository is to cater for research activities of a university which are presented, documented and shared in a digital form. For universities, institutional repositories can be used as marketing tools to demonstrate the faculty and student research output (Johnson, 2002; Pickton and Barwick, 2006; Lyte et al, 2009). Moving beyond their initial functions, IR no longer serves as a place to centralize, preserve and provide access to the content; but they have helped to create a new infrastructure of a global system of distributed interoperable repositories that provides the foundation of this new infrastructure (Choudhury, 2008).

The creation of IR has become very common in academic libraries, due to the availability of a number of open source software platforms that allows simple implementations. Academic

libraries have also undertaken such projects because they have realized that, these can be used as a venue for centralization, storage and long-term curation of all types of institutional output (Zervas and Kounoudes, 2011). It is also a way of maximizing availability, accessibility and functionality of the research output at no cost to the end users (Johnson, 2002; Pickton and Barwick, 2006; Lyte et al, 2009).

1.2 Benefits of Institutional Repository

A number of authors (Harnad 2006; Mark and Shearer 2006; Xia 2007, 2008; Navin and Vandever 2011; Salo, 2013) agree on the idea that an Institutional Repository has the capability to increase the visibility of scholars and universities while enhancing their competitiveness. This is because it can facilitate access to a wide range of literature in electronic databases, digital libraries and as well as Institutional Repository (IR) of universities. The digital scholarship can enhance collaborative networks of expertise and good practice locally and globally, thereby making a contribution to global knowledge by enhancing not only its dissemination, but also its creation (Harnad, 2006). In this way, Institutional Repository can help to bridge the gap between the developed and developing countries. Previous studies have shown that, digital scholarship can help under-resourced universities by providing access to greater number of students to a well-supported, relevant and effective higher education. Furthermore, it makes access to higher education more democratic and liberalized. Notably, the extent of scholarship of a higher institution in the modern world is partly communicated, measured or projected by the depth of its repository (Correia and Teixeira, 2005). Correia and Teixeira (2005) Further noted that, visibility, prestige and public value enhance the profile of the institution and help provide wider dissemination of research and development output.

As Lynch (2003) observed, an IR is a new channel for structuring the university's contribution to the broader world. Institutional Repositories are well established in the developed countries and the usage by the members of the academic community is high compared to the developing countries. Ford, Miller, and Moss (2001) state that, the situation in the developing countries particularly Africa is dire; this is because the process is still slow compared to the developed countries, and few academic institutions have so far developed their Institutional Repositories which are available, and internally store research output to the world. However, Ridwan (2015) highlights that there has been substantial development of Institutional Repositories in developed countries as well as some developing countries for instance South Africa, India and Brazil. Generally, Sub Saharan Africa still lags behind in terms of the establishment and use of the institutional repositories (Uzuegbu, 2012).

1.3 Institutional Repositories in South Africa

Among the developing countries in Africa, South Africa academic institutions are currently the leading among the African Universities in terms of the development of Institutional Repositories (Smith, 2003). The Academy of Science of South Africa (ASSAF) websites, Journal Editor's Forum in 2007 marked the beginning of South Africa initiatives towards open access movement (ASSAF, 2011). Thereafter, a national research and development strategy for South Africa invited all stakeholders to reconsider and look into the renewal of the information service sector.

These two organisations' initiative helped to establish number of university institutional repositories in South Africa. The Council for Scientific Research and Industrial Research (CSIR), though not a university, but a major research institute with a wealth of research documentation available, also forms part of the development of South African institutional repositories. It is against this background that the present study seeks to evaluate the

development and use of the Institutional Repository by staff and students at the University of Fort Hare.

1.4 Problem statement

Institutional repositories are increasingly becoming an indispensable asset and platform for dispensing scholarly material at institutions of higher learning especially universities. Additionally, they contribute significantly in the rating of universities at national, regional, and international levels (Mohammed, 2013). Jain, Bentley and Oladiran (2014) point out that institutional repositories offer the benefit of instant and easy accessibility of scholarly resources. Ideally, however, to set up and develop a highly effective Institutional Repository requires requisite infrastructure. Unfortunately, requisite infrastructure is not in place in many academic and research institutions in most of the developing countries (Mohammed, 2013). Many of the academic institutions in the developing countries are bedevilled by inadequate funding, inadequate and inconsistent power supply and the dearth of technological skills needed to develop and maintain effective and accessible IRs.

In Africa, South Africa has more institutional repositories than any other country in the continent. At present, to the best knowledge of this researcher, no studies have been carried out on the development and use of institutional repositories at Universities in the Eastern Cape. A study by Mbasera (2012) on the use of internet by postgraduate students at three Universities in the Eastern Cape found out that, although the universities had internet-based information sources (including institutional repositories) they often remain underutilised by the institution's community. This study therefore seeks to evaluate the development and use of Institutional Repository by the academic staff and students at the University of Fort Hare.

1.5 Aim of the Study

The aim of the study is to evaluate the development and use of the Institutional Repository by staff and students at the University of Fort Hare.

1.5.1 Specific objectives

1. To investigate the role of the stakeholders in the development and use of the Institutional Repository at the University of Fort Hare.
2. To assess the level of awareness among staff and students about the development and use of the Institutional Repository at the University of Fort Hare.
3. To find out the infrastructure available for the development and use of the Institutional Repository at the University of Fort Hare.
4. To identify the barriers faced in the development and use of the Institutional Repository at the University of Fort Hare.

1.6 Research questions

The following research questions guided the study:

1. What is the role of the stakeholders in the development and use of the Institutional Repository by staff and students at the University of Fort Hare?
2. To what extent are staff and students aware about the development and use of the Institutional Repository at the University of Fort Hare?
3. What infrastructure is available for the development and use of the Institutional Repository by staff and students at the University of Fort Hare?
4. What are the barriers faced in the development and use of the Institutional Repository by staff and students at the University of Fort Hare?

1.7 Definition of Terms

Institutional Repository

Refers to the totality of services offered to the academic community by the respective University through managing and distributing digital articles generated by the institution and the members (Lynch and Lippincott, 2005).

Information Communication Technologies (ICTs)

ICTs are “networks that provide new opportunities for teaching, learning and training through delivery of digital content” (Prytherch, 2000: 357). For the purposes of this study and in the context of curriculum, ICTs will refer to the range of tools and techniques relating to computer-based hardware and software, information sources such as the Internet, Audio and Video Tapes, CD-ROMs and DVDs.

Academic Libraries

An academic library is a library that is attached to an higher education institution which serves two complementary purposes to support the school's curriculum, and to support the research of the university faculty and students.

It is unknown how many academic libraries there are internationally (Oakleaf, 2010). The purpose of an academic library is exactly what the University of Fort Hare Library serves its purpose.

Stakeholders

Freeman (2004) defines stakeholders as those groups who are vital to the survival of success of the organization. In this study, the stakeholders include Academic staff, library staff and students of the University of Fort Hare.

1.8 Significance of the study

The findings of this research provide valuable insights into how the University and library administrators may help in the making of informed decisions on the development and use of IR services in the university community. The findings will also be important in the improvement of existing policies on the development and use of the Institutional Repository at the University of Fort Hare. More understanding about the Institutional Repository may lead to increased use of library services by both staff and students. This is important in relation to the resources the University may have invested in the development and use of the Institutional Repository. In addition the findings of the study will add to existing body of knowledge on the development and use of the Institutional Repository at the University of Fort Hare and the world at large.

1.9 Scope and limitations

The theoretical scope of the study covers the development and use of Institutional Repository resources, provided by university library for academic staff and students. The participants in the study were drawn from available, fulltime students at the University of Fort Hare. It was not possible to gain access to complete lists of students from the three campuses because of the limitations of budget for travelling and accommodation costs, as well as the time available to conduct the study. Therefore, the researcher only collected data from the main campus of the three campuses of the University of Fort Hare. However, the study was conducted in the manner that guarantees credibility and reliability of the results.

1.10 Structure of the dissertation

Chapter One: Introduction. This chapter introduces the background to the study. It outlines the statement of the problem; the objectives and research questions that guided the study.

The significance of the study as well as the scope and limitations of the study were outlined. This chapter like other chapters ends with the summary of the key points in the chapter.

Chapter Two: Literature Review. This chapter focuses on previous literature related to the development and use of institutional repositories in the world and South Africa. It also outlines the theoretical framework on information use by university students.

Chapter Three: Research Methodology. The chapter covers methodology/research approach (mixed methods i.e. qualitative and quantitative approaches). Research design i.e. site, population, sample and sampling procedures/techniques, data collection methods, reliability and validity, data analysis, and ethical considerations are discussed.

Chapter Four: Data Presentation, and Analysis. This chapter presents findings from the study using graphs and charts.

Chapter Five: Interpretation and Discussion of Findings. The discussion of the findings is done in light of relation to research questions, and the literature.

Chapter six: Conclusions and Recommendations

Conclusions drawn from the analysis and entire study are presented. Recommendation to stakeholders and areas of further research are proposed.

1.11 Chapter summary

This chapter introduced the study. The chapter has outlined the status of Institutional Repositories in both developing and developed world and their relative importance. The chapter further looked at the research problem which the study sought to address, the research

objectives which the study intended to achieve as well as the research questions. The justification of the study was also provided. The next chapter focused on the literature on Institutional Repositories and theoretical framework.

CHAPTER TWO

LITERATUR REVIEW

2.0 Introduction

This chapter outlines the variables that guided the literature review themes drawn from the objectives of the study: - to investigate the role of the stakeholders in the development and use of the Institutional Repository at the University of Fort Hare, to assess the level of awareness among staff and students about the development and use of the Institutional Repository at the University of Fort Hare, to find out the infrastructure available for the development and use of the Institutional Repository at the University of Fort Hare, to identify the barriers faced in the development and use of the Institutional Repository at the University of Fort Hare. Furthermore, it will also discuss the theoretical models relevant to this study and makes an extensive review of related literature on the development and use of Institutional Repositories (IR) by University communities. The basic aim of this chapter is to critically explore and review the factors that underlie the theoretical constructs relevant to the development and use of Institutional Repository in tertiary institutions. By reviewing the literature, it will help the researcher to establish how other scholars have investigated the same problem Furthermore, Park (2009) also states that, a review of literature provides a critical summary of research on a topic of interest so as to put a research problem in context. Therefore, this study literature review aims to offer an overview of significant literature and theoretical framework on the topic under investigation.

2.1 Conceptual framework

The current study is anchored on two theories, namely; Technology Acceptance Model (TAM) and Diffusion of Innovations (DOI). TAM is used to explain the theoretical underpinnings of the development and use of the Institutional Repository by the community members at the University of Fort Hare. Diffusion of innovations is used to explain the framework under which new technological ideas are disseminated to individuals and organisations. A theory is essential in a research study because it permits predictability, allows researchers to follow systematic procedures and provides explanations for particular scenarios and circumstances (Chigona and Licker, 2008).

2.1.1 Technology Acceptance Model

Park, (2009: 152) defines Technology Acceptance Model as “a model to explain how people adopt and use e-learning”. The model was propounded by Davis in 1986 (Surendran, 2012:175-178). The author further records that; the model was developed from the Theory of Reasoned Action (TRA). As noted by Park (2009), the model (TAM) has been used successfully over the years as a theoretical framework in explaining the uptake of information technology or lack of it thereof. According to this model, there are external variables that influence the attitudes and beliefs of users to either accept or reject technology.

The model stipulates that users accept or rejects technology application based on its perceived usefulness and perceived ease of use. According to Davies (1989) the following are some of the direct or indirect influencing factors that determine one’s use of technology.

- the user’s behaviour intentions
- user’s attitude
- perceived usefulness of the system, and
- Perceived easiness of the system.

External factors have also a bearing on the perceived use and perceived ease of use, thus affecting one's intention and actual use (Chinyamurindi and Louw, 2010). According to Park (2009) 40% to 50% of user's probability for accepting information technology is accounted for by the Technology Acceptance Model. Technology Acceptance Model 2 accounts for the 60%. TAM 2 is an extension of TAM which further explained that, the user acceptance is also influenced by social factors such as norms and other factors such as experience and cognitive instrumental processes (Weerasinghe and Hindagolla, 2017).

This study utilised this theoretical framework to understand users' adaption to the use of Institutional Repository at the University of Fort Hare and understand any organisational and or individual impeding factors to its maximum usage. This, theory is befitting for this study because it has been used successfully in similar studies undertaken globally for example (Hong, Thong, Wong, & Tam, 2002; Jeong, 2011; Tella, 2013). Quite a lot of external variables have been identified by employing the TAM as an effective theoretical basis to study the e-library systems acceptance of users (Park et al., 2009).

Jeong (2011) observed the behaviours of using and accepting an e-library system by Korean elementary students. A paper and pencil survey was employed to gather data from a sample of 395 students who used an e-library system called booktobi. The Technology Acceptance model and the Flow Theory provided the theoretical basis for this study. It was found that both the belief variables of perceived usefulness (PU) and perceived ease of use (PEOU) were strong predictors of the users' behavioural intention, while the system characteristics were significant determinants of PU and PEOU (Jeong, 2011).

Moreover, the external variables of "individual differences, interface characteristics and system characteristics" were expected to exert a significant impact on the behavioural intention, while PU and PEOU were expected to mediate these effects (Jeong, 2011, p. 57). A

similar study was conducted by Tella (2013) in the Nigerian context. He explored the user acceptance of e-library from the perspective of the TAM. Data were gathered from 1,500 undergraduates of University of Ilorin, Nigeria, using self-designed questionnaire. Findings demonstrated that all eight factors incorporated into the search model, namely “ease of use, perceived usefulness, actual use, satisfaction, relevance, awareness, computer/internet self-efficacy, and social influence” were significant determinants of the e-library acceptance and that all these factors together predicted the user acceptance of e-library (Tella, 2013, p. 42). The author recommended university e-library users to improve their “computer and internet self-efficacy” (Tella, 2013, p.43) which would help to enhance the e-library usage of the students. He further stated that the university can contribute to this by coordinating training sessions for the students (Tella, 2013).

In the same way, Hindagolla and Takashi (2014) applied the TAM to examine the determinants of the Electronic Information Resources (EIR) usage acceptance of Sri Lankan undergraduates majoring in Social Sciences. A survey was conducted among a purposive sample of 119 final year Social Science undergraduates to collect data. In their study, perceived usefulness was identified as the strongest predictor of the behavioural intention. In addition, social influence and facilitating conditions were revealed to be significant factors influencing the behavioural intention via PEOU and PU (Hindagolla and Takashi, 2014). It can be observed that many TAM related studies performed in the LIS context had their focus on understanding information technology or system acceptance from the library user perspective, whereas less concern had been shown towards exploring the acceptance of new technologies from the library professionals’ perspective. Therefore, the current study incorporates both student and library professional to bridge the gap.

2.1.2 Diffusion of Innovations Theory

The researcher used Diffusion of Innovations Theory (DOI) as a second theoretical framework. According to Rogers (2003) the theory seeks to explain the dissemination of technological ideas through individuals and organisations in the information societies like universities. Diffusion in the technology context refers to the communication of an innovation among members of a social system for instance, the academic community. DOI has been applied in a wide variety of research sharing studies. The related studies among them are; Dorner and Revell (2012), Stanton and Liew (2011) and Pinfield et al. (2014).

With respect to Institutional Repositories adoption provides a useful explanatory framework for understanding repository adoption at various levels such as global, national, organisational and individual. These authors, further note that there are four main fundamental principles in the Diffusion of Innovation, namely: innovation, communication channels, time and social system.

1. Innovation

The term innovation is defined by Rogers (2003) as an idea, practice, or project that is perceived as new by an individual or other unit of adoption. An innovation means something novel to someone, though it might be old to others and they are knowledgeable about it. For the new users to be accustomed to the new innovation, three steps are a requisite. That is; knowledge, persuasion and decision.

2. Communication Channels

The other fundamental element in diffusion of technology is the communication channels. Communication channels are defined as the actions of users in which they disseminate information to each other with the goal of coming to a common ground of understanding (Rogers, 2003). In this study, diffusion is the process in which the open access repositories as

a research dissemination technology is adopted by libraries in research organisations. Thus it is of paramount importance to comprehend the communication channels at the University of Fort Hare within the context of the development and use of its Institutional Repository.

3. Time

The diffusion of technology takes place over time and it is not a one-day event, as there are many processes involved. According to Rogers (2003), the innovation-diffusion process, adopter categorization, and rate of adoptions all involve a time dimension.

4. Social System

The social system is another crucial element in the diffusion process. A social system is a set of interrelated units engaged in joint problem solving to accomplish a common goal (Rogers, 2003). The social structure of the system influences the diffusion of innovation process because it happens within its parameters and context. On this note, the social system, innovation, time and the communication are determinant in the dissemination of technological ideas.

Technological ideas are likely to be accepted by users if they are relatively advantageous, compatible, less complex and tribal (Rogers, 2003). There are also some further components which also influence or restrain one from using the technological ideas; such as voluntariness, and demonstrability among others. Medlin (2001), defines Diffusion of Innovation Theory as the most suitable framework for understanding the adoption of information technology in tertiary education and other educational settings. Therefore, the Diffusion of Innovations was used in this study to understand the extent to which technology influence the development and use of the Institutional Repository at the University of Fort Hare.

2.2 Literature Review

An overview of the literature identified specific themes that could constitute the potential point of discussion regarding the research topic. The themes discussed in this chapter are as follows:

- Definition of Institutional Repository (IR)
- Understanding the development of IR's
- Overview of the Institutional Repositories in the developed and developing countries
- Factors influencing the development of Institutional Repository
- Role of stakeholders in the development and use of the Institutional Repository
- Factors to consider when evaluating Institutional Repositories success
- Challenges to the development and use of Institutional Repositories

2.3 Definition of Institutional Repository

According to Lych (2003) Institutional Repository (IR) refers to a set of services that a University offers to the members of its community for the management and dissemination of digital materials created by the institutions and its community members. The author further assert that, building an IR is a sign of organisational commitment to the university community through organising, preserving and providing access or distribution of the digital resources to community members. Thus, IRs are known for collecting, preserving and disseminating intellectual material, particularly research outputs of an institution in its digital form (Walters, 2007).

In addition, Lynch (2003) concurs with Walters (2007) that the intellectual outputs from universities are often made up of materials from students, faculties and staff, though, this may vary from institution to institution.

The authors agree that IRs in university settings are comprised of dissertations and theses, peer-reviewed journal articles, books, and other academic materials that qualify for intellectual preservation and dissemination.

Further, Walters (2007) points out that the main purpose of IRs is for the accumulation of digital materials for the institution in an attempt to improve visibility, accessibility and promoting open access to research outputs. The author adds that IRs lead to the emergence of a new crop of librarians with new roles, hence the emergence of IR librarians. In addition to Walters (2007), Mohammed (2013) postulates that roles of librarians have changed and new roles of IR librarians, have also changed spontaneously to becoming producers, publishers and broadcasters. In short, librarians are now seen to move away from their traditional roles to digital libraries in which they were viewed as mere inactive information receivers (Walters, 2007).

2.4 Understanding the Development of Institutional Repository

The majority of IRs are found in university library systems. Roy et al. (2016) argues that, libraries have over the years embraced information technologies for the purpose of collection, preservation, and dissemination of intellectual outputs. The author further notes that, in order for the university libraries to promote the development and use of institutional repositories, they should collaborate with faculty staff, students, researchers, information scientists and other relevant stakeholders (Roy et al., 2016). Understanding of the development and use of an IR is dependent upon the continuous uploading of the research outputs, provision of feedback pertaining to the readers' questions and comments. In addition, Roy et al. (2016) concur with Jain et al. (2014) who claim that, the responsible IR librarian should ensure that a continuous review of work uploaded is done so that the database stays updated and contains acceptable quality materials.

The concept of Institutional Repository in universities is not new. For decades, Jain et al., (2014) state that IR have been used to store a variety of resources ranging from past exam papers, theses, dissertations, instruction notes, journals and countless other academic resources which are deemed important for the institution's stakeholders. However, Roy et al., (2016) further argue that, the use of IR in libraries was revolutionised in 1984 when pioneers and information curators felt it was important to preserve information for future use by stakeholders.

Advocating for accessibility of IR resources, their preservation and distribution can and should be enhanced to and for the use. Stezano (2016) points that, the days of anecdotal information reporting are over, and that the softcopy evidence is the new language. This was the beginning of what is now commonly referred to as IRs and the reaction to the IR proposals was then met with "apathy, disagreement and disbelief" (Stezano, 2016: 50).

In his book, Mohammed (2013), underscores that IRs were conceptualised in the developed countries such as USA, UK, and Germany, and now they are a subject of research for many scientists and academics around the globe. The IRs were born out of the increased concern by the academics, authors, and librarians that most of the scholarly works were being commercialised (Roy et.al, 2016). In conjunction with Mohammed (2013), Roy et al., (2016) are of view that, during the 1980's and 1990's libraries were expected to pay exorbitant subscription fees to access journal articles and this limited researchers' accessibility to scholarly resources; and this gave birth to introduction of IRs.

In addition, scholars like Mohammed (2013a; 2013b) indicate that research and academic institutions have been struggling with modalities of disseminating their intellectual outputs to scholars as a result of the higher subscription costs to access journal articles. During this era, most academic institutions were not able to make these resources available to the potential

user communities; hence this limited researchers' capacities and their access to scholarly resources (Roy et al., (2016).

In trying to overcome the cost problem, the introduction of Information Communication and Technology (ICT) had to come to a rescue and has then greatly transformed the scholarly environment. For case in point, "the ICT has brought in the digital publishing and online teaching and learning; it has also increased the sharing of scholarly articles among scholars; and increased collaboration as a result a huge amount of research outputs and is now readily available on the internet" (Jain, Bentley, and Oladiran,2009:12-14). It is important to understand that ICT has been the great game changer and libraries have capitalised on it to bolster their traditional role of collecting, organising, preserving and disseminating information through the establishment of IRs.

Notably, a greater improvement was realised when the soft copies of the research outputs were starting to be distributed as journal articles, theses and dissertations, among others. Ridwan (2015) observed a broader shift from traditional ways of publishing to more digital publishing in prestigious journals. In addition, scholars' work is now easily and cheaply available with IR systems which are enhanced through Open Access (OA) strategy. Furthermore, Ridwan (2015) notes that most institutions are now making it compulsory to submit research outputs to the Institutional Repository (IR) in order for the output to add to the body of knowledge for current and future research. In the present study, the researcher examined whether or not the students and academic staff at the University of Fort Hare are aware of IRs.

2.5 Institutional Repositories in the Developed Countries

The international development of Institutional Repositories has been noticeable in academic universities; and as a result, several studies have been conducted addressing the deployment

of Institutional Repositories. Repositories and the relationship with Open Access Movement constitute new trend in scholarly communication. Globally, the need for wider access to scientific data with the objective of democratising the dissemination of research output and the cost especially of scientific journals coupled with reduced library budgets, has given rise to a strong movement that aims at free online access to research output.

In United States of America (USA), over 40% of higher education institutions have Institutional Repositories in operation, while 88% of non-deployment institutions have planned to establish one (Abrizah, 2009). Abrizah further notes that in European Union (EU), under the DRIVER¹ project, approximately 230 universities in European Union have deployed on or more Institutional Repositories in which textual materials are the dominant research output being deposited.

A survey undertaken in 2005 at ten European countries, that is, Belgium, France, the United Kingdom, Denmark, Norway, Sweden, Germany, Italy, and the Netherlands found out that the number of institutional repositories varies from as low as 1.5%(Finland) to as high as 100%(Germany, Norway and Netherlands) (Abrizah, 2009).

In the recent study in New Zealand on deployment of Institutional Repositories, findings shows that although the overall deployment of institutional repositories is lagging, there is an increase in subject based or disciplinary repositories (Cullen and Chawner, 2011).The authors further posit that this may be due to the fact that New Zealand researchers are more motivated to share research output with a specific community compared to individual recognition and academic award.

It is reported that by mid-2006, all Australian universities had established Institutional Repositories with the purpose of providing researchers with platform to enhance the

availability of their publications. Asian countries too have been striving to keep abreast with the Institutional Repository adoption. Japan, India and Taiwan have been recognised as big contributors to the growth of Institutional Repositories in Asia (Abrizah, 2009). In another recent study, India is placed the second in the Asian region as a contributor to the world Institutional Repositories (Prabhat and Guatam, 2010).

In comparison to United States, United Kingdom and other European countries, the promotion and development of institutional repositories in Asia started relatively late (Abrizah, 2009). The author further noted that, status on Asia institutional repositories reveal that Open Access repositories are not widespread and the percentage of Institutional Repository systems in Asia is about 4-10 percent, except in mainland China which has centralised Institutional Repository system for about 300 universities. On the other hand, the numbers of Institutional Repositories in Japan and Korean universities are increasing rapidly.

2.6 Institutional Repositories in the Developing Countries

In the 21st century, there has been tremendous improvement in access to scholarly research as a result of the growth of Institutional Repositories and associated information technology developments in Africans countries (Ratanya, 2010). Further, he adds that, the increasing number of academic institutions is encouraging students to submit theses and dissertations in electronic format which as a result become increasingly visible within the competitive research environment. In addition to paper copies, institutions of higher learning require electronic version to be made available for inclusion in Institutional Repositories, while many institutions are also scanning/digitising older version of theses in order to make them freely available on the internet (Ratanya, 2010:10).

The development of Institutional Repositories in African countries has been very slow despite of the international awareness which has been created through conferences and workshops

(Ezema, 2011). Macha (2012) noted that, of late African universities have been slowly warming up to the idea of Institutional Repositories. Literature further show that in the Arabian Gulf region, the idea of free access to scientific and technological information came from the intellectual communications at the 2ndScientific Gulf-Maghreb conference held in Riyadh on 25-26 February 2006, which culminated into adopting the Riyadh Declaration (SecondGulf-Maghreb Scientific conference, 2006).It was the desire of the scientist of the Arab world to provide free access to their research output and to transmit it free of charge, in order to contribute to the advancement of scientific research. Soon after the Riyadh declaration in 2006, the Open Access Movement started gaining momentum among the universities of the Arabian Gulf Region. According to the Arab repository (www.arjournals.info/journals.php) there were approximately 43 open access journals as of 2009.

The development of Institutional Repositories in Nigeria and other African countries has been very slow in spite of the international awareness which has been created through conferences and workshops (Chan et al, 2005; Christian, 2008). Among the developing countries, India, Brazil, and South Africa are more adaptable to the development of Institutional Repositories. According to Christian (2008), of the 20 institutional repositories in Africa, South Africa alone has 14 of them. This means that the remaining six is shared among other African countries. Ghana noted to be leading in West Africa in terms of the Open Access Movement and Institutional Repositories through its Kwame Nkrumah University of Science and Technology pace initiative. As of February 2010, Ghana was reported to be having the largest number of entries (Asamoah-Hassan, 2010).

In Malawi, digitisation projects have been rarely reported. Apart from the National Archives of Malawi which started digitising National heritage materials mid 1990 with donor funding

such as the British library under Endangered Archives programme Mapulanga (2012), little information has been documented from the academia world until mid-2000 when awareness of digitisation came into being. The most notable project was that of the college of medicine library at the University of Malawi, which had loaded references to Malawian health on National Inquiry Services Centre database accessible on the web. In terms of repositories, the University of Malawi libraries had only an intention to start digitising into full text documents of its Malawian collection (Mapulanga, 2012).

In East Africa, universities in Kenya were found to be supporting Open Access repositories in several ways, including establishment of open access author funds, which even though limited, cover payment for open access journals (Wasike, 2013). Universities in Kenya including Catholic University of East Africa, University of Nairobi, Strathmore University, and Jomo Kenyatta University of Agriculture and Technology were found to have started developing Institutional Repositories namely; DSpace and Greenstone, and including them in library collections in support of learning and teaching (Wasike, 2013:18)

South Africa is the leading country in Africa in terms of establishment of repositories. Currently, 22 of the 54 African repositories are operational in South Africa. South African university libraries are currently the leader among African academic institutions in terms of the development of Institutional Repositories, growing from a total of 14 registered and active repositories (Smith, 2003) to the current 23 repositories. The Council for Scientific Research and Industrial Research (CSIR) though not a university, but a major research institute with a wealth of research documentation available also forms part of the development of South African institutional repositories.

The University of Pretoria (UP) is leading in South Africa as far as the development and growth of IRs is concerned (Smith, 2003). Currently, thirteen out of the nineteen existing

repositories are maintained by South African institutions, with the others in Egypt, Kenya, Namibia, Uganda and Zimbabwe (Jain, Bentley, and Oladiran, 2009). However, out of all those, the University of Pretoria is the only institution with a well-established repository, judging by the number of item records (over 2000). The other repositories have less than 1000, and mostly below 500. This may be an indication that due to a lack of resources Africa has been slow in IR initiatives and implementation (Jain, Bentley and Oladiran, 2009).

