ASSESSMENT ON THE ACCESSIBILITY AND USAGE OF

INSTITUTIONAL REPOSITORY AMONG USERS: A CASE OF MBEYA

UNIVERSITY OF SCIENCE AND TECHNOLOGY LIBRARY

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CERTIFICATION

The undersigned certifies that has read and hereby recommends for acceptance by The Open University of Tanzania a research proposal entitled*: **"An Assessment on the Access And Use of the Institutional Repository among Users: A Case of Mbeya University of Science and Technology Library,"** in partial fulfilment of the requirements for the Degree of Master of Library and Information Management.

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DECLARATION

I, **Leah Sylvester Makiria,** declare that, the work presented in this dissertation is original. It has never been presented to any other University or Institution where other people's works has been used, references have been provided. It is in this regard that I declare this work is original mine. It is hereby presented in partial fulfillment of the requirements for the Degree of Master of Library and Information Management.

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Signature

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Date

DEDICATION

I dedicate this work to my beloved family.

ACKNOWLEDGEMENT

ABSTRACT

This study was conducted to assess the accessibility and usage of institutional repository at Mbeya University of Science and Technology Library. The study adapted cross sectional research design. The population of the study were 251 respondents who were academic staff, post graduate students, librarians and directors. The study objectives were to: determine the level of awareness among users on the availability of Institutional Repository, examine the extent of utilization of the Institutional Repository and to assess the challenges facing users in accessing and using the institutional repository. The study findings show that (86%) of respondents were aware on the availability of the institutional repository. (84%) of respondents reported to utilize IR. On the challenges faced by users, of 92 (55%) of the respondents indicated the availability of few contents deposited in the IR, 71(42.5%) Inadequate of ICT infrastructures and Lack of awareness 65 (38.9%). Based on the findings, it is recommended that, the institution should upload more contents in the Institutional Repository, improve ICTs infrastructures, awareness training to all users to be a continuous process and to recruit ICT expertise in the library.

Keywords: Institutional Repository- Mbeya University of Science and Technology, Tanzania scholarly publications - Mbeya University of Science and Technology, Tanzania

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LIST OF ABBREVIATIONS AND ACRONYMS

DOAR   Directory of Open Access Repositories

ICT   Information and communication technology

IR   Institutional Repository

MUST   Mbeya University of Science and Technology

OAI   Open Archives Initiative

OAI-PMH   Open Archives Initiative Protocol for Metadata Harvesting

TAM   Technology Acceptance Model

URT   United Republic of Tanzania

UTAUT   Unified Theory of Acceptance and Use of Technology model

CHAPTER ONE

INTRODUCTION

1.1 Chapter Overview

This chapter narrates the information of the study concerning the accessibility and usage of Institutional Repository at the Mbeya University of Science and Technology. It covers the introduction and background of the study, statement of the problem, objectives of the study research question, significance of the study, scope of the study and definition of key terms.

1.2   Background of the Study

The aim of this research was to assess the accessibility and usage of the Institutional Repository at Mbeya University of Science and Technology. The concept of accessibility and usage in library context tend to supplement one another since it is the accessibility that influence the usage. According to Duggin (2016) accessibility means the state of retrieving information without any restriction, on the other hands usage implies an act of using of information in order to fulfill certain goals. Accessibility in the virtual based environment focuses on the aptitude to retrieve and utilize electronic materials in the form of databases and websites (Mbughuni et al., 2023).

Therefore, the value of information to a large extent depends on its accessibility where it could be applied to inform and solve societal problems through research, teaching and community services and support policy and decision makers to reach an informed decision. The advancement of Information Communication Technology

(ICT) to a large extent has changed how institutions collect, store, access, and disseminate scholarly outputs, such ICTs have enabled the development, growth, adoption, and use of Institutional Repositories (IRs) (Wheeler et al., 2022). In his expose, Lynch (2003) argued that, the growth of IR has arisen as a new way for higher learning institutions to offer systematic services as well fastening changes which are becoming popular in disseminating academic and scholarly publications.

It can be argued that Institutional repositories in the university settings are vital research infrastructure and it is likely to expand research impacts and increase the visibility of   scholarly outputs emanating from the Universities and research institutions. According to Crow, (2002) and Lynch, (2003) Institutional Repository is 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 institution and its community members.

Furthermore, Crow pointed out that, IR is the electronic archive of all the university publications. Barrueco and Termens (2022) declared that, the design and creation of Institutional Repository in respect to its technologies, infrastructures and services, its material is made to be freely accessible and disseminated in order for societies and communities out of the member institution to have and gain unlimited access to it. On the light of this context, a researcher is in some ways using Institutional Repositories to discourage the traditional publications, while encouraging the use of IRs by making a free availability of a particular output that had not been available in any form before. Lynch (2003) and Crow (2002) underscored that the development and design of IRs, both in their services and technology, is that their content is meant

to be freely shared so that communities beyond the university may have access to it. In fact, the value of information depends on its accessibility where it can make practical use in the society and the world in general.

The development of IRs is motivated by the advancement of Information and Communication Technology. The massive increase of internet as well the embracing of open access movements has motivated changes on the way scholars conduct and disseminate their research outputs nationally and internationally (Tandi & Questier, 2014).

Moreover, IRs advancement in Tanzania has simplified the availability and retrieval of scholarly publications, has added value and visibility of researchers as well as the increase of Institution ranking (Msoffe, 2023). It therefore suits to say that based on the benefits brought by Institutional Repository based on making the publications outputs freely visible and accessible as well as supporting preservations of research findings originating from the own universities have demanded Tanzania Higher Learning Institutions to develop their Institutional Repositories.

Noteworthy that, the current development in academic communication have changed the way Universities handle their findings and publications