A study by Macha (2012) on the state of the extent of the establishment and implementation of the Institutional Repository at the University of Cape Town (UCT), showed that there was tremendous improvement in terms of the quantity of materials and this is attributed to the use of a computer software, namely Digi-tool. McGill (2011) posited that the success of an Institutional Repository can be assessed and appraised based on the number of users, nature of use and the type of material or content being used. More South African Universities begun to appreciate the significance of Institutional Repositories after the Symposium on Electronic Theses and Dissertations held on the 14th of September 2011 in Cape Town, South Africa. Macha (2012:69) categorically stated that “With this kind of conference, it is hoped that more African universities will establish repositories and share their research output with the world to make African research visible”.

2.7 Factors Influencing the Development of Institutional Repository

2.7.1 Infrastructure

The traditional ways of access to information have a great deal of requirements. A portion of the limitations incorporate inability to adapt to the changing needs and inclinations of users (Knoth and Zdrahal, 2012). Macha (2012) argues that efficient acquisition, processing, preservation, and dissemination of information seem to be hindering most institutions in this era of information explosion. Furthermore, the rising cost of publications has not only posed more challenges to researchers, academics and staff, but they are also serious barrier to information specialists (Stanger and McGregor, 2006). From this, it is clear that the ICT Infrastructure helps institutions to reduce publication costs. The authors argue further that it is equally important that institutions of higher learning dedicate massive resources to identify formats for preservation and draw a long-term IR development plan thereby enhancing quality outputs.

Drake (2004) points out that, institutions should take advantage of well-proven open source programs in an attempt to reduce costs. In addition, outsourcing the technological issues to software sellers, institutions can either join collaborative strategies over already working platforms. Therefore, infrastructure remains one of the major factors that influence the use and development of IRs. Lynch (2003) in his article on Institutional Repositories: Essential Infrastructure for Scholarship in the Digital Age emphasizes the importance of building an Institutional Repository (IR) while depicting the facilities and the dissemination capabilities offered by the institution's network.

One of the main benefits of an IR is the encouragement and adoption of new forms of scholarly communication that exploit the digital medium in fundamental ways. Drake (2004) introduced collection development issues from two different perspectives. Firstly, it

highlights issues that may need to be addressed by IR as Open Access Initiative data providers. For example, repositories may need to make decisions on the type, quality and format of content, on submission workflows, rights management, access, sustainability and evaluation. Secondly, the report tries to explore the possibilities of considering similar issues from the perspective of third party service providers like ePrints, and UK that harvest selective metadata from IRs.

2.7.2 Management and Support

To have a successful IR project, it is dependent upon the commitment of management. Senior management commitment and support are considered to be the most important factors in planning, development, implementation and adoption of IR projects. In addition, commitment and support of IR projects impact on the institutions, effectiveness in transforming Information Technology (IT) investments into useful outputs. As a result, senior management has to ensure that the constant flow of resources is adequate and timely. Eventually, it is senior management that creates positive attitudes among other managers and users towards the new project (Nabe, 2010).

2.7.3 Funding

According to Drake (2004) maintenance of content, software and accessibility can change. Hence, it is the duty of IR librarians to be creative and innovative in order to understand the consequences of these changes. The development and implementation of IR cannot be sustained without long-term funds (Crow, 2006). The author further says that, IR managers seem to be unable to look beyond the bottom line and are unaware of the long term obligations which are enhanced by economic instability. In this case, IR managers should try to make sure that enough funds exist for the development and use of IR and this can be done by sourcing donations both internally and externally (Drake, 2004).

2.7.4 Knowledge and Skills

A satisfactory training needs sufficient financial and time support. It is the responsibility of the institution to ensure patrons and library staffs are educated on the new technology to enhance its adoption and use. Lynch (2003) expressed fear that, without commitment from university institutions to teach staff and students to use IRs, the repository will not achieve sufficient usage to warrant existence. Training has become another important factor to

consider, as new technologies emerge. Thus, the library staff involved in digitisation should be trained continually (Stanger & McGregor, 2006). Workshops for the training of library staff and other stakeholders should be organised.

With reference to the role of reference librarians in IRs, Bailey (2005) pointed out that, the amount of support required for IRs is often underestimated and the need to provide user education, promotion, metadata creation and preservation is often overlooked. Ball (2010) observed that, on its own the Open Archives Initiative Protocol for metadata harvesting would not create sufficient usage of IRs, and that librarians will be required to train staff and students on how to access the content of repositories. Allard et al (2005) believed that even though librarians are not necessary for the IR to function, they are needed to educate users on how to access the material in IRs. Jean et al, (2011) also suggest that, apart from skills, team-building exercises to help members of staff to work in the new structures and adapt to the new working practices are important. Stanger and McGregor (2006) highlighted that, it is important that these training programmes address issues related to copyright laws in a digital environment and how digital libraries can address copyright issues.

2.7.5 Self-archiving

Harnad (2001:42) refers to self-archiving as “the autonomous uploading of documents and related metadata by authors in an Institutional Repository.” Self-archiving is important because authors have the habit of uploading their papers, thus the development of a critical mass of content. This marks the success of Institutional Repository in terms of usage and quality (Crow, 2002b; Wheatley, 2004; Allard et al., 2005). A number of scholars are of the view that, archiving is an operation librarians are committed to considering the fact that scholars are busy and unprepared, perceiving it as more work, and thus discouraging them from depositing (Jain, Bentley and Oladiran, 2014). In addition, Johnson (2002) argues that

the creators of the papers can perform this function better, given that the practice of posting research on online websites, departmental sites, and disciplinary repositories is documented.

Furthermore, Chan et al (2005) and Harnad (2001) advocate for mutual support and suggest that it is a critical point, since participation by authors has huge consequences on content. On this point, the authors are trying to say that library professionals would do it better without interfering with the content. Furthermore, several authors insist that, by self-archiving, authors may be populating the IR with content and is therefore a key partner in collection development (Chan et al, 2005; Harnad, 2001; Johnson, 2002; Prosser, 2005). It is believed that self-archiving should be mandatory and some academic institutions have already applied a mandatory policy, for example, University of Glasgow, where this service is provided by librarians (Ashworth, 2004).

In 2004, the House of Commons Science and Technology Committee report, recognising the easiness of use and economic and research benefits of IRs, recommended mandatory self-archiving as a way of increasing the content in IRS (Great Britain, 2004, Chan et al., 2005 & Gibson, 2005). Pinfield (2005) asserts that self-archiving promotes accelerated change and makes benefits more evident. Scholars should be familiar with self-archiving, but are reluctant as they do not want to be forced to do it. Therefore, funding bodies should provide a mandatory instruction which promotes self-archiving as a condition to obtain grants. Harnad (2001) advocates for mandatory self-archiving as a strategy to deliver content recruitment since technical or financial barriers are low; this could be achieved in a relatively short time.

2.7.6 Information Literacy Use

According to Pullinger (1999), information literacy is the degree to which scholars are able to confidently use online services which will affect usage and in this case the problem of training is acute. Training refers to programmes that are particularly designed to teach a

group of clients the skills needed to use electronic resources. Information literacy is a repertoire of understandings, practices, and dispositions focused on flexible engagement. The information ecosystem underpinned by the Association of College Libraries [ACRL](ACRL, 2012), involves finding, evaluating, interpreting, managing, and using information to answer questions and develop new ones; and creating new knowledge through ethical participation in communities of learning, scholarship and practice. Rosenberg (2005) recommended that, training of clients or library users is highly important for a library as it increases the use of library resources. While there is a general consensus that there is need to impart information literacy skills to library users, there are a variety of views on how such training should be offered. The information service providers should offer leadership in developing the essential information literacy knowledge and skills to the academic community. The information literacy program promotes critical thinking and equips individuals for life-long learning.

Furthermore, Okello-Obura and Ikoja –Odongo (2010), suggested that universities should offer information literacy courses and make them compulsory for all student .This will go a long way in enhancing the sharing of knowledge regarding the use of institutional repositories. Information literacy coupled with significant information technology skills is a distinct and broader part of competence (ACRL, 2012).

Information literacy is a skill in finding the information one needs, including an understanding of how libraries are organised, familiarity with the resources they provide and knowledge of commonly used research techniques available, (Online Dictionary for Library and Information Science [ODLIS] cited in Reitz, 2012). The ACRL further outline that an information literate person is able to:

- Access the needed information effectively and efficiently
- Use information effectively to accomplish a specific purpose

- Evaluate information sources critically
- Determine the extent of information needed
- Incorporate selected information into one's knowledge base
- Understand the economic, legal and social issues surrounding the use of information ethically (ACRL 2012).

This current study, sought to find out if the university of Fort Hare offers Information literacy programmes to students and academic staff on how to utilise the Institutional Repository. Furthermore, it also sought to discover self-archiving in an Institutional Repository by academic staff members at UFH. It also sought to discover the level of awareness in the use of Institutional Repository available at UFH.

2.7.7 User awareness of Institutional Repositories

The understanding of the “Institutional Repository” by the library users’ community is quite diverse. Lots of users are confused about whether library databases such as Emerald and JSTOR, faculty and departmental web pages, open courseware sites, and/or space on university servers would count as IRs (Jean et al, 2011). A study by Chandra and Halder (2012) in investigations done on Indian IRs identified that, the Humanities and Social Science researchers are found to have low levels of awareness of the Institutional Repository, but are interested in contributing research work to university Institutional Repositories and have positive attitudes towards providing free access to scholarly research results of their universities.

The study observed the users awareness of institutional repositories so as to measure local scenarios. They further, point out that, interviewees described many different ways they first learned about the IR including; library workshops, suggestions from advisors, professors,

colleagues, or university administrators, and notices from the university regarding the requirement that students deposit theses/ dissertations in the IR. To promote broader support and generate awareness both inside and outside the library, in developing countries libraries have adopted marketing strategies as well as branding and promotion. It has been suggested that, repository developers should hold meetings within the library and alert the campus community through press releases about the IR. Library administrators should perform further outreach through presentations to department heads of department, while developers should enter into extensive discussions with multidisciplinary departments to investigate how to use the repository to solve information problems encountered in the use.

2.7.8 Digitisation

Digitisation entails the transformation of any physical item into a digital form (Deegan and Tanner, 2002). Digitisation users enjoy unrestrained access to a particular item in its alternate form, whilst keeping safe the original one. Although digitisation was commonly associated with the preservation of cultural heritage, it is now widely used by institutions to preserve scholarly material as well as other pertinent information resources. Through digitisation academic and other research institutions have been able to publicly make their research outputs available online (Macha, 2012).

2.7.9 Digital Preservation

Digital preservation is defined as "a series of managed activities necessary to ensure continued access to digital materials for as long as necessary"(Hockx-Yu, 2006 cited in Macha, 2012:21). Digital preservation is made possible by the advancement of Information and Communication Technology which has seen the improvement of network bandwidth, the availability of powerful and effective electrical and scientific gadgets as well as increased computer power. According to Withers (2005: 206), preservation is the ability "to ensure

protection of enduring value for access by present and future generations". Preservation is commonly used to refer to the protection of traditional information bearing formats such as paper, artefacts and analogue tapes. Cultural organizations such as libraries, archives and museums are widely recognised as the custodians of society's collective memory by preserving and providing access to the cultural, historical and intellectual resources of a society (Smith, 2003).

Wheatley (2004) says that security and authenticity, verification and storage are well addressed by current software. Wheatley (2004) further asserts that digital obsolescence is an expensive activity which implies updating tools or migration of formats. The best strategy is to store digital objects in bit streams, independent from medium and raw data would be interpreted by users once they access the file through metadata. This implies that metadata are extracted during ingest, stored in a framework, constantly monitored (to grant access even when technology changes), changed when necessary (with a system that allows keeping path of changes), while digital objects must be rendered through a displaying process, to make sense of them (Samuel, 2015).

Preservation starts with intake, and involves every stage of a digital object's life (Wheatley, Ayris, Davies, McLeod, and Shenton, 2007). When undertaking this process, all stages must be followed in order to have an effective and efficient project. Cervone (2004) argues that migration is the best solution because the provision of compatible retrieval and rendering technologies for digital material is required, while IRs provide mechanisms to identify material to simplify future migration activities.

Cervone(2004) pays attention to standards and protocols which are needed to ensure continuous access to information, recognizing the Open Archival Information System (OAIS) and Reference Model as the most economic and widespread framework for further standard

development and economic exporting for migration. Therefore, “preservation must be integral to the planning, design, and budgetary process for repositories if institutions do not want commitments to exceed resources” (Cervone, 2004 cited in Gozetti, 2006:16).

2.7.10 Archiving

This concept can be defined as an “activity which ensures that data is properly selected, stored, can be accessed and that its logical and physical integrity is maintained over time, including security and authenticity” (Hitchcock, 2005:4). Many IRs thrive on having their research output accessed by scholars and users from other institutions. These information sources have to be maintained and be easily accessible by users. The term *archiving* is defined as a process of identifying, collecting and making accessible materials in their current format for immediate user retrieval by any archival institution or any other function within an organisation (Smith, 2003; Brophy and Frey, 2006;Hitchcock, 2005). However, Phillips (1999) points out that while preservation is more concerned with the management of materials for long-term accessibility, archiving is more concerned with accessibility for immediate use.

2.7.11 Curation

Brophy and Frey (2006) defined curation as the activity of managing and promoting the use of data from its point of creation to ensure it is fit for contemporary purpose and available for discovery and re-use. Furthermore, the author states that curation is ensuring the long term accessibility and reusability of the digital information. For datasets that keep changing, it is also important to continuously update them and keep them fit for use.

2.7.12 Identification

Identification means identifying and locating content. One of the key issues in identification is promoting long-term access and each object should have a unique persistent identifier independent from the software which is in use. In addition, it has to remain valid even if the content migrates to a new system or if the management responsibility of the Institutional Repository changes (Cervone, 2004).

2.8 Online Open Access Catalogue search - Information Retrieval

Information retrieval is a system capable of storage, retrieval and maintenance of information. The process consists of a software program that facilitates a user in finding information they are looking for. Furthermore, the system may use standard computer hardware or specialized hardware to support the search and mechanism for carrying out the information retrieval process. The aim of information retrieval is to minimise information overload, minimise users time when searching for information, filter information and categorise relevant information for retrieval (Kowalski and Maybury, 2000).

2.9 The Roles of Stakeholders in the Development and Use of the Institutional Repository

2.9.1 The Role of librarians in an Institutional Repository

Librarians in most academic and research institutions are tasked with the responsibilities associated with the development and maintenance of the institutional development. They work in partnership with research and development; and information technology sections (Okumu, 2015). Librarians play a crucial role as they understand the users' needs. For the effective development of an Institutional Repository, librarians must be involved in almost all stages; for instance, the planning, implementation and operation. More so, librarians are responsible for advocating for the Institutional Repository, building the IR content, training of staff and students on how to access and use the IR as well as the recruitment and training of administrators and metadata specialist (Jain, Bentley and Oladiran, 2014).

Libraries and librarians play critical roles in the collection development and management of repositories (Lynch, 2003 and crow 2002).

In this context, development may be viewed as process of creating or acquiring content or information resources that suit the purpose of the Institutional Repository. Management involves the assessment, selection, storage and preservation of information resources archived in the repository. Traditionally, these functions have always been carried out by librarians (Otiango, 2016), and they have only been transformed from the World of 'books' to digital archiving environment. The trained librarians are equipped with the requisite skills to play the role of collection development managers. Expectedly, librarians play this role in the most institutional repositories in developing countries (Smet, and Dhamdhere, 2010).

The process involves some or all of the following steps.

1. Formulation of policies that would guide content creation and selection.
2. Collection acquisition strategies.
3. Assessment and evaluation of content.

4. Designing the work flow pattern from selection, acquisition to electronic storage and preservation.
5. Supervision of work flow process.
6. Ensuring co-operation and smooth working relationship among stakeholders.
7. Identifying gaps and formulating policies and strategies for intervention.

The library wants to ensure that whatever content is to be uploaded into the repository should meet international standards. Most importantly, contents to be uploaded must pass the plagiarism test. Plagiarism is the wrongful appropriation and publication of another author's intellectual property as one's original works. It is considered as academic dishonesty and a breach of academic ethics. Due to wide spread practice and subsequent condemnation and severe penalties for plagiarism. Libraries should ensure that their institutional repositories are free from plagiarism works. They do this through the proven, effective and efficient plagiarism detecting software.

Software acquisition and training software may be defined as a set of machine-readable instructions that helps a computerized system to perform specific functions. Institutional Repositories are effectively and efficiently run through the use of software.

However, due to the similarities between Institutional Repositories and digital libraries, librarians are better placed in identifying, recommending and operating the appropriate software needed to run repositories. They do these with computer engineers, software designers and vendors. Abrizah (2009), currently, the most preferred software used for repositories in developing countries is Dspace. The Dspace software has been in use in libraries for the management of electronic research output of the institutions. Librarians are therefore to be up-dated with developments and the use of the software. Consequently, libraries and librarians have the responsibility of training faculties and other stakeholders in

the use of the software. Abrizah (2009) contends that training would consist of assisting the university community to learn the use of Institutional Repository software in order to accomplish self-archiving.

Metadata may be viewed as data that help to describe other data. It describes the 'who', 'when', 'how', and 'what' of other data. 'Meta' is that prefix which simply means description. Thus, metadata summarizes basic information about data, and which makes finding such data easier. Without appropriate metadata, the essence of archiving may be defeated, as it would be very difficult to locate Institutional Repository materials.

Standard metadata performs the following functions:

1. Organize data holidays.
2. Provide appropriate description of data holidays.
3. Provide necessary information to data users.
4. Help to measure and maintain the value of data.

A catalogue system is a mechanism that stores and provides access to descriptive metadata based on desired attribute (Anjanadevi, Vijayakumar, and Srinivasagan, 2014).

A standard catalogue system allows users to make queries. The creation and maintenance of metadata and catalogue system fall within the domain of Librarian-ship. Librarianship as a profession is concerned with the selection, acquisition, and organising resources. Librarians are better placed in the formulation of necessary and adequate guidelines for standard metadata and catalogue system in the running of an IR. Guidelines will help to establish and maintain uniformity and standard in the archive process (Srinivasagan, 2014).

2.10 Open Access Policies and Principle Statements

According to Macha (2012), the use of Open Access in organisations began in the 1990s and this brought about policy procedures and some principle statements that would further guide Open Access. These policy procedures and principle statements guided research communities and researchers on how Open Access could be executed successfully. In addition, the policy statements encouraged researchers to participate in Open Access. It also assisted and influenced universities and research institutions to craft their own policies and principles that would guide Open Access.

However, a study by Otando (2011) found out that, some institutions in Kenya do not have proper policies in place to guide Open Access and some institutions lack vibrant Institutional Repository policies. The study indicated that, about 23% of the participants from various institutions highlighted that they had proper policies in place for the operations of their IRs. On the other hand, 77 % of the responding authorities claimed that at their institutions there were policies in place to deal with IRs. Lack of proper policy framework for IRs is a real impediment to its growth and development. The following are the primary international Open Access statements.

2.10.1 Bermuda Principles (1996)

The Bermuda principles of 1996 were some of the earliest international principle statements formulated to guide Open Access (Pappalardo and Fitzgerald, 2007 cited in Macha, 2012). According to Macha (2012) the Bermuda principles of 1996 were further developed by scientists who were interested in publishing and disseminating their work and making it accessible to a large number of users. The scientists' aim was to make their research outputs more visible, available and accessible online to the benefit of the research community. In January 2003 the Bermuda Principles were ratified.

2.10.2 Budapest Open Access Initiative (2002)

Through the Budapest Open Access Initiative of 2002, developments in Open Access were registered as the principles were extended to literature concerning peer-reviewed journal articles. The Budapest Open Access Initiative wanted to make scientific literature more accessible through the removal of blockades and barriers that impeded accessibility. The initiative aimed at removing barriers and promoting free accessibility through boosting self-archiving of published journals and articles.

According to Budapest Open Access Initiative Open Access statement, “removing access barriers ... will accelerate research, enrich education, share learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge” (Pappalardo and Fitzgerald, 2007: 3).

2.10.3 Bethesda Statement on Open Access Publishing (2003)

The open access movement took full control after the Budapest Open Access Initiative of 2002. Researchers and other organisations around the globe started to support the Open Access initiative. Eventually, more policies and principle statements were crafted by international organisations, funding bodies as well as academic and other research institutions and this was a landmark step in the development of Open Access. Some of the progressive principle statements that came forth to promote Open Access were the Bethesda Statement and the Berlin Declaration (Macha, 2012).

The Bethesda Statement on Open Access Publishing stipulates that users should be granted irretrievable, unrestricted, worldwide and permanent right of accessibility to their works. Licences to use, distribute, disseminate or display the work should also be granted. Upon

publication of their scholarly research output, the authors are also expected to deposit the finished version of the material and other additional materials.

Permission granting accessibility as stated by the Bethesda Statement on Open Access Publishing should be deposited in its electronic form in any Institutional Repository that is “supported by an academic institution, scholarly society, government agency, or other well-established organisation that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving (for the biomedical sciences, PubMed Central is such a repository”(Pappalardo and Fitzgerald, 2007:4). Bethesda Statement on Open Access Publishing, as discussed above, clearly highlighted and articulated the essence of Open Access and the concept of the Institutional Repository as well as the parameters within which it functions.

2.10.4 Berlin Declaration (2003)

The Open Access movement was also given a great boost by the Berlin Declaration on Open Access to knowledge in the humanities which was promulgated in 2003. The main long term agenda of the Berlin Declaration was to encourage researchers and research institutions to be supportive of the idea of making resources available online and permitting access through online resources. The definition of Open Access advanced by the Berlin declaration closely resembles the one proffered by the Bethesda Statement. Open Access to scholarly and research outputs was aggressively advanced by the Berlin Declaration to the extent that by the year 2007 hundreds of organisations across the globe had ratified it (Macha,2012).

2.11 Policies on Depositing Scholarly Work in the Institutional Repositories

To foster the development of IRs, it is a prerequisite for institutions to have policies in place that makes it mandatory for authors to deposit their scholarly works to the IR. Mandatory

polices would demand academics and students from all faculties to deposit their work in electronic form to the Institutional Repositories at their institutions. Nabe (2010) says that many academic institutions have grown accustomed to this practice. Furthermore, policies should be put in place at the institutions to compel staff to submit their research papers, articles, and conference papers among other intellectual works. However, such policies should be flexible and should not force authors to deposit their work (Cullen and Chawner, 2011). Instead of making it mandatory for staff and students to deposit their scholarly work on the institutional repositories, the policies should encourage and promote submissions through advocacy and marketing programs.

High rates of submissions can be registered at the repositories in the institutions. Policies are therefore an essential component of Institutional Repositories because one of the biggest impediments to Institutional Repositories development is how to mobilise and recruit content (Cullen and Chawner, 2011). There are a number of Institutional Repositories that have been established around the world but the majority of them have failed to recruit sufficient content and in some cases it is because of the absence of policies on content depositing (Cullen and Chawner, 2011). Mandatory policies have proved to be significant in universities such as Queensland University of Technology in Australia and also the Harvard University in the United States of America. In these universities there was an accelerated increase in the rate of self-archiving especially by the academic staff (Cullen and Chawner, 2011).

2.12 Factors to Consider when Evaluating Institutional Repositories Success

2.12.1 Content

The outstanding factor to consider when assessing whether an IR is successful or not is the nature and volume of the content it has (Organ and Deveson, 2010 cited in Macha 2012). This is because content forms the backbone or epicentre of an Institutional Repository to such an

extent that without content there is no IR in place. According to Hamad and McGovern (2009) although there are still raging debates in the academic circles on what criteria to use to ascertain whether an IR is successful, there seem to be convergence around the content factor. In order to generate supplementary content and end-user activity, there is need to amass huge volumes of content.

Furthermore, IR success is also judged by some value-added services that include complete manuscript reclamation to preservation (Hamad and McGovern, 2009). The Institutional Repository content should be made up mainly of materials that are born-digital and secondarily repurposed digital materials. According to Westell (2006) three quarters of an Institutional Repository should be composed of "born digital" materials. He further went on to emphasise that more output measures can be facilitated if an IR has a large volume of documents. There are high probabilities of an IR to be extremely visible and to be recognised around the world if it has large masses of content within it. Thus, there will be more utilisation of the IR content and there will be more citations and references to it, hence spreading its influence. Visibility is also another criteria used to judge whether an Institutional Repository is successful or not.

2.12.2 Usage

According to Hamad and McGovern (2009), the extent of usage of an IR also indicates its magnitude of success. Use can be divided into three broad categories which are: nature of utilisation, sum of users and also the content type. The magnitude of the use of an Institutional Repository is commonly measured by web metrics. It measures the extent of the usage of an IR by statistically counting the number of articles in the repository. Degree of usage of the IR is obtained by measuring the rate of retrieval recording the number of items downloaded (Thomas, 2007 cited in Macha, 2012).

Specifically webmetrics indicates the extent of usage by recording the number of hits and the number of items downloaded. A high number of hits and downloads highlights that the repository is being fully utilised, hence it is being successful. This also indicates that the works of authors deposited in the IR are also being cited. This also ensures that rather than institutional research outputs being idle, there are utilised, thus spurring the growth of the authors in their careers. In this case, there will be more use of statistical packages from the Institutional Repository by organisations as research outcomes are being disseminated.

The increased citation of the authors' work by other researchers and academics makes institutions and the management to be more supportive of the IR which is a novel type research infrastructure. Successful institutional Repositories increase the reputation of an institution as research outputs are effectively distributed and the increment of citations (Westell, 2006). Effective institutional repositories ensure that there is coordination of deposited articles, the use and the citations which paints a positive picture of a repository. There is also need to keep data on the trends of usage which provides benchmarks of the usage and the institutional growth over time which is important especially for those funding it (Westell, 2006).

2.12.3 Rate and Submissions

The success of an IR can also be judged by number and rate of submissions which increases its content. According to Thomas (2007:138), these can be said to be “repository deposit activity measures”. For an IR to be well functioning and sustainable there is need for consistency in terms of submissions of research outputs and other digital articles. Submissions must be frequent and continuous with medium volume of articles for the sustainability of a repository. It is advised that the spontaneous depositing of high volumes of articles should be prevented as these will negatively impact on the sustainability of the

repository (Carr and Brody, 2007). Furthermore, Carr and Brody (2007) recommend the utilisation of the Registry of Open Access Repositories to scrutinize the status of repositories in accordance with its daily performance. According to Hamad and McGovern (2009) the submission factor of articles can be categorised into:

- Sum of submissions

It refers to the totality of digital content that is submitted in the Institutional Repository by the authors. More number of deposits highlights that an Institutional Repository is successful.

- Rate of submissions

It entails the frequency with which authors deposit their work in the IR. A continuous depositing frequency suggests that the IR is functioning effectively and performing exceptionally. Submissions should be consistent and continuous over time not spontaneous depositing of large volumes of digital content.

- Type of submitter

This category refers to the authors and researchers who submit their digital content in the IR. The types of submitters can be undergraduate students, staff or post graduate students. However, it is recommended that all these stakeholders be represented in the Institutional Repository as precisely stated by (Macha 2012:46) that “researchers advocate for a broad representation of constituents in the Institutional Repository in a university and want all departments to submit content”.

- Participation of key stakeholders

Stakeholders that are referred to in this category are the funders and the university administrators who are also encouraged to deposit their articles in the Institutional Repository.

- Building content

Librarians are also responsible for creating and building the Institutional Repository content. Librarians should engage with the scholars as well as faculty members so that they are able to collect content to deposit in the Institutional Repository (Ridwan, 2015).

- Collection administrators and metadata specialists

It is also the role of librarians to be collection administrators and also to be metadata experts. The proper implementation of IR requires that librarians who are specialist in digital collection management be recruited or rather to train those within the system already. Furthermore, it is a prerequisite role for the librarians to offer training services on the usage of an IR to the staff and students and assist them in the preparation of their digital products (Ridwan, 2015).

According to Ridwan (2015) the roles of authors include:

- Making sure research outcomes are uploaded.
- Providing feedback on comments or questions on their work.
- Continuously appraising their work particularly that which is in progress and pre-print material.
- Making sure their work is of good quality and acceptable standards.
- Working out copyright matters with publishers prior to publishing.

2.13 Fundamental issues to address in effective Institutional Repositories

According to Jain (2011) the future of Institutional Repositories is informed by two schools of thought. The two schools of thought emerged as a result of the Institutional Repositories initiatives, failures and successes. One of these two schools of thought views IRs positively as a disseminator of scholarly outputs of an institution. The other school of thought views IRs negatively and lacks trust in them. This school of thought believes most of the institutional repositories have remained undeveloped except of only a few of them which have developed scholarly data bases for institutions to benefit from. Through IRs institutions are able to create an identity for themselves in the family of nations as they publish their scholarly materials online. However, institutions also want to exercise autonomy and control over their online intellectual publications.

Moreover, Jain (2011) posited that, besides this positive picture of IRs this is not the case with all existing IRs. This is because there are some that are said to have given up, despite the fact that an effective repository infrastructure is indispensable in academic work. Although there is a lot of negativity and pessimism surrounding IRs, most organisations are continuously becoming cognisant of their importance and the central added value benefits behind IRs. In order for IRs to perform effectively, their role as collectors and disseminators of information for academic purposes must be completely digital in electronic libraries (Basefsky, 2009). IRs should be supported with research services, academic support and new technologies offers in order for them to function optimally. Social networking is aggressively advancing and the future of IRs can be enhanced by exploiting the social media and establish social academic research service that buttresses the role of librarians, IT specialists and the libraries themselves.

Through these processes, universities are able to transform the nature of the operation of IRs. Therefore, in the foreseeable future IRs are going to be built around specific services that can be advocated for to faculties and thus add value to them (Basefsky, 2009).

These support services must be supported by a mandate from the institution's administrative authority. The future of IRs is hinged upon the establishment of robust infrastructure that support large repositories so that quality services can be offered to the academic community. There is advocacy for publication repositories to be reorganised in the future and it should be based upon microscopic academic settings. The settings include but not limited to geographic, thematic or institutional (Romary and Armbruster, 2010).

2.14 Evaluation of the Institutional Repository

Before a library can establish an Institutional Repository, it is essential to assess whether there are sufficient resources to do so (Macha, 2012). A cost analysis must be carried out in order to establish the probable expenditures that will be incurred if the Institutional Repository is to be established and also the availability of the funds and other requisite resources. These are primary and prior issues that must be clarified right at the initial stages so that feasibility of establishing an IR can be ascertained (Nabe, 2010). The planning stage should therefore be predominated by an evaluation of resources as this will give the library the basis and platform to ask for assistance from the interested stakeholders ,for example the government and other organisations.

In pursuit of the assessment of resources, it is critical that a survey is undertaken by the library to establish the nature of resources available against the expenditures that will be incurred in establishing the Institutional Repositories so that an up to date and correct budget can be drawn up (Nabe, 2010).Two primary components are taken into consideration when

librarians and other stakeholders are evaluating and assessing the cost of an Institutional Repository namely; the equipment and the personnel needed. The equipment component is grouped into two broad categories which are hardware and software. Other activities that also need funding to set up an Institutional Repository are training and marketing (Nabe, 2010).

2.14.1 Evaluate Software

There are two broad categories of software available for the institutions to adapt for their Institutional Repositories. These include the proprietary and the open source. According to Macha (2012), open source is free, whilst the proprietary is supplied by some commercial providers and the institution will be required to pay a subscription fee to get such services from the commercial provider (Macha (2012).

Before an institution can choose the type of software to use it must assess its own needs so that, it can settle for software that meets such needs. A central factor that influences decision on the platform and software to use is the availability of staffing (Nabe, 2010).

2.15 Barriers to the Development and Use of Institutional Repositories

2.15.1 Copyright Debate on Open Access

Copyright is the collection of legal rights that is attached to an original work when it is created. Copyright law involves the aspect of intellectual property law that seeks to invest authors with the individual right and control over their original works (Baloyi, 2014). It also includes the right to exploitation of their work as well as the right to ensure that their work is properly credited and is not changed in a way that harms the author's reputation (Jain, Bentley and Oladiran, 2014). An original work will qualify for copyright protection if it passes the originality test. Originality does not mean that the work must be novel as in the

case of patent; rather, the work must originate from the author in the sense that the author must have invested more intellectual effort as opposed to mere copying (Lynch, 2003).

2.15.2 Lack of information on Institutional Repositories

The biggest barrier in the development of IR is the inadequate information on the availability and advantages of institutional repositories by major stakeholders, such as, lecturers, librarians, researchers and academic institutions (Mohammed, 2013). As institutions implement IRs, faculty members are reluctant to contribute in this agenda. In a survey of directors at the Association of Research Libraries (ARL), two-thirds responded that the majority of faculty members at the institutions were not contributing (Casey, 2012). In addition, Schonfeld and Houseright (2010) discovered that, less than 30 percent of faculty in U.S. colleges and universities were contributing to IRs. In addition, studies of IRs in several institutions such as New Zealand's eight universities (Cullen and Chawner, 2011) also revealed some reluctance on the part of faculty to contribute. Therefore, Institutional Repositories are not adequately promoted and advocated for in most countries (Christian, 2008).

2.15.3 Electricity

Another challenge that is holding back the establishment and development of IRs particularly in developing countries, for instance Nigeria, include the shortage or rather the inconsistencies in the supply of electricity. This has made the development of IRs costly. Fatunde (2008) observed that Universities in Nigeria have poorly functioning IRs because of the problems posed by electricity. To illustrate the extreme challenge of electricity shortages, the International Institute of Tropical Agriculture (IITA) had to relocate its IRS in the United Kingdom in order to circumvent the electricity problems in Nigeria Fatunde (2008).

The development of IR is also hindered by insufficient infrastructure to facilitate their development. Most countries in the developing world lack the requisite Information Communication and Technology infrastructure to drive the development of institutional repositories compared to the developed countries which have well developed ICT infrastructures. Internet access is a necessity for the development of an IR yet many countries in Africa face internet challenges (there is lack of efficient and consistent connection) (Mohammed, 2013).

2.15.4 Perceptions of Users towards Institutional Repository

Previous studies have tried to determine attitudes of users towards open access and the willingness to contribute to repositories (Abrizah, 2009:19). In research universities, Institutional Repositories are predicated on contributions by the stakeholders who include both academic staff involved in teaching and research and both postgraduate and undergraduate students as potential authors and readers of the materials in Institutional Repositories (Abrizah, 2009:19). Abrizah further posits that, whether or not Institutional Repositories become a part of the intellectual infrastructure, they depend on the extent of the university's community contribution. Faculty cites variety of reasons for hesitation to contribute to institutional repositories such as the learning curve for new technology, copy right issues, concerns over whether contributing to repositories is equal with publishing, fear that how quality of some materials in the repository taints their research, and worries about plagiarism (Davis and Connolly, 2007).

2.15.5 Insufficient Funding

To develop a successful IR is a costly undertaking. Factors that impact costs include the number and type of staff, services provided, type of technology chosen for the repository, and cost of preservation of data. In order for an institution to develop the IR, the first decision to

make is to choose what type of hardware and software is needed for the project (McKay, 2007). Open source software systems provide the institution with the ability to customize the program and develop facilities that meet local needs.

When choosing the commercial software program limits the amount of technical staff needed and may limit the amount of customisation to be done. Other technology costs include digitising content or hardware and software needed for such services, charges for backup systems, and digital storage (McKay, 2007).

Additionally, Mohammed (2013) notes that, in order to establish, develop and maintain an effective functioning IR, it demands heavy funding. The author further argues that developing countries struggle to foot these heavy financial investments. Generally, African countries particularly those in the Sub-Saharan region are sorely dependent on government subsidies for the development and operation of their IRs, which falls short of being adequate. According to Jain, Bentley and Oladiran (2014) the financial cost required to set up an Institutional Repository is relatively low compared to the exorbitant costs that are associated with running and maintaining it particularly the staff costs. Some of the activities that consume huge sums of money include, but not limited to, training the staff so that they have the requisite technological skills and knowledge, supporting users and also the development of guidelines and drafting the relevant policies. Once the above mentioned are observed, then the library management can determine how much budget is needed to run the repository.

2.15.6 Technological Insufficiencies

The lack of Information Communication Technologies is also one of the challenges hindering the development of IRs in most developing countries, Africa in particular. There is lack of technological flexibility in most institutions which is needed to keep pace with the dynamic nature of digital technology (Mohammed, 2013). In addition to inadequate ICTs, the lack of

internet has led to the under development of Institutional Repositories in many developing countries. For an Institutional Repository to be active and effectively functioning, it relies on reliable and fast internet. Furthermore, most countries in the developing world lack the requisite Information Communication and Technology infrastructure to drive the development of institutional repositories. As compared to the developed countries which have well developed ICT infrastructures. Internet access is a necessity for the development of an IR; yet many countries in Africa face internet challenges (there is lack of efficient and consistent connection) (Mohammed, 2013).

2.15.7 Challenges in Creating Content

Jain, Bentley and Oladiran (2014) highlight that, an Institutional Repository should be functional and sustainably operational and scholars have to voluntarily submit their research outputs. Hence, if these critical stakeholders are not motivated to deposit their scholarly work or if they face some challenges it becomes difficult or impossible to have an IR. Generating content is extremely cumbersome especially in the initial stages of establishing and developing an Institutional Repository. “Unless the value of an IR is demonstrated quickly, the organization's long-term commitment to the project may begin to wane” (Jain, Bentley and Oladiran, 2014:4). Librarians can however demonstrate the significance of an IR by making it popular to the stakeholders and proving its worthiness (Gibbons, 2004).

2.15.8 Policy

Policies that are put in place to ensure the proper functioning of Institutional Repositories may negatively impact on the scholars’ willingness to deposit their work. Policies come with coercion and compulsion impetus in the background and this will diminish the voluntary mentality among the scholars. In some situations, academics and scholars may view policies on IR as an effort by the institution’s administrations to exert controlling influence on the academic work. It is evident that an IR will only function to its capacity when a mandate is in place to populate it, but clearly researchers can react negatively to any suggestion of compulsion (Jain, Bentley and Oladiran, 2014). In addition, IR should not become a tool for enforcing administrative control over academic work (Jain, Bentley and Oladiran, 2014).

2.15.9 Lack of Incentives

In the absence of any incentive, academics feel reluctant to provide bibliographic details of their scholarly output especially when they know that incentives are available in other institutions Jain, Bentley and Oladiran, 2014).

2.15.10 Difficulties in Managing the Huge Mass of Scholarly Materials

According to Van Der Merwe (2008), the most daunting task that is stifling the development of Institutional Repositories in many institutions is the management of the huge volumes of scholarly material and other research outputs. The huge volumes comprises of research, conference papers, books, theses and dissertations as well as other electronic material. If these scholarly materials are poorly managed and preserved, they will be very cumbersome to retrieve which defeats the purpose of an Institutional Repository which is to promote easy accessibility and availability of research outputs (Van Der Merwe, 2008).

2.15.11 Users information seeking behaviour

Information seeking behaviour of scholars appears to have a focus of inquiry for a long time, as observed by Borgman et al. (2005). Research on information need and the information seeking behaviour of scholars stretches back to the late 1950s, beginning with simple descriptive studies and evolving into discipline-specific investigations. A lot of research evolved from a more generalized interdisciplinary interest in the work of scientists and the nature of scientific communication, resulting in a huge body of literature that dates back from 1940-1960 (Borgman et al., 2005). Davies (2013:68) states that “scholars and practitioners in the field of library and information science (LIS) have interest in knowing the information seeking behaviour of library users”. Since then, studies have progressed, starting with those intended behaviours of individuals or groups for the design of the appropriate systems and services. Thus, a user centred approach that examines the system as seen by the user was developed.

However, Deegan and Tanner (2002) asserts that scholars experience constructive stages of the information seeking process in digital environments and face the same pitfalls in shelf browsing and as a result it affects their information seeking behaviour. Information seeking

behaviour today is governed significantly by the existence of a wide variety of electronic information resources, from online database that emerged more than thirty years ago; and the World Wide Web (WWW) (Deegan and Tanner, 2002). Students and academic staff at UFH are also affected by this extensive variety of electronic resource and this affects their information seeking behaviour.

2.15.11 Advocacy

In order to be able to advocate for an Institutional Repository, librarians should have sufficient knowledge about IRs, for instance their purpose, benefits and how to access them. Librarians should also be knowledgeable about their operational processes and principles so that they are able to promote it (Ridwan, 2015). Library staff should undertake IR advocacy programs through the news media of the institution for instance librarians will need to develop advocacy programs and they should be prepared to give feedback on any misunderstanding from the stakeholders (Ridwan, 2015). Guidelines have to be developed for universities and funding agencies considering Open Access policies, including recommended policy terms, best practices, and answers to frequently asked questions.

They also recommended that Open Access communities should clearly explain the benefits of OA to research and researchers.

2.16 Summary

In summation this chapter, available literature has comprehensively been explored with particular focus on the establishment, development and usage of Institutional Repositories. The theoretical framework was discussed in-depth. The researcher illuminated the theoretical underpinnings of this study which is composed of two theories namely Technology Acceptance Model (TAM) and the Diffusions of Innovations (DI). The limitations of one

theory are supplemented by the other to establish the development and use of Institutional Repositories. Empirical literature was also consulted on the development and status of the Institutional Repositories in the developed countries, developing countries and Africa in particular. The role of the stakeholders was also discussed. The policy and principle statements that guide the Institutional Repositories operations were also discussed.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter discusses the research methods and procedures that were utilised in addressing the research objectives and research questions stated in this study. Malhotra (2004: 13) states that, “methodology encompasses the procedures that are necessary for the gathering of required information and its purpose in designing a study that will provide information needed for the decision making”. These include: research sites, research-design, and methodology, population, sampling technique, research instrument, research procedure (methods of data collection), analysis method and ethical considerations.

3.1 Institutional Background

3.1.1 Research Site

The University of Fort Hare (UFH) is one of Africa and South Africa’s oldest universities, having been founded in 1916 as an institution of higher education for Africans. It survived near closure in 1999; a situation rooted in the inequitable treatment the university was subjected to during the apartheid era, and exacerbated by poor leadership and declining student numbers (UFH website 24 May 2017). The University has complex history that does not only parallel with liberation of South Africa, but also reflects the contradictions of modern history of South Africa.

At present however, it has defied all odds and is striving towards being a vibrant intellectual centre, already a major contributor to economic, political and social development at local, provincial and national levels.

The university has three campuses, with the main campus being at Alice which is a small rural town; the other two campuses are located in East London and Bisho respectively. It has six faculties' namely; Education, Law, Management and Commerce; Science and Agriculture and Social Sciences and Humanities. The university offers 189 degrees and diplomas within departments in the different faculties. This study focused on evaluating Alice campus' library development and use of Institutional Repository by staff and students. The Alice campus library has approximately twenty staff in various sections. The Repository contains digital collections of academic and research output. This Repository is administered by University of Fort Hare Libraries. The University of Fort Hare is a vibrant, equitable and sustainable African university, committed to teaching and research excellence at the service of its students, scholars and wider community (University of Fort Hare Website, 2017).

3.2 Research Paradigm

The term paradigm originated from the Greek word *paradeigma* which means *pattern* and was first used by Thomas Kuhn (1962) to denote a conceptual framework shared by a community of scientists which provided them with a convenient model for examining problems and finding solutions. Kuhn defines a paradigm as: "an integrated cluster of substantive concepts, variables and problems attached with corresponding methodological approaches and tools..." According to him, the term paradigm refers to a research culture with a set of beliefs, values, and assumptions that a community of researchers has in common regarding the nature and conduct of research (Kuhn, 1977). A paradigm hence implies a pattern, structure and framework or system of scientific and academic ideas, values and assumptions (Olsen, Lodwick, and Dunlop, 1992:16).

The positivism paradigm of exploring social reality is based on the philosophical ideas of the French Philosopher August Comte. According to him, observation and reason are the best means of understanding human behaviour; true knowledge is based on experience of senses and can be obtained by observation and experiment. At the ontological level, positivists assume that the reality is objectively given and is measurable using properties which are independent of the researcher and his or her instruments; in other words, knowledge is objective and quantifiable. Positivistic thinkers adopt scientific methods and systematize the knowledge generation process with the help of quantification to enhance precision in the description of parameters and the relationship among them. Positivism is concerned with uncovering truth and presenting it by empirical means (Henning, Van Rensburg and Smit, 2004, p. 17)

3.3 Research approach

This study adopted a mixed method (MM) approach, a strategy that combines both quantitative and qualitative research methods. In combining the two methods, the researcher used questionnaires to collect quantitative data as well as conduct individual interviews. Mixed method approaches can be helpful in gaining in-depth understanding of some trends and patterns and it allows for contextual interpretation of results obtained from a study (Maree, 2007). These approaches' are also useful in studying diverse perspectives. Furthermore, collecting and analysing both quantitative and qualitative data within a study, provides a more elaborate approach to the research problem and produces its deeper understanding of the phenomenon under study (Maree, 2007).

The main aim of this study was to find out the factors that influence the development and use of Institutional Repository at the University of Fort Hare (UFH) in the Eastern Cape, South Africa. The study sought to accomplish this, by drawing out self-reported information of the academic staff and students' awareness, towards use of Institutional Repository at UFH community. Quantitative data collection technique was most appropriate to gather self-reported data from a sample of library staff, academic staff and students chosen for the study.

However, to gain a more comprehensive understanding of organisational factors that may influence the development and use of Institutional Repository by staff and students' at the UFH community, it was essential to include qualitative data. This was gathered through open-ended questionnaires and interviews conducted with selected library staff at the university, as well as data obtained through document analysis. Maree (2007), state there are four basic mixed methods designs that are frequently used by researchers. These include explanatory mixed methods; exploratory mixed methods; triangulation mixed methods and embedded mixed methods. This study utilised the triangulation mixed method which is explained below.

3.3 Research Design

Research design refers to a logical sequence that connects the empirical data to a study's initial research question and ultimately to its conclusions. Research design is the logical plan for getting from here to there, which is defined as the initial set of question to be answered, and there is some set of conclusions about the questions (Thomas, 2007). In addition, research design is the plan and structure of investigation conceived to obtain answers to research questions (Cooper and Schindler, 2011:139). The authors further states that, the plan is the overall scheme of program of the research. It includes outline of what the investigator will do from writing hypotheses and their operational implications to the final analysis of

data. Babbie and Mouton (2010:104) contends that, research design is “a set of decisions regarding the topic to be studied in the population, outlining which research methods and for what purpose is the research methods and for what purpose is the research carried out”.

The study used a case study design focusing on the university of Fort Hare institutional repository. The case study allows an in depth investigation of the problem and thereby better understanding of the effects of adoption of institutional repositories in development and use.

3.3.1 Quantitative Approach

A quantitative research approach lays emphasis on measurement and allows the relationships between facts to be quantified and analysed (Creswell, 2007. Qualitative inquiry and research design: Choosing among five approaches, 2, 53-80., 2010). Blanche, Durrheim and Painter (2006) are of the opinion that good quality quantitative data and statistics allow researchers to make comparisons of different situations consistent with their observation of the use of IR by academic staff and students at the UFH institution from the quantitative data obtained. Quantitative data has two recognised primary strengths according to Blanche et al. (2006), which are: findings are generalisable and the data are objective. The aim of this study was to be able to ascertain the issues that commonly affect the use of IR information sources by staff and students at university in the Eastern Cape and thus an unbiased, objective gathering of facts was necessary to achieve this.

3.3.2 Qualitative Approach

Qualitative research is a process of understanding, where a researcher develops a complex, holistic picture, analyses words, reports detailed views of informants, and conducts the study in a natural setting (Creswell, 2007). According to Maree (2007) the key characteristics of qualitative research are:-

- The researcher collects words and images about the central phenomenon being studied.
- The data are collected from people immersed in the setting of everyday life in which the study is framed.
- The researcher serves as an instrument of data collection.
- Intensive data collection techniques are used. These include individual and focus group interviews; observation; documents such as private and public records about the phenomenon being studied; artefacts and audio-visual materials such as pictures or audio recordings of people, places or events.

As mentioned above, this research collected qualitative data through semi-structured interviews held with library staff at the university under study. Relevant documents published on the official website of the university were also analysed. Information obtained from these qualitative techniques was combined with that which was obtained from questionnaires administered to the sample of students selected for this study. The analysis of all data enabled the researcher to gain a holistic insight to the development and use of IR by staff and students at the University of Fort Hare.

3.3.3 Triangulation

According to Ball (2010), triangulation is the use of multi-methods in order to cross-check findings. This study utilised both quantitative and qualitative methods in order to give a holistic view on the use of Institutional Repository by staff and students in the Eastern Cape, South Africa. The key use of triangulation is to understand the same phenomenon from different perspectives and be able to confirm or challenge the findings of one method with those of another (Law, Harper and Marcus, 2003). Law et al. (2003) added that, data

collected from different perspectives may not match tidily at all, as there may be a mismatch and even conflict between them.

A mismatch in perspectives does not necessarily mean that the data collection process is flawed as this could be as a result of people having different accounts of similar phenomena (Law et al., 2003). As highlighted above, this study employed three data collecting instruments that enabled the researcher to gather information from different perspectives on issues pertaining to the development and use of Institutional Repository by library staff, academic staff and students, at the University under study. These were self-administered questionnaires for the academic staff and students, face-to-face semi-structured interviews with selected 3 librarians responsible for Institutional Repository and documentary analysis of official university records from website of the university under study.

3.4 Population

A study population is that “aggregation of elements from which the sample is actually selected” (Babbie, 2013:197). Powers (2000: 235) defines population as...“a set of entities for which all the measurements of interest to the research are presented”. The entities may be people, such as all clients comprising a particular workers caseload, or things, such as all the research books housed in a specific library. The study population consisted of students, lecturers and librarians at UFH Alice campus.

3.5 Sampling Procedure

Sampling is the process of obtaining data from a smaller group or subset of the total population. The smaller or subset is known as a sample. Maree (2007: 79) argues that “sampling refers to the process used to select a portion of the population for study”. The researcher used both random and purposive sampling in picking the respondents for the

study. Random stratified sampling was used to collect quantitative data. The sample was stratified to ensure that respondents from various levels were selected from across the different faculties. Purposive sampling was used to pick participants for key informants in qualitative data collection. Purposive sampling was chosen because the researcher knew exactly the kind of people with the information she wanted. The sampled participants were primarily staff and students. The total of 120 participants was selected as shown in the following breakdown; 10 academic staff members, 10 library staff, and 100 students. The unit of analysis was considered appropriate for analysis because the population of librarians was well represented (50%), staff from each faculty was included as well as few students to generate varied responses. Since the study adopted mixed methods, it did not primarily seek sample representation, but rather generating rich data from various participants to understand the process of development and use of institutional repository at university of Fort Hare. Further, the data collection process was informed by the saturation principle, where collected data was considered enough for analysis since the issue of institutional repository is known to fewer people in the university.

3.6 Data Collection

Various authors have different opinions about the term data collection. Data collection has been highlighted to be an important process in research. The inclusion of multiple data collection in a research project is likely to increase the reliability of the study (Mouton and Marais, 1990). In addition to that, the use of various methods to collect the same data is highly regarded, because the events or facts of the case study have been supported by more than single evidence (Yin, 1984). The mixed methods approach was employed in this study to draw primary and secondary methods of gathering information and data.

3.6.1 Questionnaire

A questionnaire is an instrument with open or closed questions or statement to which a respondent should react to (Boote and Beile, 2005).

As put by Boote and Beile, a questionnaire is relatively economical, has the same questions for all subjects, can ensure anonymity, and contains questions written for a specific purpose. McMillan and Schumacher (2006: 194) state that a “questionnaire is the most widely used instrument for obtaining the information from the subjects”. In this study, data collection methods used includes structured and semi-structured questionnaires. The researcher designed a closed ended questionnaire for staff and students who were the respondents and also advised them not to write their names for ethical reasons. The questionnaire was designed in such a way that it facilitated the ability of the respondents to provide the desired information. The respondents were offered a set of answers and asked to choose the one that most closely represented their views. The questionnaire contained clear instructions to guide the respondents as to what exactly was required of them. The questionnaire basically contained questions on the demographics of the respondents, such as education levels as well the extent to which they use the IR and the perceived benefits they get from them.

3.6.2 Interviews

This study used interviews because interviews involve the gathering of data through direct interaction between individuals. Cohen and Morrison (2007:271) define “interviews as a two-way conversation initiated by the interviewer for the specific purpose of obtaining research information”. Furthermore, the aim of interviews is to obtain rich descriptive data that will help the researcher to understand the participant’s construction of knowledge and social reality. Mugenda and Mugenda (2003) defines interview as a meeting of two persons to exchange information and ideas through questions and responses, resulting in communication and joint construction of meaning about a particular topic.

The author further describes interviews as ‘by providing access to what is “inside a person’s head” it makes it possible to measure what a person knows (knowledge or information), what a person likes or dislikes (value and preferences) and what a person thinks (attitude and beliefs). The researcher used face-to-face interviews with the participants. The researcher also deemed it necessary to engage in informal conversational interviews as she felt that it would elicit more data as the questions were asked in the form of conversation in the natural working space of the participant. This meant that participants were at liberty to speak their minds without having to please the researcher or having to choose what information to give and not to.

3.6.3 Document Analysis

In document analysis, documents can be reviewed to provide related data to support evidence from other sources. Document analysis can be used to supplement information obtained by other methods, for instance, when the reliability of evidence gathered from interviews or questionnaires is checked (Ball, 2010). According to Ball (2010), document research can involve the analysis of photographs, films, CD-ROMS, videos, slides and other non-written sources and records kept in electronic form. There are two categories of document analysis, namely; primary and secondary sources. Primary sources are those of data that are original or unpublished, which the researcher has gathered from the participants or organisations (Maree, 2007). On the other hand, secondary sources of data refer to any materials that are based on previously published works (Maree, 2007).

There are quite a numbers of document sources which include: published or unpublished documents, newspapers, company reports, journals, institutional websites, letters and correspondence of educational institutional including e-mail and other internet materials (Ball, 2010; Maree, 2007). In this study, the researcher viewed the university website

focusing on the Institutional Repository. This was of interest to the researcher as it was linked to the development and use of Institutional Repository as main focus for the study. The data obtained from the university library website pages was compared with the data gathered from the interviewed librarians and questionnaire respondents.

3.6.4 Observations

The study made use of observation as a data collection technique as highlighted by Bless, Smith and Kagee (2006). They view it as simple observation, also called non-participant observation as the recordings of events are observed by the researcher. Meanwhile Stanton and Liew (2011) view it as making observations of behaviour and recording those observations in an objective manner. Observation technique was chosen in order to fill in gaps and provide all necessary information where participants were unable to talk about an issue or unable to provide information through other means. The researcher recorded all the observations. However, after observing and discussing with librarians some were unable to answer some of the questions because they lacked adequate knowledge on IRs. The researcher further observed that, some participants were not expressing themselves fully because of the fear to expose challenges that the library is facing.

3.7 Procedure

Maree (2007: 267) defines procedure as “information obtained in the course of the study”. The researcher is based at the Alice campus and she handed the questionnaire to the respondents as they were getting in the library. Each participant was given an envelope to enclose in the completed questionnaire. For the semi-structured interviews with key informants, an appointment was made with them before in hand and the interviews were conducted in a setting and time comfortable and convenient to them. The necessary

introductory letter was obtained for the study from the university giving authority to collect data for academic purposes. Questionnaires were administered to the respondents directly.

3.8 Data Analysis

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

3.9 Ethical Consideration

Boote and Beile (2005) suggests that ethics are generally considered to deal with beliefs about what is right or wrong, proper or improper, good or bad. The researcher presented a proposal to the Ethics and Higher Degree committee at University of Fort Hare for evaluation and received permission to conduct the study. The participants were assured in writing on the questionnaire that the information collected was strictly for the study and their right to anonymity was guaranteed. The participants also had to sign a consent form before participating in the study. Questionnaires did not bear respondent's names.

Confidentiality according to Cohen and Morrison (2007: 24) is defined as “agreements between persons that limit other’s access to information”.

The researcher had to ensure appropriate measures to protect the privacy or confidentiality of the participant. The information obtained in this study was treated confidentially. The participants of this study were assured that the collected data would only be accessible to the researcher and would be for academic purpose only. The participants were informed that they had the right to withdraw from the investigation at any time if they were no longer interested in the study.

The participants of this study were protected from unwarranted physical or mental discomfort, distress, harm, danger or deprivation. Boote and Beile (2005) suggests that participants in a research project be allowed to exercise their right to take part or not. The interviews were conducted as scheduled between participants and the researcher. Obtaining informed consent implied that adequate information on the goal of the investigation and procedures were followed during the investigation.

A general idea of what the study was all about and a brief description of what specific activities they would be involved in was communicated to the participants in order for them to make a reasonable, informed judgement on whether to participate or not. Therefore, consent forms were prepared and given to participants for them to sign as advocated by Leedy and Ormrod (2005). McLennan and Mark (2006: 374) maintain that “researcher should use language that is best understood by the participants so as to obtain their relevant informed consent”.

3.10 Validity and Reliability of Data

3.10.1 Validity

Bauer (2005:166) assert that “validity refers to the degree of congruence between the explanations of the phenomena and realities of the world”. According to Ball (2010:104), “validity indicates whether an instrument measures or describes what it is supposed to measure or describe”. This definition is also echoed by Leedy and Ormrod(2005). Validity in qualitative study refers to techniques that check the credibility of data and minimizes the distorting effect of personal bias upon the logic of the evidence revealed by the collected data (Boaduo, 2011) In this research, the experienced supervisor scrutinised the instruments that were used during data gathering before the actual collection of data and this helped a great deal in the validation of the instruments.

In this study, three strategies, namely mechanical recording of data, participant language, and verbatim account have been used to enhance validity.

3.10.2 Reliability

Lopatin (2006:174) state that “reliability is the measure of consistency over time and over similar sample”. Avison and Fitzgerald (2003) reliability refers to the accuracy or precision of an instrument, the degree of consistency or the agreement between two derived sets of score; and the extent to which independent administration yields the same results under comparable conditions. Another method of increasing the reliability and validity of the study was to use triangulation. Triangulation involved the use of two or more methods of data collection in studying the aspects of Institutional Repository development at University of Fort Hare.

3.11 Chapter Summary

This chapter dealt with research methodology used in undertaking the study. A mixed methods approach was employed. The chapter further described the research design that was used, the various instruments used in collecting the data, sampling and selecting procedure, and ethical considerations. The next chapter presents the findings from the empirical data that was collected using the methods outlined in this chapter.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter presents and analyses the collected data. The researcher uses tables and figures to present the data. The study was guided by the following research questions:

- What is the role of stakeholders in the development and use of the Institutional Repository by staff and students at the University of Fort Hare?
- To what extent are staff and students aware about the development and use of the Institutional Repository at the University of Fort Hare?
- What infrastructure is available for the development and use of the Institutional Repository by staff and students at the University of Fort Hare?
- What are the barriers faced in the development and use of the Institutional Repository by staff and students at the University of Fort Hare?

4.1 Biographic Data of Respondents

This section presents the characteristics of the respondents which include gender, position, qualification, faculty, ranks/ levels of employment, age among others

4.1.1 Response rate

A summary of response of 120 participants is provided in the Table 4.1 below.

Sample Category	Initial sample =n	Response/Interviewed	Percentage%
Students	100	60	60
Academics/ lecturers	10	10	100
Library staff / librarians	10	10	100
Total	120	80	66.7

Table: 4.1 Response rate

The initial sample size was 120, which comprised of three categories which includes students academic staff, and library staff. The overall response rate was 66.7%. The categorical response rate is presented above.

4.1.1 Gender distribution of respondents

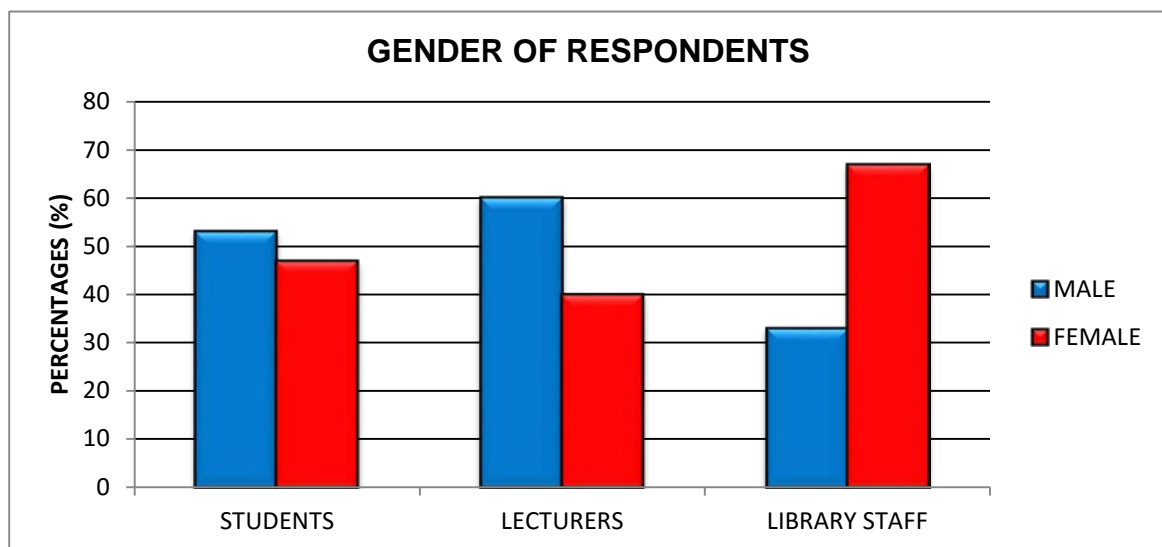


Figure: 4. 1 Gender respondents

Figure 4.1 shows the distribution of the three categories of respondents by gender. The figure above indicates that more male students responded to the questionnaires as represented by 53.3%, than their female counterparts represented by 46.7%. It further shows on academic staff/lecturers' category that male respondents 6 (60%) were more than female by 4 (40%). Lastly, the library staff category, the female were 6 (57.1%), as compared to the males who were 4 translating to 42.9% of the total sample. From the above results, this clearly shows that the majority of respondents were males.

4.1.2 Age distribution of lectures and library staff

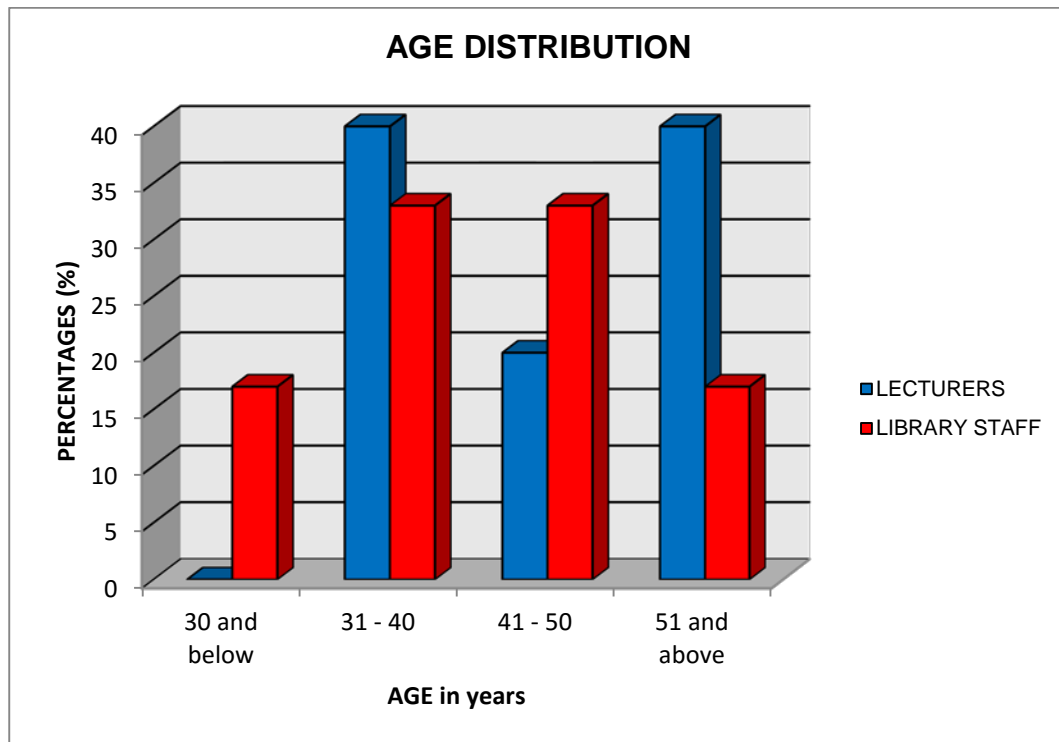


Figure: 4. 2 Age of lecturers and library staff

The respondents were asked to indicate their ages. The findings from the library staff showed that 1 (14.3%) of the library staff was aged between 30 years and below; 4 (42.9%) were between the age of 31-40 years; 3 (28.6%) were between 41-50 years; and 1 (14.3%) was 50 years and above. The findings on the side of lecturers showed that, 4 (40%) were between the age of 30 years and below; 2 (20%) were between the age of 31-40 years; and 4 (40%) of the lectures were between 41-50 years.

4.1.3 Age distribution of students

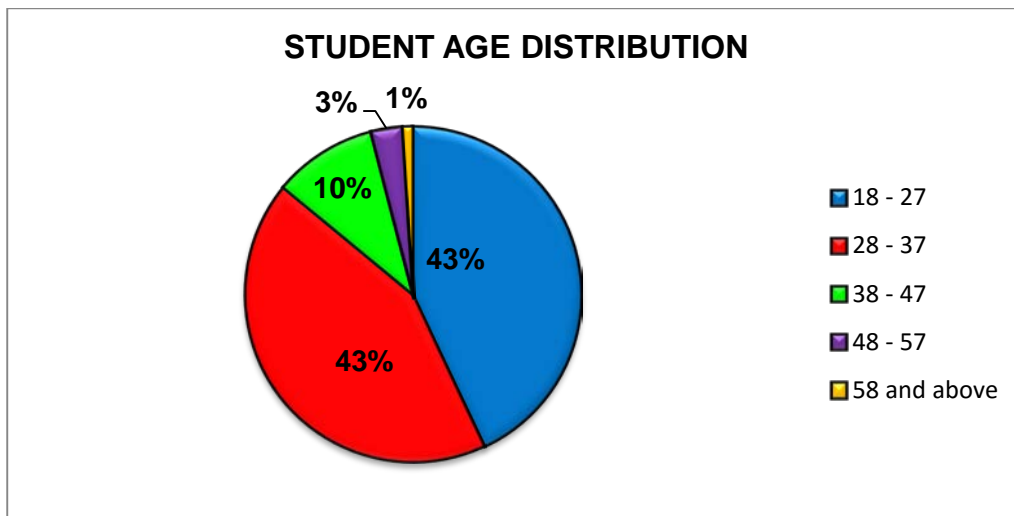


Figure: 4.3 Age of students

The researcher was interested in knowing the age of the respondents. The findings showed that 17 (43%) respondents were between the age of 28-37 years; another 17 (43%) were between the age of 18-27 years; 4 (10%) were between the age of 38-47 years; while 2 (3%) were between the age of 48-57 years; and finally 1% was 58 years above.

4.1.4 Education level of lecturers and library staff

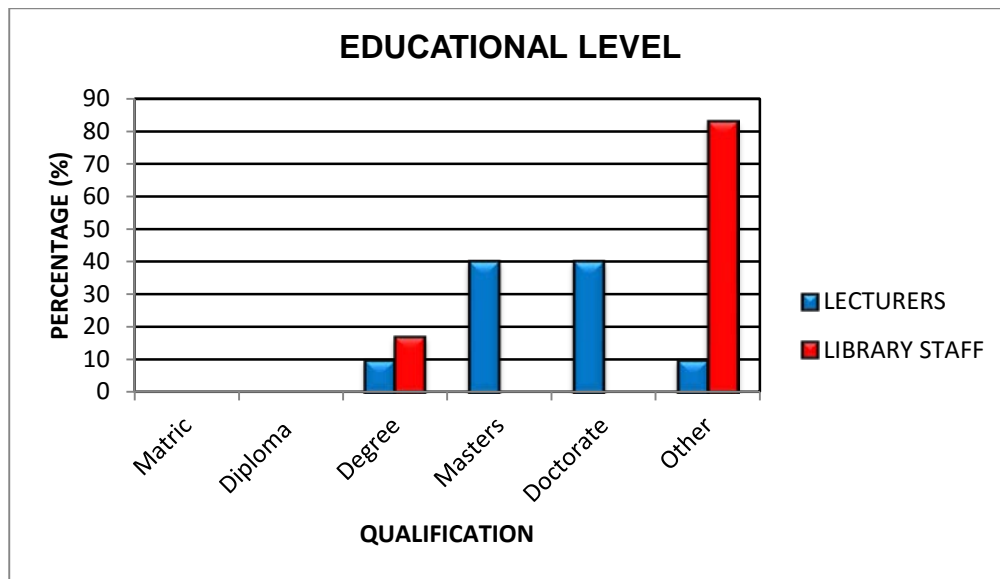


Figure 4.4 Education levels

The respondents were asked to indicate their level of education. The findings showed that, 4 (40%) respondents had Master degree qualification; 4 (40%) had doctorate degree qualification; and 1 (10%) had bachelor degree qualification as well as another 1 (10%) had other professional qualification. Further, the findings shows that the majority 8 (85%) of the respondents had other professional qualification while very few 2 (15%) had bachelor's degree qualification. The researcher found out that all respondents had formal education.

4.1.5 Distribution of student by faculty

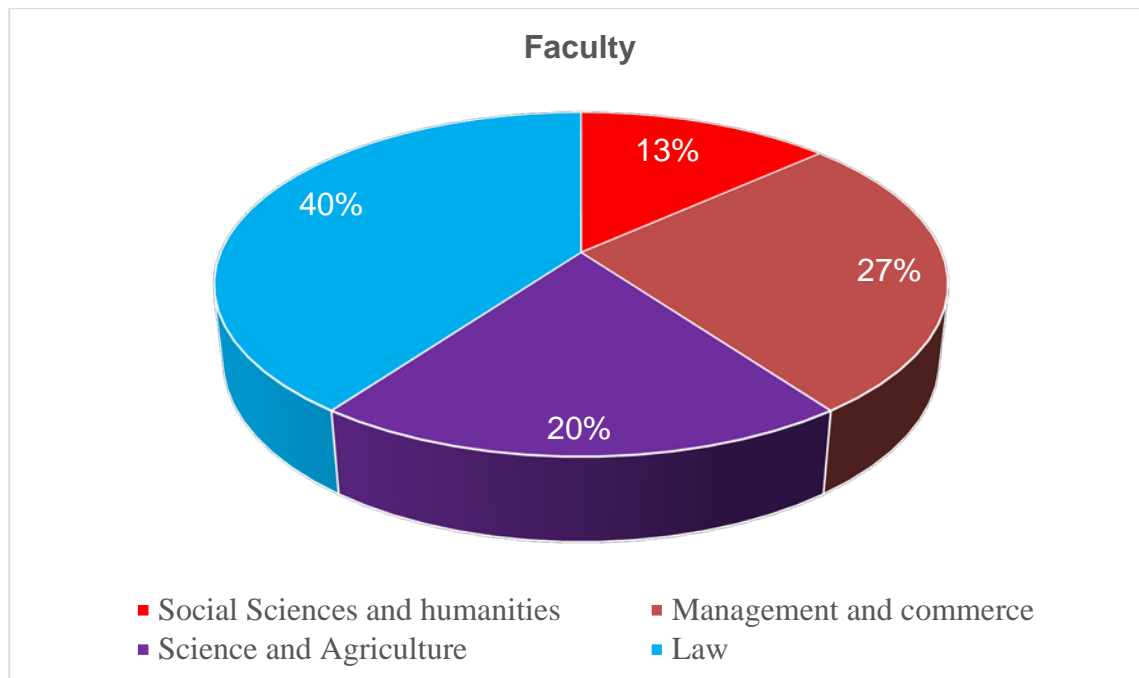


Figure: 4.5 Respondents faculty

Figure 4.5above shows the distribution of students by faculties. The respondents were asked to indicate their faculty in the questionnaire. The findings showed that the majority (40%) of the respondents were from the faculty of Law, (27%) from the faculty of Management and Commerce, (20%) from the faculty of Science and Agriculture while (13%) from the faculty of Social sciences and humanities. The results showed that the majority of the respondents were from the faculty of law while the minority were from the faculty of Social Sciences and Humanities.

4.1.6. Rank of the Academic Staff

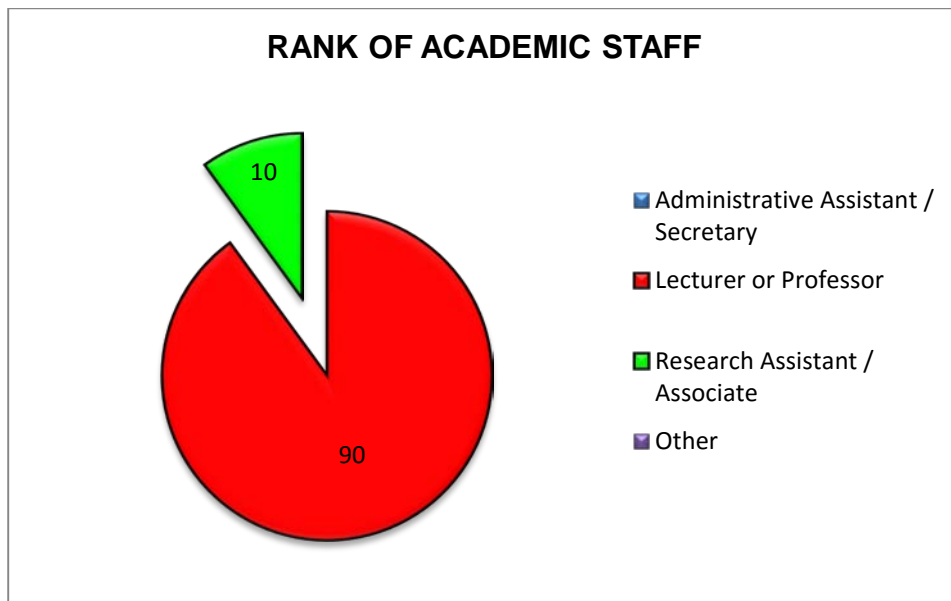


Figure: 4.6 Rank of the Academic Staff

In every organisation or institution there is a hierarchy, where people occupy different positions. The researcher wanted to know the rank of the respondents. Figure 4.6 above shows that majority 9 (90%) of the respondents from academic staff comprised of lecturers and professors; while 1 (10%) of the respondents was a Research assistant and/or associates.

4.1.7 Work experience of library staff

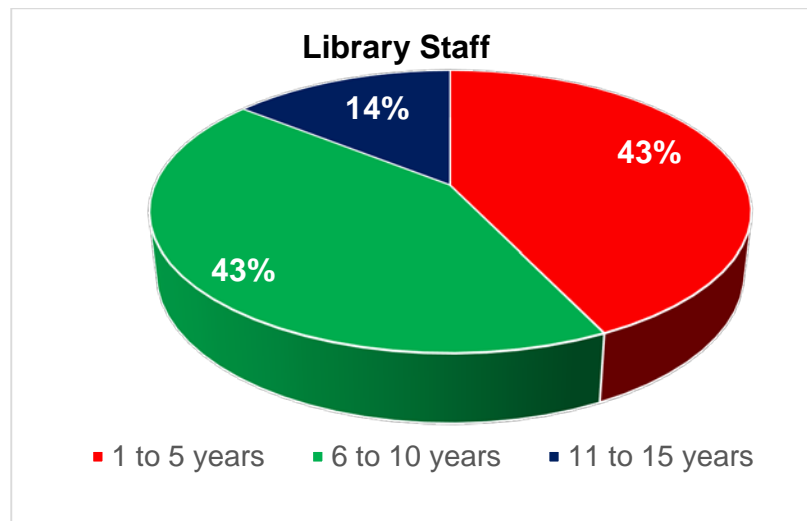


Figure: 4.7 Work experiences of library staff

The researcher was interested in knowing how long the librarians had been in their position. Figure 4.7above shows that the majority (43%) of the respondents had between 1-5years library work experience; 43%also had 6-10years of library experience; while 14% had between 11-15years of library experience.

4.1.8 Library Staff Work Section

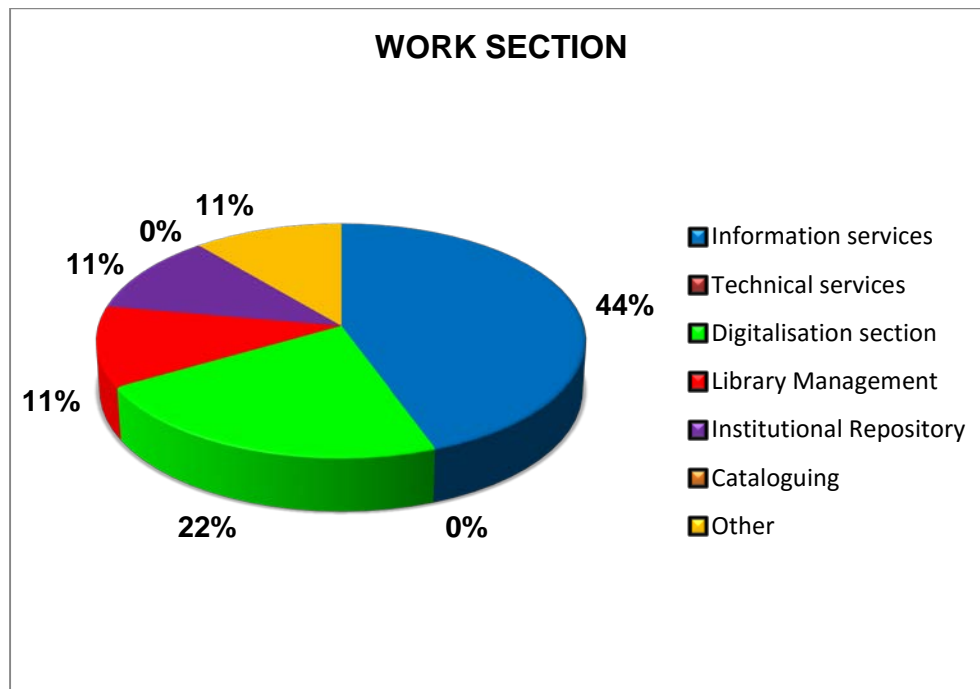


Figure: 4.8 Library Staff Respondents Work Section

Generally, the researcher wanted to know the work sections where the librarians worked. Figure 4.8 shows that 4 (44%) of the respondents were working in information services section; 2 (22%) were working in digitalisation section; 1 (11%) was working at library management; 1 (11%) were in technical services section; 1 (11%) was in Institutional Repository; and 1 (11%) was in cataloguing. The findings showed that the majority of the respondents were working in information services section, while few were working in library management, technical services section, and Institutional Repository. Thus, the results indicated that the information services section was a section occupied by many library staff.

Having presented the biographic data of the respondents, the following section focuses on the core issues related to Institutional Repository. The findings are presented in themes, graphs and charts where appropriate.

1. 4.3 Role of the stakeholder in the development and use of the Institutional Repository

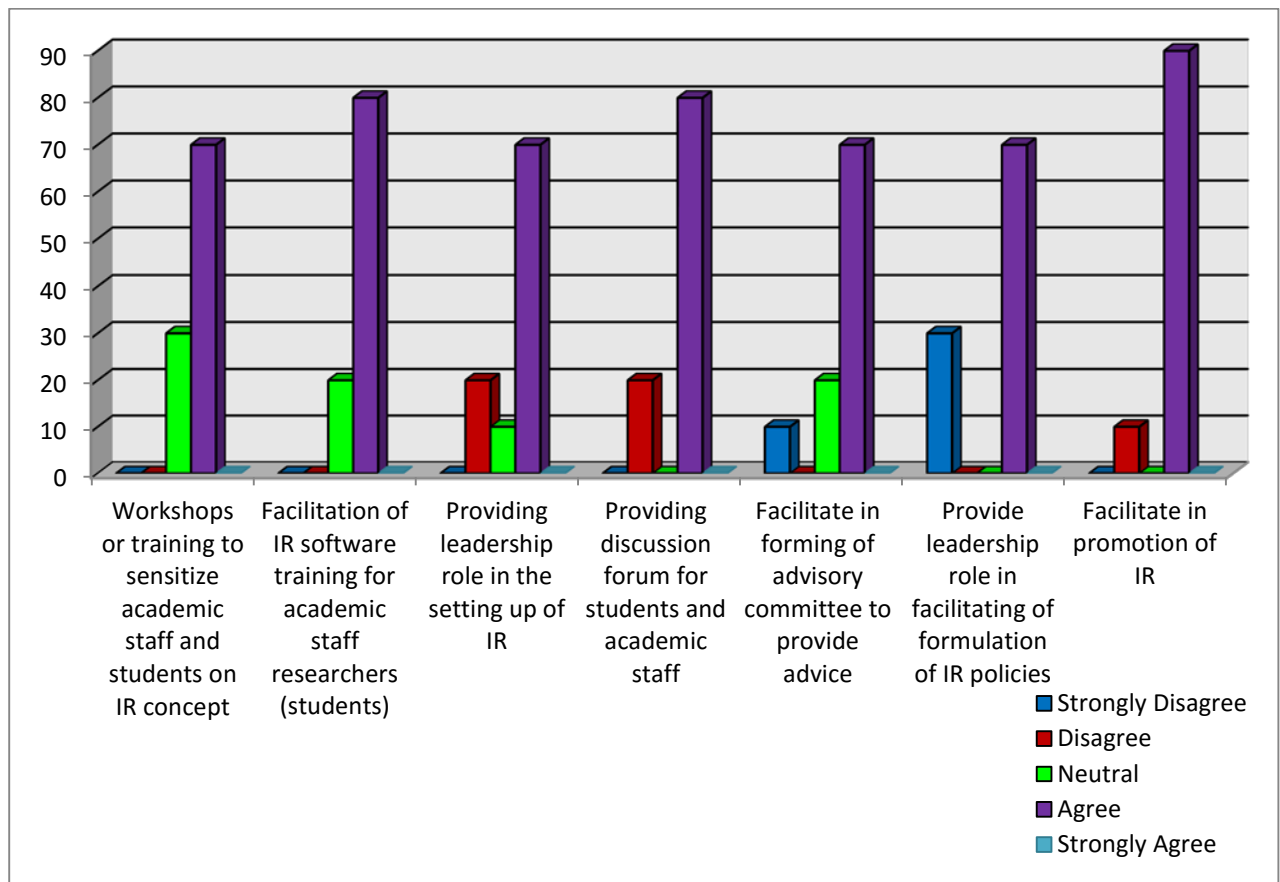


Figure: 4.9 Library support towards the development of IR

4.2.1 Workshops and training to sensitize academic staff and students on the IR Concept

The library staff were asked if they carried out workshops and training to sensitize academic staff and students on the IR concept. The findings showed that 7 (70%) of the respondents agree that they conduct workshops and training for academic staff and students; while, 3 (30%) were neutral. The findings thus confirm that the majority of library staff supported the development of IR concept through workshop and training academic staff and students, while few seemed not to be sure if they supported.

4.2.2 IR software training for academic staff and students

The researcher asked the respondents if they facilitate IR software training for academic staff and students. The majority, 8 (80%) of the respondents agreed that they conduct training for IR software for library users, while 2 (20%) were neutral. The findings indicated that the majority of the respondents agreed while few reported neutrality.

The researcher is of the opinion that those who indicated neutral were not sure if they had facilitated the IR software training or not.

4.2.3 The role of leadership in the setting up of IR

The researcher asked the library staff if they provide leadership role in the setting up of IR. The figure 4.9 shows that the majority 7 (70%) of the respondents agreed that they provide leadership role in the setting up of IR; 2 (20%) of the respondents disagreed; while 1 (10%) reported being neutral. The findings showed that at the University of Fort Hare library staff were providing leadership role in the setting up of IR.

4.2.4 Discussion forum for students and academic staff in the development of IR.

The respondents were further asked if they provide discussion forum for students and academic staff in the development of IR. The findings showed that the majority, 8 (80%) of the respondents agree; while very few 2 (20%) respondents disagree on providing discussion forum for students and academic staff. The results indicated that the library staff provides discussion forum for students and academic staff in the development of IR.

4.2.5 Formation of advisory committee to provide advice

The researcher asked whether the library staff facilitates in forming of advisory committee to provide advice. The findings revealed that, the majority 7 (70%) of the respondents shared

the same opinion that they facilitate in forming of advisory committee to provide advice; 2 (20%) strongly disagree; while 1 (10%) was neutral on this aspect. The results showed that majority of library staff facilitate in forming of advisory committee to provide advice, with only few disagreeing or not being sure.

4.2.6 The role of leadership in facilitating of formulation of IR policies

The researcher asked the respondents on how they provide leadership role in facilitating of formulation of the IR policies. The findings reveals that the majority 7 (70%) of the respondents agree; while 3 (30%) of the respondents strongly disagree that they provide leadership role in facilitating of formulation of IR policies. The findings thus, showed that majority of respondents provides leadership role in facilitating formulation of IR policies, while few strongly disagreed

4.3.1 Promotion of IR

An Institutional Repository is an online archive for collecting, preserving and disseminating digital copies of the intellectual output of an institution. IR is very important for academic staff and students. For example, students may access past question papers in order for them to be familiar with the setting up of the past question paper based on the course they study. However, if students have no idea about what an IR is, and how it assists in academics, they will not visit it. Thus promoting IR is vital to all academics. The researcher was interested in knowing whether the library staff respondents facilitate in promotion of IR. The results indicated that 9 (90%) of the respondents agree that they facilitate in promotion of IR and 1 (10%) of the respondents disagree with this notion. The results showed that the library staff facilitate in promotion of IR.

4.3.2. The extent of the library management support to the IR Development

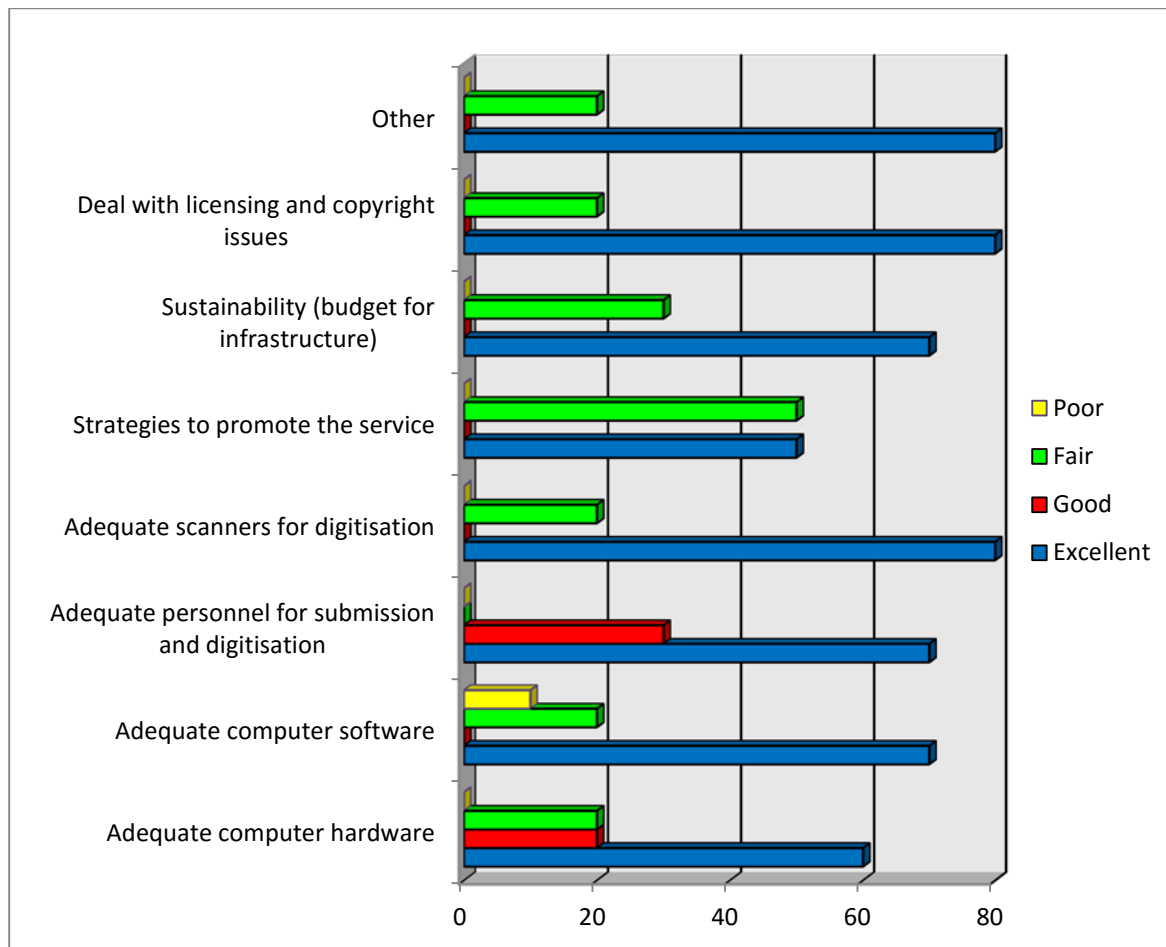


Figure: 4.10 Library supported towards infrastructure

4.3.2.1 Support of IR with adequate computer hardware

The respondents were asked if the library management has supported the IR with adequate hardware. The researcher found out that the majority 6 (60%) of the respondents indicated excellent; 2 (20%) indicated fair; while 2 (20%) indicated well. The findings indicated that the library management has supported the IR with adequate computer hardware.

4.3.2.2 Support of IR with adequate software

The researcher asked if management has supported IR with adequate software. The results showed that 7 (70%) of the respondents indicated the support was excellent; 2 (20%) indicated fair; while 1 (10%) indicated poor. Although few respondents indicated fair and poor, the results revealed that the majority indicated that the library management support IR with adequate computer software.

4.3.2.3 Support of IR with adequate personnel for submission and digitisation

The researcher asked the respondents to what extent has management supported with adequate personnel for submission and digitisation of IR. The findings showed that 7 (70%) of the respondents reported excellent, while 30% reported good. Thus, the management has supported the IR with adequate personnel for submission and digitisation.

4.3.2.4 Support of IR with equipment

The researcher also asked the respondents how did the library management support with equipment like adequate scanners for digitisation. The findings showed that the majority (80%) of the respondents reported excellent support, while 2 (20%) indicated fair.

4.3.2.5. Strategies to promote the services to users

The respondents were asked if there are strategies to promote the services to the users. The findings showed that 5 (50%) of the respondents indicated excellent, while 5 (50%) of the

respondents indicated fair. The study indicated that there were strategies to promote service to the users.

4.3.2.6 Sustainability budget for infrastructure

The researcher asked the respondents does the library have a sustainability budget for infrastructure. The results showed that 7 (70%) of the respondents believed the provision is excellent, while 3 (30%) of the respondents reported fair.

4.3.2.7 Policies or licensing and copyright issues

The respondents were asked if the library management have policies or where they deal with licensing and copyright issues. The findings showed that on licensing and copyright issues, 8 (80%) of the respondents reported that the library management are good and excellent, while few, 20% of the respondents indicated fair. The results indicated that library management had policies or dealt with matters of licensing and copyright issues.

4.3.3 Milestones at UFH in the Establishment of IR

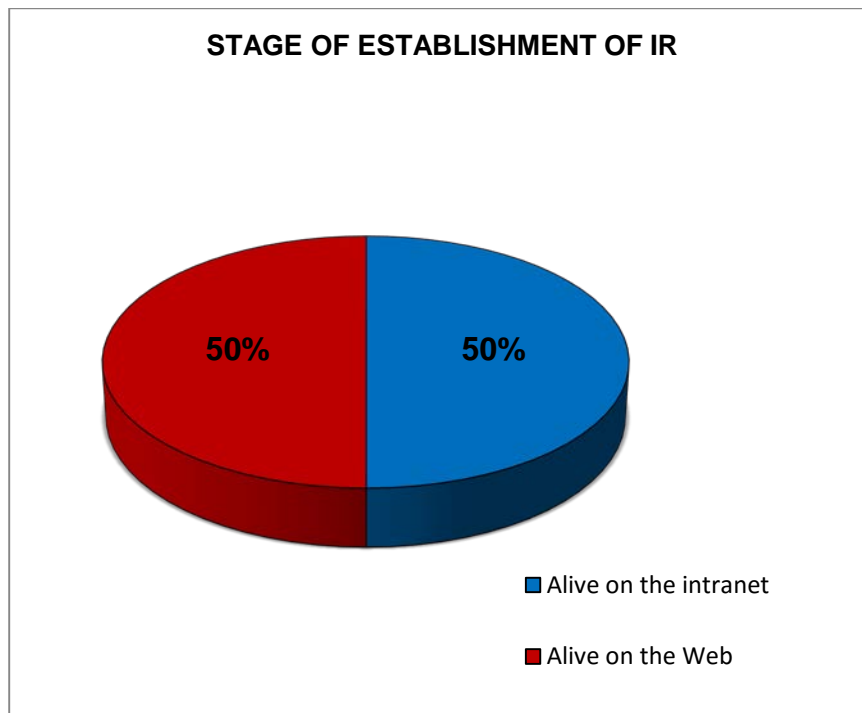


Figure: 4. 11 Stage of establishment

Figure 4.11 shows the results to the question on what stage of establishment is UFH in IR development. The findings shows that 5 (50%) of respondents reported that, Institutional Repository is operational on the internet and 5 (50%) also indicated it is operational on the web too. Therefore, the results indicate that the University of Fort Hare Institutional Repository can be accessed online.

4.3.4 The contents/ collections in the IR at UFH

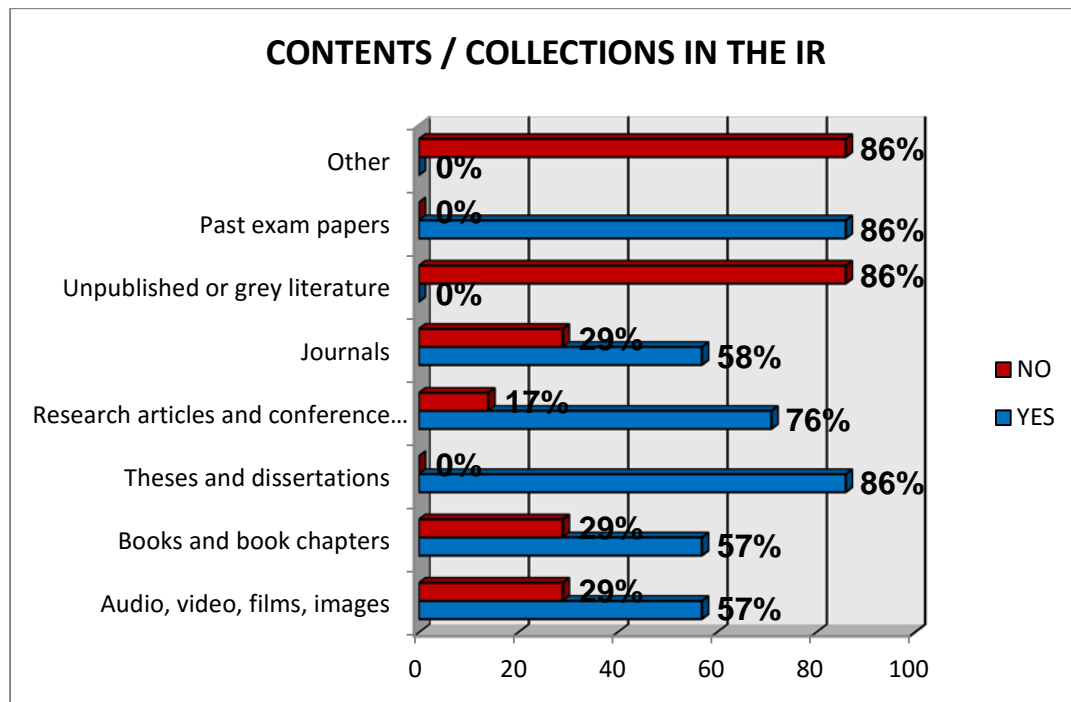


Figure: 4. 12 Content of the Institutional Repository

Institutional Repository is known for collecting, preserving and disseminating intellectual material particularly research outputs of an institution in its digital form (Walters, 2007). The researcher was interested in knowing the content or collection available on the Institutional Repository. Respondents were provided with option and they were asked to indicate their responses using YES or NO format.

The findings showed that 6 (57%) of the respondents reported yes that audio, video, films and images are contents/collections available in IR for usage, while 3 (29%) stated that they were not sure of what is on the IR. Moreover, 6 (57%) of the respondents reported that books and book chapters are available on content or collections of the Institutional Repository, while 3 (29%) disagreed. Furthermore, 9 (86%) of the library staff were certain that theses and dissertations are available in IR for usage. Additionally, 8 (76%) of the respondents asserted

that research articles and conference papers are available in IR for usage, while just 2 (17%) were not convinced. Moreover, 6 (58%) agreed that journals were available in the IR, while only 3 (29%) disagreed. The findings further revealed that, 9 (86%) of the library staff denied that unpublished or grey literature were available in IR.

The study found that 9(86%) were positive that past exam papers were available in IR for usage. Lastly, 9 (86%) of the library staff responded that there were no other resources other than those indicated above.

Summary of findings for question one

In summary, Figure4: 8 explain the role of the stakeholder in the development and use of the Institutional Repository at the University of Fort Hare. Figure 4: 9 show that majority of the library staff strongly agree on the support of the development and use of the IR at University of Fort Hare. Figure 4: 10 reveals that majority of the library staff described the support through various services provided in the development of and use of IR as excellent and good.

Figure 4: 11 shows that the stage of establishment, the IR is both on the internet and alive on the web. In Figure 4: 12, the findings reveal the contents/ collections in IR for the use. These finding reveals the support of the library management towards the development and the role of stakeholders in the development and use of the Institutional Repository at the University of Fort Hare.

4.4. Awareness on the Development and Use of IRs at UFH Institutional Repository

4.4.1 The awareness level of academic staff and students

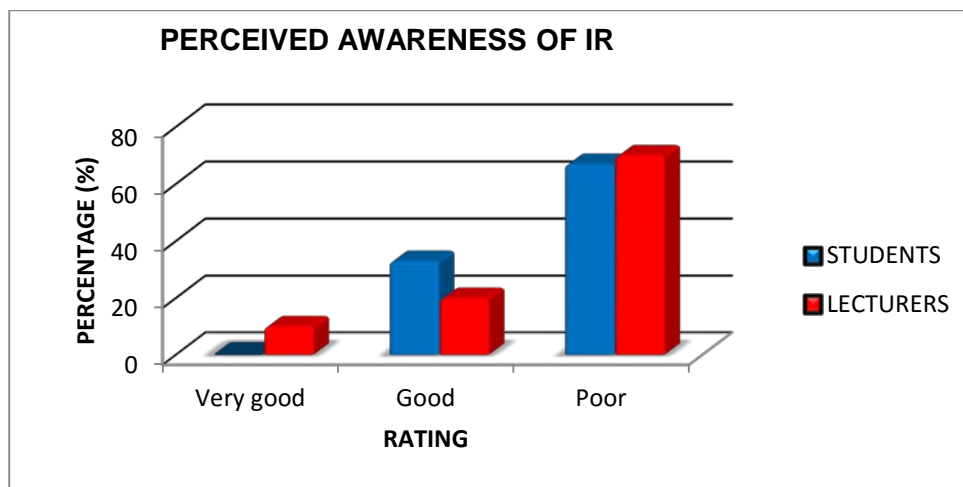


Figure: 4. 13 Rating of awareness level

The finding in the figure above shows that 13 (33%) of the respondents rated the awareness level as good, while majority of the students 27 (67%) rated the awareness as poor. The number of respondents was not aware of the IR existence.

On the lectures side, the findings shows that 3 (30%) of lecturers rated the awareness level as good, while majority 7 (70%) rated the awareness to be poor. Therefore, majority of students 67% and 70% of lecturers indicated that the awareness level at the University of Fort Hare on IR is still poor.

4.4.1 Sources of awareness

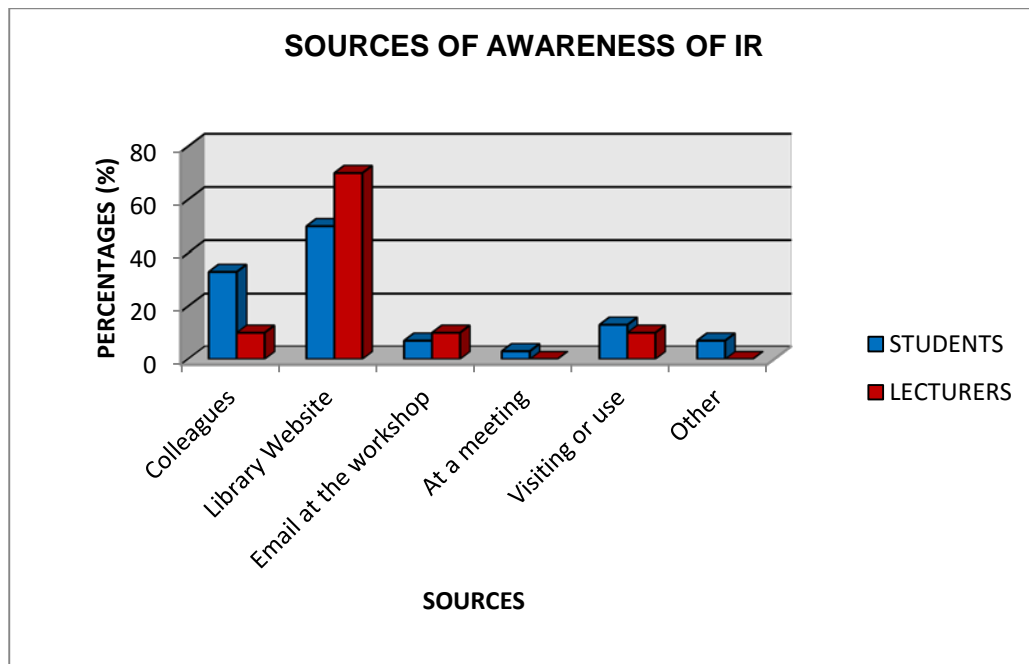


Figure: 4.14 Sources of awareness

The findings revealed that (50%) indicated that they student respondents became aware of IR through the library website; (26.7%) became aware through colleagues; (13.3%) became aware through using the library; (6.7%) and (3.3%) became aware via email, at workshop and at a meeting respectively.

The data collected from lecturers show that majority 7 (70%) reported they become aware through library website; 1 (10%) said through email at workshop; 1 (10%) said through visiting/use and another 1 (10%) also said she became aware through colleagues.

There were different mechanisms through which library users became aware about the Institutional Repository at the University of Fort Hare. From the findings showed above, majority (50%) of students became aware of IR via library website, while 70% of lecturers became aware from the same source as well.

4.4.2. Frequency of using the Institutional Repository

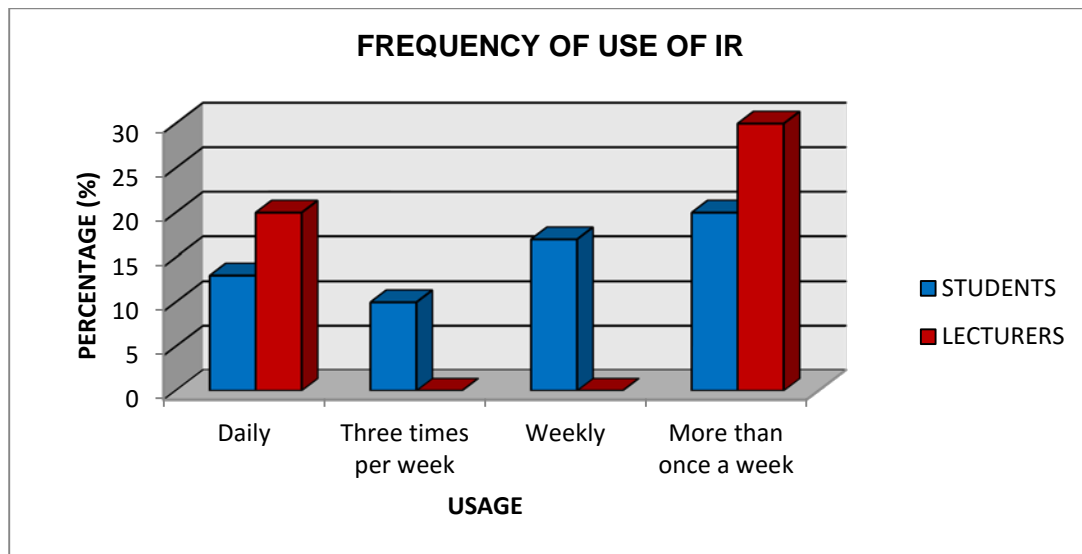


Figure: 4. 15 Frequency of using IR

The findings from respondents showed that 18 (45%) students use IR more than once a week; 12 (30%) use IR weekly; 6 (15%) use IR daily, and 4 (10%) responded that they use IR three times a week.

The findings showed that majority of the lecturers 7 (72%) indicated they use IR more than once a week while 3 (28%) reported that they use IR daily.

4.4.3. Purpose of using the IR

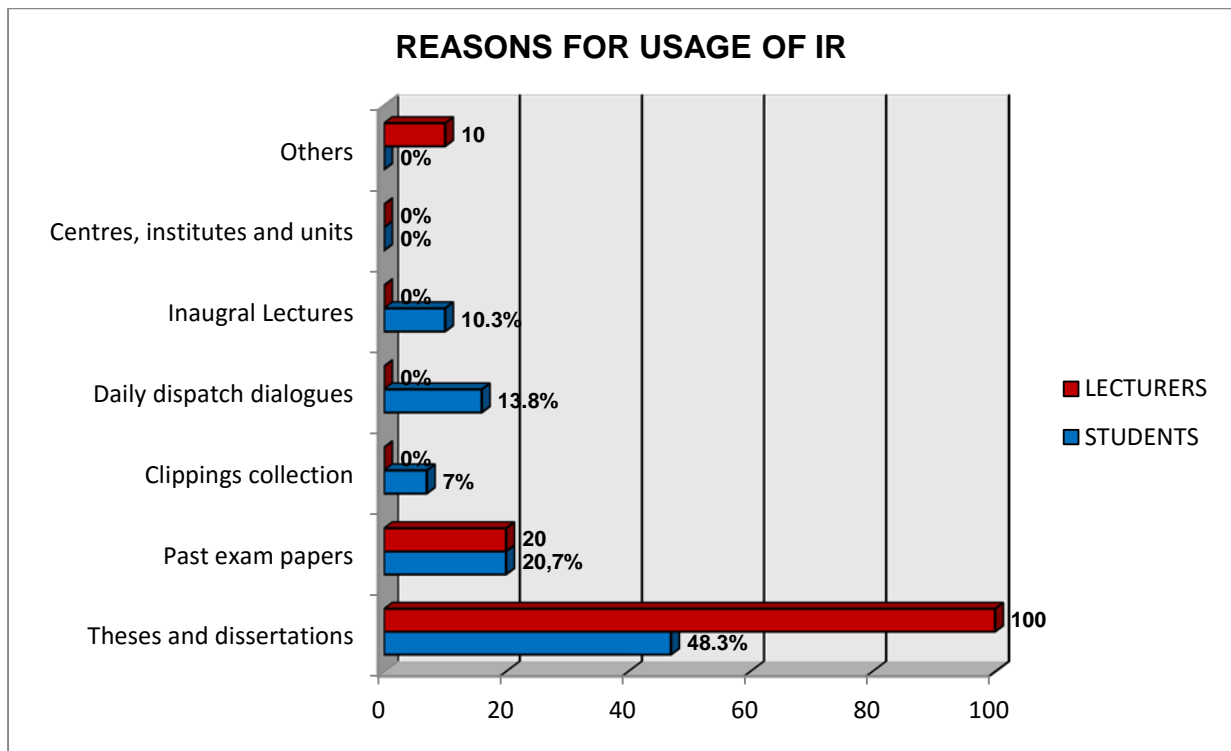


Figure: 4.16 Purpose for using the IR

The researcher asked the respondents for what purpose they use the IR.

The findings showed the majority 7 (76.9%) of the respondents indicated they use theses and dissertations; 2 (15.4%) indicated that they use it for past exam papers, and the rest 1 (7.7%) did not indicate for what purpose they use IR.

The results from the sample drawn from student revealed that 19 (48.3%) of the respondents used theses and dissertations; 8 (20.7%) used IR for past exam papers; 6 (13.8%) used the *Daily Dispatch* dialogues online; 4 (10.3%) used inaugural lectures; and 3 (6.9%) used clipping collection online. Therefore, the findings indicate that 76.9% of academic staff and 48.3% of students use the University of Fort Hare repository for theses and dissertation mostly, among other things.

Summary of findings for research question 2: To what extent are staff and students aware of about the development and use of the Institutional Repository at the University of Fort Hare?

In summary, Figure 4.13 above showed that the main source of awareness for IR development and use by students and lecturers is through the library website, while few became aware of IR through colleagues, and other sources. Figure 4.14 reveals the extent of awareness the staff and students were about the development and use of the Institutional Repository at the University of Fort Hare. From the findings it is clear that the level of awareness of IR as perceived by respondents was poor, only few believed the awareness of IR development and use is good.

Furthermore, Figure 4.15 shows that the frequency of using the IR varies from time to time. In this study, the majority of users indicated that they use the Institutional Repository weekly while few reported they use it once week, daily and three times week. Figure 4.16 reported that more lecturers and students use IR for the purpose of accessing theses and dissertations, past question exam papers, while few use IR for daily dispatch dialogues, inaugural lectures, clipping collection and others resources. According to these findings, it has been found that theses, dissertations and past question exam papers were more used than other materials at the University of Fort Hare Institutional Repository.

4. 5 Infrastructure for the Development of IR

4.5.1 The infrastructure available for IR usage

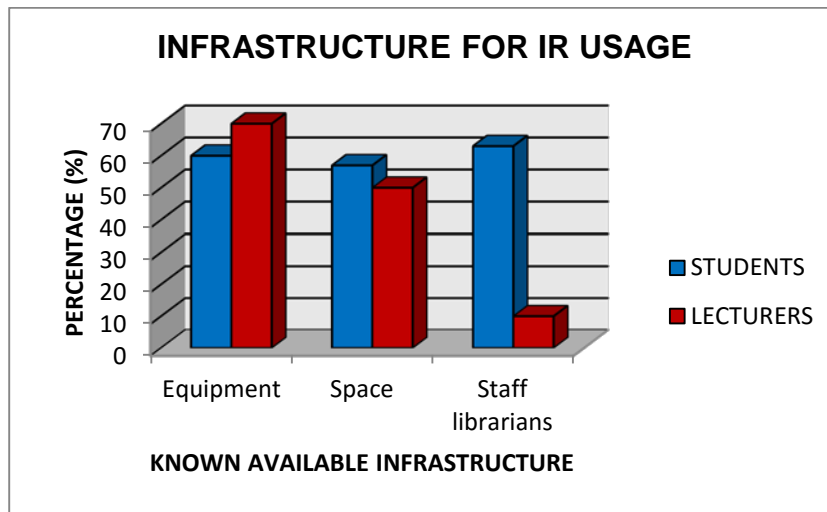


Figure: 4. 17 Infrastructure available

The research asked the respondents what infrastructure was available at the UFH for the usage of the IR. The findings revealed that 23(58%) respondents and 7 (68%) of lecturer respondents affirmed that equipment are available for IR, for example computers, software, among others. Further, 22 (55%) of the student and 5 (48%) of lecturer respondents reported that the space is available as infrastructure. Lastly, 24 (60%) of students and 1 (9%) of lecturers reported that available infrastructure at UFH are computers, space, and human resources. In other words, the result shows both set of respondents agreed that there is infrastructure available at university for accessing Institutional Repository.

4.6 Lecturers responses on Open Access

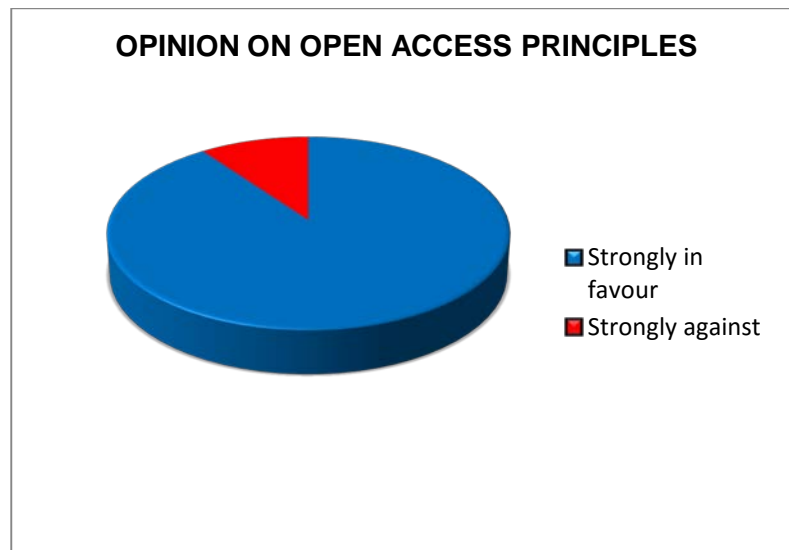


Figure: 4. 18 Response on open access

According to Figure 4.18, the majority 9 (90%) of the lecturers indicated to be strongly in favour of Open Access journals, while 1 (10%) was strongly against it.

Summary of findings on the third research question

This research question dealt with the infrastructure available for the development and use of the Institutional Repository by staff and students at the University of Fort Hare.

The results showed that, both respondents were aware of the available equipment for IR which included computers, software, internet etc, space/labs and human resource. Moreover, the lecturers indicated a strong favour for Open Access journal, while 1(10 %) was strongly against Open Access.

4.6 Barriers in the Development of IRs at UFH

4.6.1 Barriers faced in use of IR

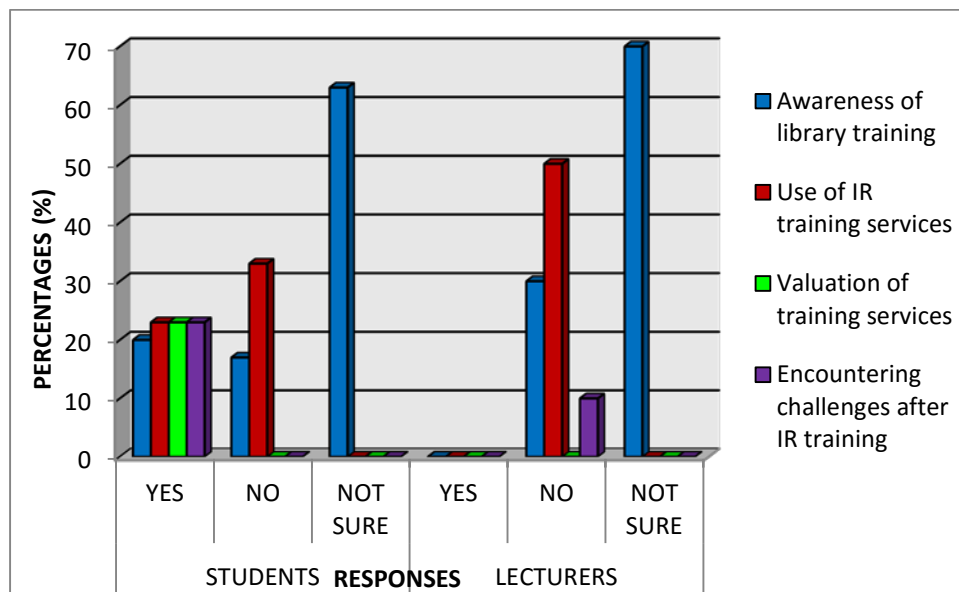


Figure: 4. 19 Barriers faced in using IR

The researcher wanted to know if the respondents faced any barriers in the use of IR. On the awareness of library training, the results show that, 25 (62%) of the respondents were not sure of library training; 8 (20%) indicated that they were not aware; while, 7 (18%) were not aware. Additionally, the majority 7(70%) of respondents drawn from the lecturers were not sure of the library staff training for users of IR; and 3 (30%) of lecturers agreed there are no awareness of library training about the development and use of IR. On use of IR training services, 13 (32%) students indicated that there were no library training services; while 9 (22%) responded in affirmation that the training services were available. Furthermore, on valuation of training services, only 9 (22%) of students answered not sure, while 9 (22%) of students responded Yes on encountering challenges after IR training. Lastly, on use of IR training services 5 (50%) of the lecturers responded on the negative on use of IR training services. On encountering challenges after IR training, 1 (10%) of the lecturers respond that

they did not encounter any challenge. Generally, the findings clearly show that there is lack of awareness at the University of Fort Hare community on IRs. Therefore, the respondents listed some of the challenges encountered in the use of IR and there are as follows:

1. Not aware of the use of UFHIR

1. Availability of other sources of information. For example, a respondent said that, “I don’t find a reason as to why I should use the IR whereas there are other sources to use”
2. There is no materials on the UHFIR, rather than a few theses and dissertations therefore, it is discourages users.
3. Resistance to change. For example a responded claimed the following: “I am comfortable using books rather than electronic resources”.

4.6.2 Effects of barriers on users

A lot of intellectual property generated at University Fort Hare, but lack of awareness among stakeholders still remains as the main barrier hindering the accessibility. Inadequate information on the IR slows the research submissions.

SECTION: 2 INTERVIEWS WITH LIBRARY STAFF

4.7 Introduction

Qualitative data obtained from the key informants was analysed and interpreted and subsequently presented in this section. The interviews were used because of their ability to complement the quantitative data. The questionnaires were used to reach a large population, while the interviews were used to gather more in-depth data on the development and use of IR by Fort Hare community. The researcher conducted a limited number of interviews with

library staff. A total of 4 key informants were interviewed. In this section the researcher did not include the demographic data because it's included and discussed in the first section.

4.8 The Establishment of IR at UFH

The results show that all the interviewees agreed that UFHIR was established the year 2008 and since then it can be accessed on the internet. However, the key informants also provided the researcher with the UFHIR content of the collections which includes the resources and type. These include examination papers (1107), Masters Dissertations (905), Doctoral Thesis (190), MPA (141), MED (63), still image (62), MSc Agric (Agricultural Economics) (59), MSc (Nursing Science) (40), Graduation (2), Lectures and public speeches (10), Publications (2), Research and community engagement (87), Vice chancellor's office (1).

4.9 UFH policies that govern the IR

The key informants were asked about the policies of IR. All respondents concurred that students are required to submit soft copies of their research output. The participants revealed further that, the submitted theses cannot be embargoed for more than 2 years. The onus rests on the student to make sure that copyright and plagiarism rules are adhered. Concerning the copyright issues, the participants were at liberty to disclose the on-going debate as to whether the intellectual property of theses should reside with author (students) or the University. It is a continuous debate at the moment and a difficult one to resolve.

4.10 The benefits of UFHIR

The interviewees acknowledge that, IR plays an integral role in supporting research trajectory and alleviates the sharing of knowledge globally. The key informants revealed that, although

the University of Fort Hare has not completely uploaded all their theses and dissertations, the following are the benefits of Institutional Repositories. The following are the benefits of IRs.

1. To enhance the access to UFHIR resources.
2. By uploading scholarly sources on IR begets more knowledge.
3. To promote and disseminate research output of the UFH community to national spheres and worldwide.
4. It enables the sharing of ideas and information.
5. IR sources can be used simultaneously without any limitations.
6. To showcase and preserve the intellectual output of the University.

4.11 Awareness level of IR at UFH?

The participants stated that the IR is promoted among academic staff during board meetings and workshops. They also indicated that they have vigorously marketed the IR through faculty board meetings.

4.12 Does the library offer training to the users of IR?

“The respondents both acknowledged that the library offer training often to the library users”

4.13 Perception on the principle of Open Access

The library staff supported Open Access movement, saying that it a good practice for the benefit of the institutions research output. They emphasised that, it is one way where scholars can communicate and share their research output amongst each other.

4.14 Library funding or budget allocated to IR

The key informants agree that there is a budget located for IR. The researcher further asked the approximate or percentage of the budget which is dedicated to improving and maintaining IR. The interviewees stated that UFHIR is allocated 20% of budget.

4.15 IR Access to users

The key informants reported that, the UFHIR is limited; their collections can only be accessed through UFH network and they further indicated that, in order to access it you need to sign in to a personal account and you must be a registered student or employee of University of Fort Hare.

4.16 Does the library keep statistics in relation to the use of IR by staff and students?

The respondents two said yes they do have statistics at UFH but the statistics is for the all library users. The other two said they are not sure if the statistics of IR users are recorded

4.17 If yes, what kind of statistics does the library keep and why should it be kept?

The two respondents said agreed that there are statistics for users' access and download statistics, to back the decision pertaining IR

4.18 Academic staff use of IR

The researcher wanted to know if the academic staff deposits materials to the IR. Two key informants reported that they are not really sure if academic staff deposits materials to the IR. The other two reported that a few departments have sent their past exam papers to be deposited to the IR. They further believed that lecturers publish most of their journals articles in others journals, because they are being paid and gain more recognition. At the same time, the library subscribes for those same journals that have been published by the lecturers and they are very expensive. Therefore the librarians suggest that top management and Govan Mbeki Research and Development Centre (GMRDC) and National Research Foundation

(NRF) should make it mandatory that all research funded by them should be deposited to the Institutional Repository at the University of Fort Hare. Another participant reported that there is only one book chapter deposited to IR from one lecturer.

4. 19Challenges impeding the development of UFHIR

The participants indicated several challenges associated with the UFHIR. These challenges are:

1. Lack of trained staff in the area of IR.
2. Lack of staff generally in the library.
3. Lack of enough budget allocated to the IR (only allocated 20% of budget).
4. Sometimes poor network connectivity hinders the process.

4.19.1. Strategies to address the barriers to IR Development

The researcher asked the key informants of their opinion on what can be done to address those barriers. The participants suggested that in order to have successful IR, the library management should attend to those barriers by recruiting and training more staff to equip them with the necessary expertise to efficiently execute the process of IR. Importantly, the university management must persuade academic staff to deposit their journal articles in the IR.

Furthermore, the participants revealed that cooperation among the library staff and faculties is required to smoothen out processes of depositing of theses and dissertation on IR. In addition, better processing of resources such as (powerful computers, scanners etc, are necessary in order to have a successful process).The institution must have a sufficient budget so that it can provide proper resources to the process. This is very important in promoting research output at the university. All stakeholders must cooperate and work together to make

the University of Fort Hare Institutional Repository collection accessible globally, to increase research visibility and its impact.

4.20 Chapter Summary

This chapter, the findings of the data analysed has been presented. The findings of the study reveal that though the institutional repository is adoptable and very significant in managing the research output of the institution, there is a need for library staff and university management to train staff managing the repository since findings shows that there is lack of enough skills to effectively manage the repository, in addition, there was lack of awareness, lack of advocacy and inadequate information on the IR, therefore there is urgent need to for the library management to formulate strategies to deal with low level of awareness. Chapter 5 will discuss and interpret the findings of the study.

CHAPTER FIVE

INTERPRETATION AND DISCUSSIONS OF THE FINDINGS

5.0 Introduction

This chapter discusses and interprets findings that were presented in the previous chapter, to contribute to the existing body of knowledge. The main objective of this chapter is to put the findings into the existing literature regarding the development and use of Institutional Repository.

5.1 Response Rate

The response rate is the number of participants from the sample who returned the survey questionnaires expressed in percentage terms (Wilson, Gray, & Hamilton, 2016). The researcher issued out 120 questionnaires of which 66.7% were returned. Whilst there is no universally accepted “good” response rate; a higher response rate minimizes bias and improves the prospects of generalising the results from the sample to the defined population. Mugenda and Mugenda (2012) states that, a response rate of 50% and above is a good for statistical reporting. These authorities give credence to this study’s response to be within the acceptable range. Table 4.1 shows the response rate according to the categories of respondents in which the response rate for the student was 60, while 10 for lecturers and library staff response rate was 10. The total number of responses was 80 divide by 120 x 100 =66.7%. Chapter 4 described the findings of the study and provided analysis of the data. The data in this chapter was collected through the use questionnaires and interviews and observations.

5.2. Biographical information

The characteristics of the respondents describe the individual traits of the respondents which in one way or another may enhance or hinder their perception or adoption of technology such as IRs. Several studies reported that individual characteristics of academic scholars such as academic rank, age, and technological skills may determine their Open Access usage (Kim, 2011; Dulle and Minishi-Majanja, 2011). It is important in the study to find out the respondents background information in order to understand how such characteristics affects the main variables to be measured or investigated. The study generated general information on respondent's gender, highest education level, work experience, faculty and age.

This was necessary to validate the responses which helped the researcher to understand from what point of view the respondents participated in the study.

5.2.1 Gender

Section A of the questionnaire captured the respondents' characteristics. The question on gender aimed to assist the researcher to make comparisons of responses between the male and female respondents. The aim of the analysis was to determine whether the variable gender was evenly distributed across the gender divide. The information assists the researcher to be able to validate the responses when comparing results across gender divides. The findings of this study shows that male respondents had the higher percentage in using the Institutional Repository compared to female as indicated in chapter four (Figure:4.1).

This indicates that males are early adopters of technology, when it comes to information seeking. This aligns with Theory of Diffusion of Innovations by Rogers (2003). This finding agrees with the study by Ford, Miller, and Moss (2001) who reported that male students use e-resources more than female students and that female students find more difficulty in finding

information online than males. The implication of this is that male students are more likely to excel in their academic pursuits more especially in the technological age, due to the fact that current and fast information is more accessible electronically. The low use of technology among female students could be attributed to their social status, time they spent and exposure in using computer related resources (Bassi and Camble, 2011).

A study by Chowdhury et al. (2011) also found that, information seeking behaviour in an academic environment had a different response rate; whereby, out of 668 respondents, 51% were females while 49 % were males. In another study on information seeking among postgraduate students by Okello-Obura and Ikoja –Odongo (2010) showed that, out of 25 participants 52% were females while 48 % were males. The findings tend to differ with the studies indicated in literature as shown above. There has been a substantial change with the current study that male respondents have been found to be using Institutional Repository in higher numbers than female counterparts.

5.2.2 Work section

Data depicted in Figure: 4.7 in chapter four indicate that there was a broad distribution of participating librarians from different library departments. Majority of the respondents 44% were working in information services section, 11% was working in the Institutional Repository and another 11% was working in the technical services section. This showed that IR is short staffed section. This has resulted in IRs being managed by administrators or staffs who are not qualified. This has also been reported by Cassella and Morando (2012) that digital repositories were managed by librarians in different library sections and not necessarily digital repository librarians. He further observed that high rate of repository administrators with other designations is a clear sign that repository management had not acquired a recognised professional status.

5.2.3 Faculty response by students

The findings in figure: 4.5 show that the responses of respondents by faculty. In this study the researcher found that 40% of the respondents were from the faculty of law, 27% from the faculty of management and commerce, 20% from faculty of science and agriculture and lastly 13% from the faculty of social science and humanities. The results on faculty participation in this study reported that respondents from the faculty of law reported have the highest percentage and followed by the faculty of management and commerce with 27%. Giesecke (2011) indicated that, the availability of participants during data collection affects the outcome results. The research collected data from the participants who were using the library at that time. It was a random data collection.

5.2.4 Qualification of lecturers respondents

In terms of the academic qualifications of the participants involved in the study, majority of the respondents were Doctoral(PhD) holders i.e., 40% and 10% had Bachelor's degree qualification and 10% other professional qualification which was not specified to researcher. In Figure 4.6, in chapter 4 results of academic staff at the rank of lecturer had attained a PhD degree and at least three year work experience in research and teaching at the university. For library staff respondents, majority of them claimed to possess other professional qualification while very few of them possessed Bachelor's degree as qualification. Therefore, the level of education of participants is not a factor that could have affected their work in the IR process. Institutional Repository is a specialised project that needs further specialised skills as Alhaji (2007) rightly puts it that; personnel are the most important library's resource. It is therefore important to assign the personnel with the right skills and attitudes to handle the various tasks associated with the digital library project in computer knowledge, scanning and all related technical processes.

5.2.5 Work experience

The researcher was interested in knowing how long they have been in their position. Figure: 4.7, majority 43% of the respondents have between 1-5years library work experience, 43% have 6-10years library experience while 14% have between 11-15years library experience. As indicate in the previous chapters, IR was introduced in the year 2008 at the University of Fort Hare. Therefore, the most experienced worker on IR may possibly have a 10 years experienced in IR. From the above results, only 14% have 11-15years experience on the Institutional Repository. On the other hand, majority 43% have 5-6 years of working experience on IR.

According to the researcher's observation, IR is not having enough experience staff. Apart from the professional and academic knowledge, it is commonly believed that experience might play important roles on the performance of individuals. In many cultures, the myth is that as people get wiser due to more exposure and experience. For example in African culture, experience is considered as a priority for leadership positions in different organizations Alhaji (2007). Katozai (2005) argued that knowledge is a chief weapon that makes a person effective as a leader and therefore a leader should be educated, experienced and qualified. A Comprehensive Study of Education for Prospective Headmasters and Headmistresses, University publisher, Doger unique book Peshawar

5.2.6 Age

The age of a person to some extent influence how he/she makes decisions, either controlled by the people they associate with or just by their experience. The purpose of this analysis was to determine the distribution of respondents' age across the groups and also to use the distribution to establish the patterns of responses in terms of age. For lecturer respondents

40% were between the ages of 30 years and below, while 20% were between the ages of 31-40 years; and 40% of the lecturers were between 41-50 years (see Figure 4.2). For students, majority of the respondents were between the age of 18-27 years (43%), 28-37 years were also 43%; while the age of 38-47 years were 10%; and 10% were between the age of 48 and above (see Figure 4.3). Statistics show that younger generations of all categories of respondents are more active when it comes to the use of electronic resources, than their old counterparts who are trying cope with new emergence of technology. The results from related studies on the impact of age and attitudes toward ICT usage are mixed. A study by Spacey, Goulding and Murray (2003) affirms that younger workers had higher average intention to use the internet and ease of use scores higher than their older counterparts. Those perceptions of one's computer skills might relate to the familiarity younger workers have with ICT because it is used extensively at the university.

Swan (2003) examines that, "Information Communications Technology (ICT) is so recent that most people over the age of 28 have not had the benefit of computer training in their own schooling". In another study by Czaja et al. (2006) that examined factors predicting the use of technology in the United States, it was noted that older and middle aged adults had lower self-efficacy with respect to use of computers and higher computer anxiety than did younger adults. In this study, the researcher bring to a close that, although some study on age and computer anxiety were carried out some time back, even today older generation still take more time to learn new things particularly technology based.

5.3 The roles of stakeholders in the development and use of IR

5.3.1 The Role of the library staff.

In this study the researcher had the following stakeholders; library staff, students and academic staff who forms part of the university community. Stakeholders refer to individuals, groups and organisations that have an interest in the sections of an organisation and the ability to influence it (Casey, 2012). Therefore, stakeholder could be decision makers, employees, suppliers and users of the IR. There are some roles performed by stakeholders such as, maintenance of Institutional Repository, collection of management and stewardship of collection (building of content). Moreover, there is need for preservation through IR, to give permission to self-archive, to understand software and train authors, to establish standard metadata, review submission for quality of content, and promotion and marketing of IR etc (Casey, 2012).

Librarians also play a critical role in overcoming academic and publisher resistance and advocating for the IRs to be searchable on various search engines. This is attributed to their positioning in scholarly communication; they link published literature to academics and also facilitate access to the works. In addition, the roles of librarians are being transformed in support of scholarly communication and dissemination of scholarly works. Roy et al., (2016) concur with Jain et al, (2014) who claim that the responsible IR librarian should ensure that a continuous review of work uploaded is done so that the database stays updated and contains acceptable quality materials.

5.3.2 The roles of users in the IR (academic staff and students)

For the sustainability of Institutional Repository, it is important that users are significantly involved. According to Yang and Li (2015), for Institutional Repository to be successful and

serve its full potential, it is important the member of the academic community be aware of its existence. The findings in this study showed that the academic staff and students deposit copies of teaching and learning materials with the library, which are eventually captured in IR. This implies that the users of IR attach great importance to the growth and development of IR at the University of Fort Hare.

5.3.3 The library management support for the development and use of IR

The majority of institutional repositories are found in university library systems. Roy et al., (2016) argues that, libraries have over the years embraced information technologies for the purpose of collection, preservation, and dissemination of intellectual outputs. The author further notes that, in order for the university libraries to promote the development and use of institutional repositories, they should collaborate with faculty staff, students, researchers, information scientists and other relevant stakeholders (Roy et al., 2014). In this study this question of management support was key and the findings revealed that, the library staff did support the development of IR.

5.3.1 Workshops and training

The results are presented in (Figure 4.9) the findings showed that 67% of the respondents agreed that they conduct workshops and training to academic staff and students; while, 33% were neutral. The findings thus confirm that the majority 67% of library staff supported the development and use of IR through workshops and training to equip academic staff and students with skills and knowledge on the use of Institutional Repository at the university of Fort Hare.

The findings are in agreement with Lynch (2003) and Crow (2002) who states that libraries and librarians play critical roles in the collection development and management of repositories. Library staff becomes handy in assisting researchers who have limited technical

skills or those who do not have the time to do self-archiving themselves. The involvement of librarians in self-archiving or mediated deposit plays an important role to facilitate content accumulation in IRs. However, overreliance on librarians can limit full implementation of self-archiving and long term sustainability of the IR projects especially when it comes to availability of pre-prints and other versions of the articles.

5.3.2 Facilitating software training for academic staff and students

The majority (82%) of the respondents agreed that they conduct training for IR software for library users; while 16% reported neutral standpoint. However, this is contrary from the results got from the users. The users responses indicated that, majority of the users were not trained for the use of IR. The minority of the academic staff and students who know or have used the IR have been helped by colleagues or friends. Jain, Bentley & Oladiran (2014) stated that library professionals are responsible for advocating for the IR, building the IR content, training of library patrons on how to access and use the library resources like Institutional Repositories as well as the recruitment and training of administrators and metadata specialist. Consequently, libraries and librarians have the responsibility of training faculties and other stakeholders in the use of the software. Abrizah (2009) contends that training would consist of assisting the University community to learn the use of Institutional Repository software in order to accomplish self-archiving.

5.3.3 Leadership role in the setting up of IR

In the development of the Institutional Repositories, leadership role should be taken very seriously. With the changing information society, knowledge sharing and the tools of sharing should be adopted but with the guidance of library professional. The researcher sought to find out if library staff provide leadership role in setting up the Institutional Repository. The results indicated in Figure4.9, showed that the majority (67%) of the respondents agreed that

they provide leadership role in the setting up of IR, 16% of them disagreed and while 14% neither disagreed nor agreed. The findings thus confirmed with highest 67% that the library staff provide leadership role to support the users toward the development and use of Institutional Repository at the university of Fort Hare. The data collected from the interview seems to differ with the one from questionnaires. The data from the key informants reported the library staff did not specifically provide leadership role to users' concerning the use of Institutional Repository. This leaves doubts on who does not clearly undertake their roles.

5.3.4 Discussion forum for students and academic staff in the development of IR

The findings found out that majority, 82% of the respondents agree, while very few 17% disagrees on providing discussion forum for students and academic staff. The findings thus showed that the library staff provides discussion forum for students and academic staff or the development of IR. Although, the participants agreed that there are forums in place for marketing. However, this that does align with the results of users' participants and the awareness still remains low. Giesecke (2011) states that the major challenge in establishing an IR is being able to effectively promote its benefits while addressing the concerns of its patrons; one of the most effective ways of demonstrating value of the IR is by quickly populating it. This could be the same challenge being face by library staff at the University of Fort Hare. There is a need to be creative in their communication activities to convince authors and researchers.

5.3.5. Facilitation in forming of advisory committee to provide advice.

The findings revealed that majority, 67% of the respondent share the same opinion that they facilitate in forming of advisory committee to provide advice, 17% indicated strongly disagree while 14% indicated neutral. The results showed that majority of library staff facilitate in forming of advisory committee to provide advice and only few disagreed while 2% was not sure. The results reported that there is advisory committee at the University of Fort Hare for facilitating users on how to access the library resources such as helping respondents in searching for information on IR, referencing and decision making in different faculties. The literature also reported that these committee help researchers or library users on how to use electronic journal and provide possible advice and overall help that will enhance the development and use of IR (Mary, 2016)

5.3.6. Library staff facilitation in promotion of IR

The results indicate that 97% of the respondents from the library staff agreed that they facilitate in promotion of IR and 2% disagreed with role. Therefore, the result shows that the library staff facilitate in promotion of IR. The findings thus show that the library staff facilitates in promotion of IR by assisting users especially students who come looking for past question exam papers which are in the IR collection. The students who seek help on how to access them are always assisted. This is in agreement with Anenene, Alegbeleye, and Oyewole (2017) who stated that it will be difficult for researchers and academics to utilise IRs, if the stakeholders are not aware of the benefits associated with the use of IRs. It is only when one is aware of something, that one can sensitize others.

5.4 The extent to which the Library management supports the IR

5.4.1 Adequate computers hardware

This question sought to assess the extent to which the university management supports the adoption of Institutional Repository at the university in terms of providing enough computers, provision of the computer software, training personnel and digitization, availing enough scanners for digitization, provision of sustainable budget, put up strategies to promote the service, and dealt with copy right issue. The findings indicated that majority, 83% of the respondents indicated that library management supported IR development with adequate computers hardware being excellently in place; while 17% of the respondents reported it was fair. In this study, the result showed that the library management have the computers in place for the users to access IR. According to Johnson et al, (2015) creating or improving a product, service or system by adopting principles of user experience design offers a clear and simple method that is based on decision-making, appearance, function, capability, information architecture, and interactive design. Creating a user-friendly environment that

follows the accepted heuristics of good interface design is essential in order to ensure the accessibility and usability of extracted data. Therefore, the availability of the computer hardware in developing and improving IR in the University of Fort Hare.

5.4.2 Adequate computer software

Before an institution can choose the type of software to use, it must assess its own needs so that it can settle for software that meets such needs. A central factor that influences decision on the platform and software to use is the availability of staffing (Nabe, 2010). It is reported in Figure: 4.9 that 83% of the respondents indicated that the library management support IR, while 17% of the respondents indicated that the library management support fair. Institutional Repositories at the University of Fort Hare access its repositories through its software implemented. This is in accordance with the University of Rhodes and Nelson Mandel Metropolitan University. The University of Fort Hare together with the above mentioned universities share the same consortium which is South East Academic libraries Systems (SEALS) in sharing information among these universities. D-space is one of the software used at UFHIR (UFH website, 2017).

5.4.3 Adequate personnel for submission and digitization

Regarding adequate personnel for submission and digitization of content, findings are as indicated in Figure 4.9 that 100% of the respondents indicated that the library management support are good and excellent. This indicates that the library management has trained personnel. From the results adequate personnel for IR are excellent for the submission and digitisation of Institutional Repository resources.

5.4.4 Adequate scanners for digitization

In terms of computer software there was a general agreement that the library management has provided the necessary software for access of the repository resources as indicated in figure: 4.10 whereby, majority, (83%) of the respondents responded that library management support is excellent while (17%) responded that the support is fair. The finding tend to disagree with the ones of the interviewee, the respondents said that the library lacks hug scanners and other equipment for digitisation. They further said there are many theses and dissertation from the pass years that have never been digitised due to lack of equipment such as a huge or more advanced scanner. From the above results, this clearly indicates that, although there is existent equipment in enhancing the development of the University Institutional Repository, there is a shortage of more advanced equipment. As cited in the University website, (UFH Website, 2017) Institutional Repository was only introduced into the University in the year 2008. Therefore, the lack of more digitised documents on the IR is understandable. The availability of computer software, hardware and more advanced equipment as scanners can enhance in developing a better IR in the years to come.

5.4.5 Strategies to promote the service

When it comes to strategies on how to promote services, 50% of the respondents believed the library management support strategies to promote the services is excellent, while (50%) of the respondents also believed it's fair. Therefore, one can believe that the library management is believed to have excellent services. On the other hand, 50% of respondents were reported to be in between or not sure of the strategies in place to promote the service. From the above results, only 50% of the respondents agreed to the strategies put in place to promote the IR service. Ramírez and Miller (2011) argue that institutions should adopt a unique blend of marketing techniques that resonate with its faculty and students. Ramírez and Miller (2011,

33) further indicated that “Marketing an IR to campus enables libraries to position themselves as a source of instruction and professional enhancement”.

There are strategies put in place to promote the IR such as marking, conducting workshops and advocacy programs that promote the accessibility of IR resources. To promote broader support and generate awareness both inside and outside the library, in developing countries libraries have adopted marketing strategies as well as; branding and both internally and externally promotion. It has been suggested that, repository developers should hold meetings within the library and alert the campus community through press releases about the IR.

5.4.6 Sustainability (Budget for the infrastructure)

On sustainability, the results showed that 67% of the respondents believed the provision for budget was excellent and good, while 33% of the respondents believed it was fair. The respondents further indicated that 20% percent is located to IR. The development and implementation of IR cannot be sustained without long-term funds (Crow, 2006). Furthermore, IR managers seem to be unable to look beyond the bottom line and are unaware of the long term obligations and this is enhanced by economic instability. In this case, IR managers should try to make sure that enough funds exist for the development and use of IR and this can be done by sourcing donations both internally and externally (Drake, 2004).

5.4.7 Licensing and copyright issues

On licensing and copyright issues, 84% of the respondents believed that the library management was doing good and excellent work, while few, 17% of the respondents believed they were fair. Copyright laws involves the aspect of intellectual property law that seeks to invest authors with the individual right and control over their original works (Baloyi, 2014). It also includes the right to exploitation of their work as well as the right to ensure that their

work is properly credited and is not changed in a way that harms the author's reputation (Jain, Bentley and Oladiran, 2014).

5.4.8 Ways of supporting the development of IR

The results show that (83%) indicated that the library management supported the IR development. The findings further revealed the extent library management supported the rapid development of IR through provision of adequate computer hardware, adequate computer software, providing adequate personnel for submission and digitisation, provides adequate scanners for digitisation, put up strategies to promote the service, deals with licensing and copyright issues on the development of IR in the University of Fort Hare and other necessary facilities for the rapid development of IR. The results above indicate that more than 50% which shows that there are other ways to support the development of IR. According to Naphtali (2016) the author suggested that, for IR to be well developed, consortium such as the SEALS should consider taking up IR implementation as a project profile institution, find knowledgeable staff, develop a team of champion at the national levels, and develop a curriculum of relevant. IR skilling, source funding or use cost sharing to train institutions about IRs, what they are, what they can do, their rational to the whole institutional visibility and how to put and run a successful IR using creative means.

5.4.9 The establishment of IR

The findings showed that the establishment so far is both on the intranet and on the web as well. Additionally, the interviewees confirmed that the University of Fort Hare Institutional Repository contains digital collections of academics and students' research output. Content refers to the particular characteristics of the materials that can be deposited in a given repository Naphtali (2016). Specifically, the study established the availability of grey literature in comparison with other types of resources available in the IRs. The picture of IRs

adoption in South Africa resonates with that of the university of Fort Hare. As depicted in Swan (2003) report that IRs are being developed, but the growth is still at the early stages.

5.4.10. Content/ collection of IR

The findings of showed that various collections were at the library which include audio, video; films and images, books and book chapters, theses and dissertations and research articles and conference papers.

According to Hamad and McGovern (2009), although there are still raging debates in the academic circles on what criteria to use to ascertain whether an IR is successful, there seem to be convergence around the content factor. In order to generate supplementary content and end-user activity, there is need to amass huge volumes of content. Furthermore, IR success is also judged by some value-added services that include complete manuscript reclamation to preservation (Hamad and McGovern 2009). The Institutional Repository content should be made up mainly of materials that are born-digital and secondarily repurposed digital materials. Westell (2006) three quarters of an Institutional Repository should be composed of "born digital" materials. He further went on to emphasise that more output measures can be facilitated if an IR has a large volume of documents. There are high probabilities of an IR to be extremely visible and to be recognised around the world, if it has large masses of content within it. Therefore, there will be more utilisation of the IR content and there will be more citations and references to it hence spreading its influence. Visibility is also another criteria used to judge whether an Institutional Repository is successful or not.

5.5.11. Policy that govern the IR

According to Jain, Bentley and Oladiran (2014), policies as are viewed as coercion and compulsion impetus in the background and this does diminish the voluntary mentality among

the scholars. In some situations, academics and scholars may view policies on IR as an effort by the institution's administrations to exert controlling influence on the academic work. It is evident that an IR will only function to its capacity when a mandate is in place to implement it. However, the researchers can react negatively to any suggestion of compulsion (Jain, Bentley and Oladiran, 2014). The key informants were asked on the policies governing IR. The respondents reported that there are policies governing the IR at UFH. The purpose of the UFHIR is to collect, disseminate and preserve the intellectual effort and research output of staff and students of the University of Fort Hare. This ensures that the University contributes to the global body of knowledge and maximises the exposure of UFH research, thereby raising the profile of the institution (University of Fort Hare policies and procedures manual script). The following policies govern the UFHIR:

5.5.11.1. Submission policy

Currently serving UFH staff, as well as masters and doctoral students, may submit items to the repository. Items will be submitted to the UFHIR Administrator in UFH Libraries. All content must be in digital form. Copyright for all items submitted to the repository must have been cleared in advance where necessary, and such clearance must be submitted with the item. The participants revealed further that the submitted theses cannot be embargoed for more than 2 years.

5.5.11.2 Deposit policy

All masters or doctoral students or current staff members of the University of Fort Hare may submit work which meets the criteria outlined in Section 2.2. The work deposited must be relevant to that individual during their time of study/employment at the University. Work

done while at another institution is not considered for deposit in the UFHIR (University of Fort hare policies and procedures manual script).

5.5.11.3 Access and withdrawal policy

In line with the Open Archive Access Initiative, access to the full text of all items will be unrestricted wherever possible, and material deposited in UFHIR will be freely and publicly accessible via the Web, except where embargoes or special conditions apply. Restricted access may also be password-controlled (University of Fort hare policies and procedures manual script).

5.5.11.4 Copyright

The Copyright Act No. 98 of 1978 (as amended) will apply to all copyrighted works to be placed in the UFHIR. Where permission is required for placing items, the onus will be on authors to obtain written permission from rights-owners, which should then accompany all such items being deposited. A standard letter of request will be available on the repository website to assist authors in obtaining permission. Where requested, the Law faculty will provide advice and assistance to authors in obtaining copyright clearance. Payment of copyright fees will be for the account of authors and not the Libraries. The Libraries will not be held responsible or liable for any copyright infringement committed by authors in this regard; the moral rights of authors should be respected at all times.

UFHIR should comply with the requirements of the Copyright Act No. 98 of 1978 (as amended), the Promotion of Access to Information Act (No. 2 of 2002) and any other relevant legislation, and should also be in compliance with the University's institutional policies (University of Fort hare policies and procedures manual script).

5.5.11.4 Metadata Policy

The metadata schema used throughout by UFHIR will be principally based on Dublin Core. Where necessary, it will facilitate the full description of a resource, other elements and element refinement as defined by the Dublin Core Metadata Initiative. Anyone may access the metadata free of charge. The metadata may be reused in any medium without prior permission for not-for-profit purposes provided the Open Archives Initiative (OAI) identifier or a link to the original metadata record is given, and the repository is mentioned and should be cited as University of Fort Hare Institutional Repository (University of Fort hare policies and procedures manual script). The metadata shall not be re-used in any medium for commercial purposes without formal permission. All respondents concurred that students were required to submit soft copies of their research output. The participants revealed further that the submitted theses cannot be embargoed for more than 2 years. The onus rests on the student to make sure that copyright and plagiarism rules are adhered. Concerning the copyright issues the participants were at liberty to disclose the on-going debate as to whether the intellectual property of theses should reside with author (students) or the University. Upon publication of their scholarly research output, the authors are also expected to deposit the finished version of the material and other additional materials. Permission granting accessibility as stated by the Bethesda Statement on Open Access Publishing should be deposited in its electronic form in any Institutional Repository that is “supported by an academic institution, scholarly society, government agency, or other well-established organisation that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving (for the biomedical sciences, Pub Med Central is such a repository” (Pappalardo and Fitzgerald, 2007:4).

5.5 Awareness level of the UFHIR

5.5.1. Awareness level of UFHIR by academic staff and students

As indicated, in Figure 4.13, the majority of students 67% and 70% of lecturers indicated that awareness level at the University of Fort Hare is still poor. On the other hand, 33% of students did know what Institutional Repository was. However, among library staff themselves at the University of Fort Hare, only few respondents stated that the awareness was good, while others did not know what was the content of IR.

It is quite clear that the library management has a role to play in promoting the IR to the University community. The present findings are in consonance with Stanton and Liew (2011) who reported that awareness of open access repository archiving is still low. The findings therefore show that the library management has not fully exploited other means of marketing and promoting Institutional Repository to the community. The literature further confirms with the current study that, although library have put some effort on awareness of the existence of the repository, many users still are not aware of the availability of the repository. This therefore calls for massive marketing of the repository through avenues such as workshops; university web email/website to create awareness to a wider audience. This resonates with the following assertion: “One of the best ways to promote the development and use of open access Institutional Repository in developing countries is through advocacy. For such advocacy to be really effective, it must be undertaken by the stakeholders in the region” (Christian, 2008:38)

5.5.2 Source of awareness

There are different mechanisms through which library users become aware about the Institutional Repository at the University of Fort Hare. The findings in Figure: 4.13 reported

that 50% of students become aware of IR via the library website, while 70% of lecturers become aware from the same source and 27% of students become aware through colleagues. These findings are similar to the work of Dutta and Paul (2014) investigation of selected science and technology faculty members of the University of Calcutta, India. They reported that most of the respondents noted that their awareness of IR was less satisfactory as they only became aware of IR through the internet.

Kim (2011) also reported their investigation of 17 Carnegie doctorate granting universities in the United States that, about 60% of the respondents indicated that they were unaware of their universities IRs. Furthermore, other researchers such as Dhanavandan and Tamizhchelvan (2013); Aghwotu and Ebieri (2016) reported that the faculty members sampled in there were aware of their institutions IRs development. Dulle, Minish-Majanja and Cloete (2010) noted that IRs were not widely used in Tanzania; while Aghwotu and Ebieri (2016) pointed out that even with the proliferation of electronic scholarly information systems, Nigeria and the whole of Africa still lagged behind.

Kim (2011) observed that progress in capitalising on IR to enhance accessibility and visibility in Africa is slow; while Zervas and Kounoudes (2011) indicated that adoption of OA has been slower than its supporters predicted. The low levels of adoption of IR in the university library brings to question the effectiveness of awareness campaigns that ought to have been conducted by the library staff who claim to have promoted it among its users. This lacklustre performance in marketing IRs among university libraries in Africa perpetuates the low and slow pace in their adoption and does not augur well for their diffusion in these libraries. It is also expected that awareness should be followed with practical measures to help in the development of specific IR institutional capacities in university libraries. The failure to make

the connection between awareness and practical support further complicates the picture for IR adoption in libraries.

5.5.3. Reasons for usage of IR

The results indicated that the majority 76.9% of academic respondents and 48.3% of students' respondents use the UFHIR to access theses and dissertations, while 7.7% use the IR for accessing past exam papers among other things. Notably, the University of Fort Hare IR is still under development. According to Hamad and McGovern (2009) the extent of usage of an IR also indicates its magnitude of success. Use can be divided into three broad categories which are: nature of utilisation, sum of users and also the content type. The magnitude of the use of an Institutional Repository is commonly measured by web metrics. It measures the extent of the usage of an IR by statistically counting the number of articles in the Repository. Degree of usage of the IR is obtained by measuring the rate of retrieval by recording the number of items downloaded (Thomas, 2007 cited in Macha, 2012). Specifically webometrics indicates the extent of usage by recording the number of hits and the number of items downloaded.

A high number of hits and downloads highlights that the Repository is being fully utilised, hence it is being successful. This also indicates that the works of authors deposited in the IR are also being cited. This also ensures that rather than institutional research outputs to lie idle, there are also being utilised. Thus, this can be used to spur the growth of the authors in their careers (Thomas, 2007). There will be more use of statistical packages from the Institutional Repository by organisations as research outcomes are being disseminated. The increased citation of the authors' work by other researchers and academics makes institutions and the management to be more supportive of the IR which is a novel type research infrastructure. Successful Institutional Repositories increase the reputation of an institution as research

outputs are effectively distributed and the increment of citations (Westell, 2006). “Effective Institutional Repositories ensure that there is coordination of deposited articles, the use and the citations which paints a positive picture of a repository. There is also need to keep data on the trends of usage which provides benchmarks of the usage and the institutional growth over time which is important especially for those funding it” (Westell, 2006:218).

5.5.4 Frequency of using the IR.

The findings from respondents showed that 45% reported that they use IR more than once a week, 30% responded they use IR weekly, 15% use IR daily and 10% responded they use IR three times per week. The findings showed that majority 72% lecturers indicated they use IR more than once a week while 28% responded that they use IR daily. From the above results, the accessing of IR daily is as few as 15%. This indicates that, the frequency of students accessing IR is very few on a daily bases. On the other hand, 28% of the lecturer respondents access IR daily. However, the findings also reveal that lecturers and students use IR more than once a month and few use it daily. Respondents had different times when it comes to IR usage. A similar percentage was also generated from the study of Abrizah (2009) Stating that, Using a mixture of closed and open questions, a survey conducted at the University of Malaysia explored the faculty’s awareness, experiences and opinions of open access publishing, and the university’s IR. Abrizah (2017:17) further indicated that, “131 academics from 14 faculties, institutes and centres at the university. Science-based faculty members were overwhelmingly in favour of permitting the deposit of research work. More than 60% of the respondents mentioned allowing the deposit of theses and dissertations”. Findings indicated that, as users, the academics wanted to find many more types of material in the repository and as authors, they were willing to deposit. Complete theses, post-prints and

conference papers were acceptable to be deposited in the IR. Respondents' support of open access principle and altruism in making scholarly work publicly accessible Abrizah (2009).

5.5.5. Reasons for not using IR

The use of IRs in accessing research works by scholars is one of the indicators of its adoption. The respondents indicated that they did not use the IRs in the institution under the study. In order to establish why, they were asked to state the reasons. Some of the reasons stated were failure of IR to fully function, lack of appropriate content, and availability of others resources. From respondents' answers, it was possible to synthesise that the university IR is either not well promoted or advocated for use, hence, constituting an institutional based challenge. Studies on development of IRs in the developing countries reported that most university libraries were still at the early stages (Swan 2003). The overall implication is that the slow pace in establishment of IRs impeded their adoption. Rogers (2003) state that, faculties were more likely to adopt innovations that was advantageous to them. Some respondents also reported that relevancy of and lack of content in their disciplines deterred them from using content deposited in IR. Further, studies have indicated that OA Institutional Repository was still troubled by unavailability of documents for OA Wrenn, Mueller and Shellhase (2010). The unavailability of content is as a result of lack of deposits of research works by academic staff and others scholars. Even though academic staff had indicated that they were aware of IR, they did not deposit their research work in IR because of unfamiliarity and lacked the skills to deposit their work on IR. This is due to lack of training academic staff that could not upload their work. This leads to slow progress in capitalising on OAP initiatives. The closest explanation for low deposition by faculty from literature was that IRs had not been widely accepted by academic staff (Wrenn, Mueller and Shellhase, 2010).

5.5.6 Principle of Open Access

The study sought to establish how the respondents' opinions on principle of Open Access. The responses from academic staff were strongly in favour of the principle of Open Access. According to Macha (2012) the use of Open Access in organisations began around the 1990s and this brought about policy procedures and some principle statements that would further guide Open Access. These policy procurements and principle statements guided research communities and researchers on how Open Access could be executed successfully. In addition, the policy statements encouraged researchers to participate in Open Access. Moreover, open access influenced universities and research institutions to craft their own policies and principles that would guide Open Access.

The literature and the current findings support the long term agenda of the Berlin Declaration(2003) that was to encourage researchers and research institutions to be supportive of the idea of making resources available online and permitting access through online resources(Macha,2012).

5.5.7 Publish in Open Access

Some answered yes while others said they will consider it in future and they gave reasons for example(1) the participants said that they would rather send their work to peer- reviewed journals that are recognised worldwide rather than publishing to the University IR. (2) According to some few lecturers believed that it does not benefit them, while others said there is no recognition to publish on IR and most scholars have not utilized them much, whereas another one lecturer said IR are not known to all scholars and therefore university libraries have not well marketed them and remain unutilized. Abrizah (2009) state that, Open access is achieved through the Institutional repositories through self-archiving copies of already published research articles in the author's institutional archive which are made

available for free. Such Publish in open access of Institutional Repository its being practice through the National Research Foundation.

Institutional Repositories are now becoming a component of the technical infrastructure in research intensive institutions and a preferred option for providing open access to research output Abrizah (2009).

5.5.7 Awareness of self-archiving at UFHIR

The results indicated that academic staffs are not aware of self-archiving and have never sent any materials to IR through self-archive. Similar results have been acknowledged by Swan and Brown (2005) with regard to deposition of research output. They noted that deposition of research outputs into institutional repositories around the world was very low but did not show reasons for it. Academic staffs were consumers but not producers of IR content. Wrenn, Mueller and Shellhase (2010) observed the discrepancy between use of IR content and depositing by academic staff in that, despite increasing interest in IRs by academic institutions, deposits of research works by their faculty members in those IRs were very low, resulting in virtually empty IRs. This study concurs with the outcomes of the studies of this researcher.

A reason for low deposits in IRs in the academic institutions was explained through Roger's diffusion of innovation theory which embraces cultural context. Rogers proposes that one of the determinants of adoption of an innovation is cultural context of an innovation (Rogers, 2003). Literature on the African cultural context of adoption of OA suggests that archiving of African digital documents by scholars is a form of south-north information flow, a development not necessarily welcome by African scholars, institutions and governments (Wrenn, Mueller and Shellhase, 2010)

These findings contradict the third respondents stakeholder in this present study; the library staff claimed they help users(academic staff and students)with workshops or provide training on how to use the IR, training on IR software and others. It also, contradicts with the findings from the interview which emphasised that they make more strategies to promote the awareness of the university IR. The contradiction in these findings may point to lapse by this research and similar studies.

5.5.8 Reasons for academic Staff not depositing their scholarly work in the IR

Academic staff did not deposit their research works in the IRs since they did not know what a repository was for this reason; they could not deposit their works in it. Majority of lecturers 85% said they were not familiar with the process involved in uploading work in an IR, while 18% of the academic staff said that they lack skills to enable them upload their works. They further said they will consider sending their academic work to IR in future. Moreover, Abrizah (2009) agrees that, majority of students and lecturers are unaware of Institutional Repository. While the few aware of the services face challenges such as, restriction of ownership copyrights and plagiarism. Other reasons that might impede self-archiving were the pre-print culture, publishers' policy, trust of readers and preservation.

Macha (2012) argued that, not accessing the Institutional Repository is due to lack of credibility in connection with uploaded documents. From these observations, one can conclude that lack of awareness still plays a major role in developing and accessing Institutional Repository. Respondents' support of open access principle and altruism in making their scholarly work publicly accessible were the most important motivators for the academics depositing their work, closely followed by the prospect of an increase in the accessibility of their work.

5.6 Infrastructure available for the development and use of IR

The findings reported that 58% of the students and 68% of the lecturers affirmed that equipment available for the development and use of IRs. Institutional Repository Stanger and McGregor (2006) reveal that the ICT infrastructure helps institutions to reduce publication costs. The authors argue further that, it is equally important that institutions of higher learning dedicate massive resources to identify formats for preservation and draw a long-term IR development plan thereby enhancing quality outputs. Drake (2004) points out those

institutions should take advantage of well-proven open source programs in an attempt to reduce costs. In addition, outsourcing the technological issues to software sellers, institutions can either join collaborative strategies over already working platform. Infrastructure remains one of the major factors that influence the use and development of IR's. Lynch (2003) emphasises the importance of building an Institutional Repository (IR) while depicting the facilities and the dissemination capabilities offered by the institution's network.

One of the main benefits of adopting IR is the encouragement and adoption of new forms of scholarly communication that exploit the digital medium in fundamental ways.

5.7 Barriers that hinder the use of IR

Traditionally, libraries are curators of information and knowledge. For that matter, this gives academic libraries the ability to influence learning, research and teaching in institutions (Bethune, 2009: et al.). Additionally, academic libraries acquire, preserve, organise, distribute and manage information resources in relation to research, teaching, and learning and community services to students Xia (2007) The author further notes that, libraries administer and provide quality information services to students, staff, researchers, and the general academic community so as to enhance higher customer satisfaction and better return on investment which in turn foster development nationally and institutionally. The term “usability is defined as a multidimensional construct that can be examined from various perspectives” (Hyun, 2008:866). Other studies share similar perspectives where Stanton and Liew (2011) defines usability as functionally correct, efficient to user, easy to learn and remember error tolerant and subjectively pleasing. This objective aimed at presenting the barriers/challenges that hinder the use of Institutional Repository at the University of Fort Hare, and find solutions to address them.

5.7.1 Lack of awareness

Levels of awareness of Open Access issues are variable. The result shows that lack of awareness level was one of the biggest barriers that hindered the development and use of IR at the university community. Most academic staff and students were not fully aware of the IR and its content. Therefore, the library staff need to promote their IR at UFH community. However, for such advocacy to be successful it must be undertaken by the stakeholders such as academic staff, students, and library staff in that region (Christian, 2008). The author further argues that poor advocacy and marketing of the Institutional Repository in relation to Open Access Institutional Repository is one of the reasons for slow uptake of institutional repositories in Africa.

Thus, this results into lack of awareness of Institutional Repository which in turn influence development and use of IRs in the universities. This finding is in consonance with some of the challenges identified by Adeyemi, Appah, Akinlade, and Bribena (2017).

Some of the issues adversely militating against the development of Institutional Repository which demands immediate attention are lack of awareness of Open Access Institutional Repository, inadequate information and communication, and inadequate advocacy for Open Access.

5.2.7 Perceptions of users towards Institutional Repository

In this study, the findings show that majority of the respondents said that they were familiar with the Institutional Repository for storing theses and dissertations. According to Abrizah (2009:19) there have been previous studies on academic staff to determine attitudes of users towards Open Access and the willingness to contribute to Institutional Repositories. Institutional Repositories are predicated on contributions by the stakeholders who include

both academic staff involved in teaching and research for the materials in Institutional Repositories (Abrizah, 2009). Abrizah further posits that, whether or not Institutional Repositories become a part of the intellectual infrastructure depends on the extent of the university community contribution. For example, “faculties cite a variety of reasons for hesitation to contribute to institutional repositories such as the learning curve for new technology, copy right issues, concerns over whether contributing to repositories is equal to publishing, fear that low quality of some materials in the repository taints their research, and worries about plagiarism” (Davis and Connolly, 2007:134).

5.7.2 Lack of training for the users on use of IR

In this study, although the results show that students and academic staff respondents intimated to have got training, still the level of unawareness was high. Therefore, although the findings showed that library staffs have conducted training to the users, yet again a big percentage shows that there is low level of use and awareness. So in this case, the library staff has to improve their ways of promoting IR at university community. Library staff has a big role of conducting training and endorse the IR to the academic staff. Majority of academic respondents had not published their works on IR. It is the role of library staff and university management to convince the academics to send their work in the university IR.

Rosenberg (2005) recommended that training of clients or library users is highly important for a library as it increases the use of library resources. While there is a general consensus that there is need to impart information literacy skills to library users, there are a variety of views on how such training should be offered.

Okello-Obura and Ikoja – Odongo (2010), suggested that universities should offer information literacy courses and make them compulsory for all students, for this will go a long way in enhancing the sharing of knowledge regarding the use of institutional repositories. In this

study the researcher has observed that the university library offer other trainings but not the use of IR and training for users.

5.7.3 Inadequate advocacy for self –archiving

In order to promote the development and use of Institutional Repository in the developing countries is advocacy is important. Unfortunately, as we have seen in the course of this discuss inadequate advocacy for self-archiving or lack of knowledge is very high among academic staff and student at the University of Fort Hare. Swan and Brown (2005) found that 39% of researchers were unaware of self-archiving as a means of providing access to their work. Giesecke (2011) notably declared that, one of the challenges for libraries managing Institutional Repositories has been convincing faculties to self-archive their work in the repository. In another study on self-archiving practices, Xia (2008:107) established the fact that “faculty authors are indeed not eager about archiving their articles into their Institutional Repository even though they are familiar with self-archiving practice”.

It is difficult to promote the benefits Institutional Repositories offer whilst allaying stakeholders’ concerns and a relentless promotional and marketing aspect is crucial to successful Institutional Repository implementation” (Jain, 2011: 132). The use of advocacy has been found to be an efficient method of effecting changes in organisation and the wider society. Developing of Institutional Repository is a new approach to research dissemination and many stakeholders know little or nothing about them. “The library as the centre for dissemination of information should be at the centre of this advocacy” (Ezema, 2011:482).

In this study, the findings further reported that majority (86%) of lecturers said they publish their works in international journals which are reputable for publishing. Further, 14% reported to have known the IR, but they do not deposit materials. The academic staff also indicated they do not have time to do self-archiving, but they consider the library staff to do

it, because they are very busy with their teaching work load and research among others. The unwillingness of researchers to take part in self-archiving have been reported in several studies (Callicott and Wesolek, 2016; Abrizah; 2009; Kim 2011). Many reasons behind the unwillingness of researchers to participate in IRs project have been reported.

Key among these reasons and which is also supported by the findings of the current study is lack of awareness and concerns about copy right issues.

A study by Johnson (2002) argues that the creators of information can perform this function better, given that their practice of posting research on online websites, departmental sites, and disciplinary repositories is documented. As a result, this leads to lack on content on the IR because it is not well advocated for at the university community. The researcher agrees with that, indeed it could be better if the work is deposited by the originator and this could enhance the speedy development of the IRs in universities. Harnad (2001) also advocates for mandatory self-archiving as a strategy to deliver content recruitment since technical or financial barriers are low; this could be achieved in a relatively short time.

Additionally, literature shows that the librarians have to promote institutional repositories to the authors, who are in a position to influence others to use new technologies. Rogers in his Diffusion of Information (DOI) theory suggests that if change agents' communication campaigns are not carried out in an effective manner, the adoption of an innovation will be slow or unsuccessful(Rogers, 2003). This study supports that of Swan and Brown (2005) who states that a strategy is needed to encourage authors and researchers to participate in self archiving and depositing their work into Institutional Repository.

On the same issue the researcher asked the library staff if they facilitated academic staff on the self-archiving of their scholarly work on Institutional Repository. Result shows that

library staff did not carry out any training concerning the self- archive to academic staff. As a result majority of academic staff have not sent their works on IR. The researcher found that most of academics are publishing their works on peer reviewed journals because they are being paid. The library said that “although we make an effort of promoting IR among academic staff but they seem more reluctant.

Therefore, they would want to work hand in with the top management and funding bodies and make it a policy to deposit all works subsidised by the University. Encouraging authors to self-archiving to the IRs assure that the institution's intellectual assets are being collocated in an environment which will assure future access and increase the opportunity for preservation (Crow, 2002; Wheatley, 2004). A number of studies have looked at what motivates scholars to publish research and to go on and self-archive in IR (Swan and Brown, 2005 and Swan and Awre 2006). The authors state their motivations for publishing such as communication with peers, enhancing career prospects, building their CVs, gaining prestige and funding for future work. Authors select journals in which to publish after consideration of the journal's reputation, impact factor, and coverage by abstracting and indexing services, and increasingly by the journals availability online. The library staff further mentioned that “these academic staff or lecturers use the University resources like (internet, electricity, university offices, funds) among others when writing those articles or publications and at the same time the University pays fees for these papers to be published in the recognised journals. It is so unfortunately the library will have to pay subscription fees to purchase them for the library collections”.

5.7.4 Inadequate information on the IR

The findings reported inadequate information was the biggest challenge at UFHIR. This is not all information is loaded on Institutional Repository. For example, theses and

dissertations are not loaded in Institutional Repository. Further, the academic staff reported that there are discouraged to publish their works on UFHIR because of it sluggish rate in developing. In the available literature, it was found out that the biggest barrier is inadequate information on the availability and advantages of Institutional Repositories by major stakeholders, for instance, lecturers, librarians, researchers and academic institutions (Mohammed, 2013).

As institutions implement IRs, faculty members are reluctant to contribute. In a survey of directors at the Association of Research Libraries (ARL), two-thirds responded that the majority of faculty members at the institutions were not contributing (Casey, 2012). In addition, Schonfeld and Houseright (2010) discovered that less than 30 percent of faculty in U.S. colleges and universities were contributing to IRs. In addition, studies of IRs in several institutions such as New Zealand's eight universities (Cullen and Chawner, 2011) also reveal some reluctance on the part of faculty contribution to IRs.

The respondents reported that this as a result of (1) under staffed library personnel and beside the Institutional Repository duties, library staffs also have other activities to perform besides IR. This has sort of delayed their work as well. Also the library staff indicated there is (2) poor network connectivity that hinders the process of up loading materials on the Institutional Repository and as result it leads to delays. (3) Lack of experienced library staff.

This is in agreement with a study by Mohammed (2013) as already cited in the study that there is adequate information in the IRs.

5.7.5 Lack of incentives

From the findings, the academic staff said they want to be motivated in order to publish on the IR. Jain (2011:131) states that” in the absence of any specific or financial incentive,

academics can feel little motivation to provide even bibliographic details of their academic work especially when they see incentives are available at other institutions”. The author also noted that, the academic argument may run that “the university’s core mission is to advance research and scholarship. It is secondary to archive content and to make research publicly accessible. Therefore, the current study is in agreement with Jain (2011) that there should be incentives to motivate the lecturers to publish on IR.

5.7.6 Inadequate or unfriendly internet challenges

The researcher has observed that most library users’ especially academicians prefer books because of the fear of using electronic resources or because they do not know how to search for information on the internet or databases. Maybe they do not want to be seen as computer illiterate. Therefore, for an individual to access or publish scholarly content on the internet and open access outlets in particular, it is important that one must have necessary skills. Similar studies by Hsu and Chiu (2004) internet as self-efficacy which refers to the individual’s ability to use internet through own skills that affects the use of IRs. This view is also supported by Hong et al (2002) who asserted that, in order to benefit from Open Access Initiatives, readers should improve the information and computer literacy skills. Similarly, it is equally important for researchers to become internet literate in order to use the electronic media resources more effectively for accessing and disseminating scholarly content.

5.8 Barriers that hinders the development of IR

5.8.1 Budgets allocated to the IR.

Library management commitment and support are considered to be the most important factors in planning, development, implementation and adoption of IR projects. In addition,

commitment and support of IR development impact on the institutions, effectiveness in transforming information technology (IT) investments into useful outputs (Rogers, 2003).

As a result, library management has to ensure that the constant flow of resources is adequate and timely. Ultimately, it is library management that creates positive attitudes among other managers and in this current study the findings show that the budget allocated to Institutional Repository was not enough to fully complete the IR development. The interviewee reported that “some of theses and dissertations that were submitted long ago in hardcopies have never been digitised, as a result of low budget to buy scanners and other equipment”.

The respondents further said “even some of the soft copies are not all up loaded on the IR because of lack of personnel and it leads to work overload in the IR section”. The library manager indicated that, the IR is allocated 20% of the budget. The low budget was attributed to the delayed of uploading content on IR.

The findings confirms those of Jain, Bentley and Oladiran (2014) in that, the financial cost required to set up an Institutional Repository is relatively low compared to the exorbitant costs that are associated with running and maintaining it, particularly the staff costs. Some of the activities that consume huge sums of money include, but not limited to, training the staff so that there have the requisite technological skills and knowledge, supporting users and also the development of guidelines and drafting the relevant policies. Crow (2006) also argue that, the development and implementation of IR cannot be sustained without long-term funds. The author further argues that IR managers seem to be unable to look beyond the triple bottom line and are unaware of the long term obligations and this is exacerbated by economic instability.

A study by Mohammed (2013) states that establishing, developing and maintaining an effectively functioning IR demands heavy funding. Most institutions in the developing countries struggle to foot these heavy financial investments. Moreover, most African countries particularly those in the Sub-Saharan region are greatly dependent on government subsidies for the development and operation of their IRs which is inadequate. In this case, IR managers should try to make sure that enough funds exist for the development and implementation of IR and this can be done by sourcing donations both internally and externally (Drake, 2004). Other technology costs include digitising content or hardware and software needed for such services, charges for backup systems, and digital storage (McKay, 2007). Operation costs include costs for marketing materials such as brochures, supplies, including costs for software upgrades, and hardware replacement costs.

With these categories of costs in mind, an institution can determine the additional costs it will incur by adding Institutional Repository to its set of services. Giesecke (2011) highlight that, libraries may also need to determine the cost to scan materials for the repository, particularly if the intention is to digitise dissertations and theses for the repository. The initial “financial cost for Institutional Repository open source software opted for by most institutions is not high, but the ongoing maintenance cost may be significant and may prohibit an Institutional Repository project getting beyond the proposal stage” (Jain, 2011:130).

5.8.2 Reluctance of faculty to participate

The researcher found out that academic staffs were a bit reluctant to publish their scholarly works on Institutional Repository, because the Institutional Repository at University of Fort Hare is not well promoted by the library management. That is why they would prefer to send their works to peer-reviewed journals because of incentives and recognition. These findings are in agreement with Xia (2008), who observed that, for a long time, repository managers

and administrators have been bothered by the reluctance of faculty to participate in the archiving of their research output into IRs and, therefore, the small size of their IR databases. There have been previous studies at academics to determine attitudes of users towards open access and the willingness to contribute to repositories (Abrizah, 2009:19). In research universities, institutional repositories are predicated on contributions by the stakeholders who include both academic staff involved in teaching and research and both postgraduate and undergraduate students as potential authors and readers of the materials in Institutional Repositories (Abrizah, 2009).

5.8.3 Lack of trained staff in the area of IR

Insufficient library staff has been identified as one of the obstacles to Institutional Repository projects. The responses from the key informants, reported that the Institutional Repository section at UFH did not have many trained personnel. The researcher observed that it was only two people who were working in IR section. Meanwhile, one was a technical librarian dealing with (ICT) and another was a general librarian. Perhaps, lack of trained library staff can lead to low process of the development on IR. Thus, the training of library personnel should be taken seriously because lack of training can lead to the down fall of Institutional Repository. Stanger and McGregor (2006) lament that it is important that these training programmes address issues related to copyright law in a digital environment and how digital libraries can address copyright issues.

On the other hand, librarians should also have the skills to actively promote the benefits of publishing in the local digital libraries. In a study by Adeyemi, Appah, Akinlade, and Bribena (2017), out of the 36 respondents in a University of Nevada, Las Vegas (UNLV), Library Digitization Survey, 18 respondents raised the lack of staff as one of the major issues for digital libraries. In this study, the researcher observed the number is too little considering this

is a labour intensive venture. Thus, the process of IR development is very slow and not all information is deposited on the IR.

5.9 Strategies to address the barriers to IR development

The researcher asked the respondents for their opinion on what can be done to address these barriers. The participants suggested that in order to have successful IR the following must be addressed: recruiting and training more staff and equip them with the necessary expertise to efficiently execute the process of IR, the university management must persuade academic staff to deposit their journal articles on the IR, the cooperation among the library staff and faculties is required for smoothening out the depositing of theses and dissertation on IR, and better processing resources such as powerful computers, scanners etc. are necessary in order to have a successful process (Ramírez & Miller, 2011).

By implementing all these above strategies will enhance in developing and avoiding any impediment on IR. These strategies can be applicable to the University of Hare's existing strategies. The institution must have a sufficient budget so that it can provide proper resources towards the development of Institutional Repository. Moreover Naphtali (2016) mention that, the core challenges in the near future will be implementing systematic techniques for populating repositories, perhaps with mediated deposit workflows, and developing value-added service layers. This still pose as an impediment to the development of the Institutional Repository in the University of Fort Hare.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

This chapter summarises the findings of each research question. It is from the findings that conclusions and recommendations of the study are drawn. The study's contributions to theory, practice and policy are also discussed and suggestions for further research are made.

The purpose of the study, as mentioned in Chapter 1, was to evaluate the development and use of the Institutional Repository by staff and students at the University of Fort Hare in the Eastern Cape, South Africa. The main objectives of the study were: to examine the role of the stakeholders in the development and use of the Institutional Repository at the University of Fort Hare; to assess the level of awareness among staff and students about the development and use of the Institutional Repository at the University of Fort Hare; to find out the infrastructure available for the development and use of the Institutional Repository at the University of Fort Hare; and to identify the barriers faced in the development and use of the Institutional Repository at the University of Fort Hare.

6.1. Summary of the findings

6.1.1 Demographic Information of the Respondents

The study generated general information on respondents' gender, qualification, faculty, ranks/levels of employment, age among others. It was necessary to validate the responses which helped the researcher to understand from which level of experience the respondents answered questions. Results indicated that majority of the respondents in the study were males. The assumed age is between 35-40 when users are more involved in research activities.

One would conclude that the higher the advancement in age as well as professional growth and development, the higher the chances of integration and use of the Institutional Repository as an information resource in institutions of higher learning. The level of education was important in getting the views and opinions of the academic staff and library staff towards the development and use of repositories in the university. This confirmed the assumption that students and staff in higher levels of education are more interested in research activities that entail the use of current information technologies.

6.2 The role of the stakeholders in the development and use of the Institutional Repository

The library staff appreciated the role of the repositories in facilitating scholarly communication. They were of the opinion that IRs would motivate scholars to publish once their works began to be accessible to a wide readership. Nevertheless, most of the library staff did not have knowledge and skills of publishing which are an added advantage to the IR maintainer and developer as they would understand the nature of scholarly publications. Most librarians agreed that the principles of Open Access are in tandem with the role of academic libraries and that open access IRs would fail without the active involvement of academic libraries. They indicated that libraries played a critical role in information dissemination, enable access to information through indexing and abstracting of materials; and disseminate, store and preserve information. Library staff was involved in content recruitment from faculties in the University, but this activity was made difficult by lack of cooperation from the academic community. The library users contribute to the development of the Institutional Repository by providing scholarly materials like theses and dissertations and past exams paper and inaugural lecture notes in the UFHIR. Institutional Repository

6.3 The level of awareness among staff and students about the development and use of the Institutional Repository

This research question sought to assess the awareness level on IR at the University of Fort Hare. The results indicated that the awareness of Institutional Repository at the University of Fort Hare is still low among the library users. Further, 33% of respondents drawn from the students did know what an Institutional Repository was. Conversely, among library staff themselves, only few stated that the awareness is good, while others did not know what was in the content of IR. It is quite clear that the library management has a role to play in promoting the IR to the University community.

This, therefore, calls for massive marketing of the repository through avenues such as workshops; university web email/website which can be used to create awareness to a wider audience. One of the best ways to promote the development and use of Open Access Institutional Repository in developing countries is through advocacy. For such advocacy to be really effective, it must be undertaken by the stakeholders in the region.

From the study it was recognized that, lack of training affects adoption of Institutional Repository, majority of the respondents strongly agreed that there was no training of IR.

6.4 The infrastructure available for the development and use of the Institutional Repository

The results indicated that there is available infrastructure at University of Fort Hare for accessing Institutional Repository. The results showed that 58% of the students and 68% of the lecturers affirmed that equipment like computers labs, computers, and software, among others were readily available. However, the still exist need for equipment to expedite the digitisation of the theses and dissertations that were submitted in hard copies before

Institutional Repository was established at UFH. Therefore, this requires more resources to enable the process to take place smoothly Institutional Repository

6.5 The barriers hindering the use of the Institutional Repository

The study established lack of awareness of IR, lack of advocacy and marketing, poor perceptions of users towards Institutional Repository, inadequate advocacy for self-archiving, inadequate information on the Institutional Repository, and lack of incentives as the barriers to the use of IR at the University of Fort Hare. Despite the effort made by the library management to create awareness of the existence of the repository, many library users still are not aware of the availability of the repository. This, therefore, calls for massive marketing of the repository avenues such as social media to create awareness to a wider audience. However, it is difficult to promote the benefits of Institutional Repositories whereas stakeholders' concerns are not met. Therefore, a relentless promotional and marketing aspect is crucial to successful Institutional Repository implementation.

6.6 Challenges/barriers that impend the development and use of IR

Library commitment and support of IR development impact on the institution's effectiveness in transforming information technology (IT) and investment into useful outputs. The findings showed that the budget allocated to Institutional Repository was not enough to fully complete the IR development. It was further indicated that due to low budget, some of the works are being delayed. The challenge of under staffing was also raised because of little budget allocated to IR. The researcher observed that only two librarians are employed in IR section. Some of the activities that consume huge sums of money include, but not limited to, training the staff so that they have the requisite technological skills and knowledge, supporting users and also the development of guidelines and drafting the relevant policies. It was further found

out that academic staffs were a bit reluctant to publish their scholarly works on the Institutional Repository. Institutional Repository

6.7 Way forward

The library staff need to plan and budget for the long term sustainability of the repository, where funds should be allocated for purchase of more computers, maintenance of the software, training and retraining of the staff in order to understand an effective adoption of Institutional Repository at the university. The study, however, revealed that there no strategies put in place to promote the repository service.

6.8 Conclusion

From the results, it can be concluded that the library staff has done little in terms of formulating policy guidelines that help users on how to appropriately access and use the repository resources. The policies and guidelines on development and use of repository resources play a vital role in providing users with rules governing rights and limitations for development and use of the repository materials. The findings also showed that the awareness level of IRs among lecturers and students is low. Although the finding suggest that there is infrastructure available for the development and use of IR, it is not adequate. More infrastructure is needed for the development and use of IR things like scanners, powerful computers etc. In order to have successful IR the following must be addressed. Recruiting and training more staff to equip them with the necessary expertise to efficiently execute the process of IR. Also the university management must persuade academic staff to deposit their journal articles on the IR. Furthermore, the participants revealed that more cooperation among the library staff and faculties is required for the smooth running of the IR in as far as depositing of theses and dissertation in IR concerned. In addition, better processing resources such as (powerful computers, scanners etc.), are necessary in order to have a successful

process). The institution must have a sufficient budget so that it can provide proper resources towards the development of Institutional Repository. Library management commitment and support are crucial for successful Institutional Repository performance to ensure preservation and maintenance, information technology infrastructure, digital management and institutional mandate, setting up the repository is the major undertaking for the institution that requires commitment of financial and staff resources to ensure success in establishment and preservation of the repository.

6.9 Recommendations

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

1. The University should look at policies affecting the IR because this is important to students and staff access work produced by staff to peer- reviewed journals.
2. Training, there is a need to enhance training programmes or IR users and contributors. This will assist in training academic staff on self-archiving. This has the benefit of improving of scholarly communication among users and outside institutions.
3. More stakeholders should be involved in the development and for example constitutes such as National Research and Foundation (NRF), Alumnus and South East Academic Libraries System (SEALS) consortium may be approached for necessary assistance for UFH Institutional Repository development.

6.10 Suggestion for Future Study

The following areas are suggested for further study.

1. To investigate researchers attitude towards Repositories of various universities in different institutions in South Africa.

2. To examine Scholars' approach towards access and deposit to Institutional Repositories in universities.

6.11 Final conclusion

Institutional Repository constitute of current practice in all academic Research institutions, it has enhanced scholarly communications as well as visibility of these institutions. However, the Institutional Repository at UFH still has some problems that affect its development. This includes among other things, lack of necessary infrastructure. Moreover, this is low awareness about the IR among both stakeholders and users. Institutional Repository is an extremely useful endeavour, and is a feasible proposition for the University's support for a new pattern for scholarly communication, apart from growing its scholarly work and low cost interoperability among various faculties and web portals. Recommendations have been made on this can be improved.

6.12 Chapter Summary

This chapter has provided summary of findings, the conclusion, and recommendations. The study revealed that the development and use of Institutional Repository is important and will resolve the various challenge academic staff and students face in using the research output of the university. However, despite its benefits the awareness at the institution is poor, hence calling for vigorous marketing and advocacy that will see the effective adoption of the repository at the university. Therefore, the study recommends library staff to market, promote and train academic staff and students, as well as focus on policy formulation that will enable effective adoption of the repository.

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Appendix A: Questionnaire



Open Ended Questions for Data Collection for Academic Staff Member

Dear Sir/ Madam,

I am a Master's student of Library and Information Science at the University of Fort Hare. I am asking your help in participating in my study. My research topic is: *Evaluation of the development and use of Institutional Repository by staff and students at the University of Fort Hare*. The study is designed to collect data on experiences and challenges encountered in the use of institutional repository, reflect on lessons learnt and make suggestions that if adopted may improve the status of institutional repository in the University. I would like to take some of your time to ask you some questions related to this study, and hereby humbly request your participation. Your responses will be treated with utmost confidentiality and will not be linked to any particular respondent or department.

THANK YOU FOR YOUR TIME

GIVE YOUR CONTACT DETAILS

MY CONTACT

DETAILS

Email:

Email: 201111485@ufh.ac.za.

Telephone:

Phone: 073 997 3297

SUPERVISOR CONTACT DETAILS

Email:

Phone: 082 200 4528

Instructions for Filling in the Questionnaire:

- i) Please tick or mark with an 'X' the applicable answer(s)
- ii) Use spaces provided to write your answers to the questions. If a question does not apply, please indicate 'N/A'.

SECTION 1: BACKGROUND INFORMATION

DEMOGRAPHICS

1. Gender: ☐ M ☐ F

2. Age group: ☐ 30 years and below ☐ 31 to 40 years

☐ 41 to 50 years ☐ above 50 years

OCCUPATION

☐ Administrative Assistant/ secretary

☐ Lecturer / professor

☐ Research Assistant/ Associate

Others please specify:

4. How long have you been in this position?

5. Level of Education (tick any that applies to you)?

☐ Matric

☐ Diploma

☐

- Degree
- ☐ Master's
- ☐ Doctorate
- Other (specify).....

SECTION 2: AWARENESS OF INSTITUTIONAL REPOSITORY AT UFH

OPEN ACCESS PUBLISHING

Open Access publishing it allows access to scholarly publications via the Internet in such a way that the material is free for all to read, and to use to various extents.

1. How do you feel about the principles of Open Access?

- ☐ Strongly in favour
- ☐ Mildly in favour
- ☐ Mildly against
- ☐ Strongly against
- ☐ Don't know

2. Are you seeking to publish in Open Access journals?

- ☐ Yes
- ☐ No
- ☐ I do not consider that as a criterion

THE CONCEPT INSTITUTIONAL REPOSITORY

An **institutional repository** is an online archive for collecting, preserving, and disseminating digital copies of the intellectual output of an **institution**, particularly a research **institution**. The development of an IR redefines the production and dissemination of scholarly material within an academic community.

3. Are you aware about the institutional repository at University of Fort Hare?

☐ Yes ☐ No ☐ Not aware

4. IF YES to question 3, how did you become aware of the institutional repository?

☐ From colleague

☐ Library website

☐ Email at the workshop

☐ At a meeting

☐ Visiting /use

Other (specify) please.....

5. How do you rate the awareness level of the institutional repository offered by your library?

☐ Very good

☐ Good

☐ Poor

6. Does the library offer training on how to do self-Archive materials on the IR UFH?

☐ Yes ☐ No ☐ not sure

7. If yes to question 6, have you ever received/ attended any training on institutional repository at UFH?

☐ Yes ☐ No

8. If yes to question 7, was the training you received relevant.

☐ Yes ☐ No ☐ not sure

9. After training do you still find it difficult to access the Institutional Repository?

☐ Yes ☐ No

10. If yes to question 9, do you have any specific areas for which you require more assistance?

☐ Yes ☐ No

11. How often do you use the Institutional Repository? (Tick that apply to you)

☐ Daily

☐ Three times per week,

☐ Weekly

☐ More than once a week

12. Content on the institutional repository (Please, tick all that applicable)

☐ Theses and dissertations

☐
Past Exam papers

☐

Clippings collection

☐

Daily Dispatch Dialogues

☐

Inaugural lectures

☐

Centres, Institutes and Units

Others (specify).....

13. Have you ever deposited any scholarly materials that you created in an institutional repository?

☐

Yes, I have

☐

No, but I may in the future

☐

No, nor do intend to do so

☐

I don't know

SECTION 2: INFRASTRUCTURES AVAILABLE FOR THE USE OF IR

17. What infrastructure is there at the UFH for the usage of the Institutional Repository?

☐

Equipment

☐

Space

☐

Staff-librarians

Other resources (specify).....

18. Does the infrastructure promote the growth and development of the Institutional Repository?

☐ Yes ☐ No

If yes, explain briefly?

If no, explain briefly?

THE ROLE OF STAKEHOLDERS

What is your role towards the development of IR?

SECTION 3: BARRIERS FACED IN THE USE OF THE INSTITUTIONAL REPOSITORY

20. Are there any barriers that you face on use/ access the IR?

21. How and to what extent do the barriers affect you?

22. How can these barriers be addressed?

22. Is there anything else you would like to add about the development and use of IR?

INSTRUCTIONS FOR FILLING IN THE QUESTIONNAIRE:

- i) Please tick or mark with an 'X' the applicable answer(s)
- ii) Use spaces provided to write your answers to the questions. If a question does not apply, please indicate 'N/A'.

SECTION 1: DEMOGRAPHICS

1. **Gender:** ☐ Male ☐ Female

2. Age group:

☐ 18 to 27 years

☐ 28 to 37 years

☐ 38 to 47 years

☐ 48 to 57 years

☐ Above 58

3. Faculty

4. Department.....

5. When did you join this University?

6. Indicate level of studies

☐ Undergraduate

☐ Postgraduate

SECTION 1: AWARENESS OF INSTITUTIONAL REPOSITORY AT UFH

7. Are you aware about the institutional repository at University of Fort Hare?

☐ Yes ☐ No ☐ Not aware

8. IF YES, how did you become aware of the institutional repository?

☐ From colleague

☐ Library website

☐ Email at the workshop

☐ At a meeting

☐ Visiting /use

Other (specify) please.....

9. How do you rate the awareness level of the institutional repository offered by your library?

☐ Very good

☐ Good

☐ Poor

10. Does the library offer training on how to use/access the institutional repository at UFH?

☐ Yes ☐ No ☐ not sure

11. If yes, have you ever received/ attended any training on institutional repository at UFH?

☐ Yes ☐ No

12. If yes to question above 11, was the training you received helpful/relevant.

☐ Yes ☐ No ☐ not sure

13. After training do you still find it difficult to access the Institutional Repository?

☐ Yes ☐ No

14. If yes do you have any specific areas for which you require more assistance?

☐ Yes ☐ No

15. How often do you use the Institutional Repository? (Tick any that apply to you)

☐

Daily

☐

Three times per week,

☐

Weekly

☐

More than once a week

12. Content on the institutional repository (Please, tick all that applicable)

☐

Theses and dissertations

☐

Past Exam papers

☐

Clippings collection

☐

Daily Dispatch Dialogues

☐

Inaugural lectures

☐

Centres, Institutes and Units

Others (specify).....

SECTION 2: INFRASTRUCTURES AVAILABLE FOR THE USE OF IR

17. What infrastructure is there at the UFH for the usage of the Institutional Repository?

☐

Equipment

☐

Space

☐

Staff-librarians

Other resources (specify).....

18. Does the infrastructure promote the growth and development of the Institutional Repository?

☐ Yes ☐ No

If yes, explain briefly?

If no, explain briefly?

SECTION 3: BARRIERS FACED IN THE USE OF THE INSTITUTIONAL REPOSITORY

20. Are there any barriers that you face on use/ access the IR?

21. How and to what extent do the barriers affect you?

22. How can these barriers be addressed?

22. Is there anything else you would like to add about the development and use of IR?

INSTRUCTIONS FOR FILLING IN THE QUESTIONNAIRE:

- i) Please tick or
- ii) mark with an 'X' the applicable answer(s)
- ii) Use spaces provided to write your answers to the questions. If a question does not apply, please indicate 'N/A'.

SECTION 1: BACKGRAND INFORMATION

DEMOGRAPHICS

1. Gender: ☐ M ☐ F ☐

2. Age group:

☐

30 years and below

☐

31 to 40 years

☐

41 to 50 years

☐

Above 50 years

3. Position in the library

4. How long have you been in this position?

☐

1 to 5

☐

6 to 10

☐

11 to 15

☐

20 And over

5. Level of Education

☐
☐

Matric

☐

Diploma

☐

Degree

OR other (specify).....

6. Indicate the section you work in the library

☐

Information Services

☐
☐

Technical Services

☐

Digitization section

☐

Library Management

☐

Institutional repository

☐

Cataloguing

Other (Specify).....

**SECTION 2: THE ROLE OF THE STAKEHOLDERS IN THE DEVELOPMENT
AND USE OF INSTITUTIONAL REPOSITORY (IR)**

7. What role do students and academic staff play the development IR?

8. What is your role as a librarian towards the development of IR?

9. When was the institutional repository established at University of Fort Hare (UFH?)

10. What is purpose or objectives of the IR at UFH?

11. What are the contents/Collections in your IR? (Please tick all that is apply)

☐

Audio/Video/films/images

☐

Books and book chapters

☐

Theses and dissertations

☐

Research articles and conference proceedings

☐

Journals

☐

Unpublished/grey literature

☐

Past exam papers

Others, (specify).....

12. Are the material accessible and what mode of accessibility?

13. In what stage are you in the establishment of IR?

☐

Customization

☐

Submission

☐

Alive on the intranet

☐

Alive on the web

14. To what extent has the library management supported the IR in terms of the following services/facilities?

	excellent	good	fair	poor

adequate computers hardware				
adequate computer software				
adequate personnel for submission and digitization				
adequate scanners for digitization				
strategies to promote the service				
sustainability (budget for the infrastructure)				
deal with licensing and copyright issues				
others, specify				

15. Have you supported the institution in the development of IR in the following ways?

no	Role	01: strongly disagree	02: disagree	03: neither agree nor disagree	04: agree	05: strongly agree
1	workshops/ training to sensitize academic staff					

	and students on IR concept					
2	facilitation of IR software training for academic staff ,researchers(students)					
3	providing leadership role in the setting up of IR					
4	providing discussion forum for students and academic staff to promote common interest in the development and sharing of skills in matters concerning IR					
5	facilitate in forming of advisory committee to provide advice on matters relating to IR and IR software					

6	provide leadership role in facilitating of formulation the IR policies					
7	facilitate in promotion of IR					

16. What are the roles of other stake holders in the development of IR at UFH?

SECTION 3: INFRASTRUCTURE AVAILABLE FOR THE DEVELOPMENT AND USE OF IR AT UFH

17. What are the procedures that are involved in implementation of an institutional repository?

18. Do you have a written policy regarding institutional repository (IR)

Yes / No

If yes, please describe.....

19. How is the IR managed at UFH?

20. What infrastructure is there at UFH for the usage of IR?

21. Does the infrastructure promote the growth and development of the IR?

Yes / No. If yes, please explain.....

If No. What are the reasons?

22. Does the infrastructure promote the usage of the IR by the UFH community?

Yes/No

If yes, in what way.....

If the No, what are the reasons.....

SECTION: 4 AWARENESS OF INSITITUTIONAL REPOSITORY AT UFH?

23. Does the library keep statistics for users of IR?

Yes or No

If yes, what kind of statistics does your library keep?

24. To what extent has the library gone to create awareness in popularizing the use of institutional repository among the users?

25. Are academic staffs involved in the use of IR? YES /NO

If yes, please explain.....

If No, what is/are the reason(s)?

26. What are the benefits of developing an institutional repository at UFH?

SECTION: 5 BARRIERS FACED IN THE DEVELOPEMNT AND USE OF THE INSTITUTIONAL REPOSITORY

27. What barriers impede the development of Institutional Repository at UFH?

28. In what ways do the barriers impede the development of the Institutional Repository?

29. How and to what extent do the barriers affect the use of IR?

30. How can these barriers be addressed?

31. Is there anything else you would like to add concerning the development and use of IR?

Thank Your Time!!

Appendix B: Interview schedule

INSTRUCTIONS FOR FILLING IN THE QUESTIONNAIRE:

- i) Please tick or
- ii) mark with an 'X' the applicable answer(s)
- ii) Use spaces provided to write your answers to the questions. If a question does not apply, please indicate 'N/A'.

SECTION 1: BACKGRAND INFORMATION

DEMOGRAPHICS

1. Gender: ☐ M ☐ F ☐

2. Age group:

☐

30 years and below

☐

31 to 40 years

☐

41 to 50 years

☐

Above 50 years

INTERVIEW QUESTIONS

- 1. Indicate the section you work in the library?
- 2. How long have you been in this position?
- 3. Level of Education

4. How do you feel about the principles of Open Access?
5. When was the institutional repository established at University of Fort Hare (UFH?)
6. What is/are the benefits of IR at UFH?
7. To what extent has the library gone to create awareness in popularizing the use of IR among Academic staff and students?
8. How often do your library offer training to its users concerning IR?
9. What are the reasons for depositing in an IR?
10. What is/are the benefits of IR?
11. Does the library have funds/ or budget allocated to IR
12. What approximate percentage (%) of your budget is dedicated to improving and maintaining IR (e.g. computers, network etc)?
13. Is IR access unlimited or limited to users?
14. What measures are in place to ensure the sustainability of IR?
15. Does your library keep statistics in relation to the use of institutional repository by staff and students?
16. If yes, what kind of statistics does your library keep?
17. To the best of your knowledge, do teaching staff incorporate the use of IR?
18. What is the number of library staff in your library?
19. Name the job title of library staff who manages IR?
20. May you please describe the most critical challenges that your library faces in its provision of institutional repository?
21. How and to what extent do the barriers affect your library?

22. How can these barriers be addressed?

22. Is there anything else you would like to add about the development and use of IR?

Thank Your Time!!

Appendix C: Ethical Clearance Certificate



University of Fort Hare
Together in Excellence

ETHICAL CLEARANCE CERTIFICATE **REC-270710-028-RA Level 01**

Certificate Reference Number: KHA031SKAG01

Project title: **Evaluation of the Development and Use of Institutional Repository by staff and student at the University of Fort Hare Eastern Cape, South Africa.**

Nature of Project: Masters

Principal Researcher: Kisemiire Christine Kagoro

Supervisor: Mr F.E Khayundi

Co-supervisor: N/A

On behalf of the University of Fort Hare's Research Ethics Committee (UREC) I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instrument(s). Should any other instruments be used, these require separate authorization. The Researcher may therefore commence with the research as from the date of this certificate, using the reference number indicated above.

Please note that the UREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the document
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research

The Principal Researcher must report to the UREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

Special conditions: Research that includes children as per the official regulations of the act must take the following into account:

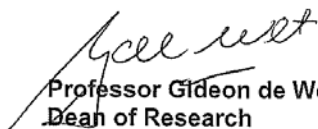
Note: The UREC is aware of the provisions of s71 of the National Health Act 61 of 2003 and that matters pertaining to obtaining the Minister's consent are under discussion and remain unresolved. Nonetheless, as was decided at a meeting between the National Health Research Ethics Committee and stakeholders on 6 June 2013, university ethics committees may continue to grant ethical clearance for research involving children without the Minister's consent, provided that the prescripts of the previous rules have been met. This certificate is granted in terms of this agreement.

The UREC retains the right to

- Withdraw or amend this Ethical Clearance Certificate if
 - Any unethical principal or practices are revealed or suspected
 - Relevant information has been withheld or misrepresented
 - Regulatory changes of whatsoever nature so require
 - The conditions contained in the Certificate have not been adhered to
- Request access to any information or data at any time during the course or after completion of the project.
- In addition to the need to comply with the highest level of ethical conduct principle investigators must report back annually as an evaluation and monitoring mechanism on the progress being made by the research. Such a report must be sent to the Dean of Research's office

The Ethics Committee wished you well in your research.

Yours sincerely


Professor Gideon de Wet
Dean of Research

20 July 2016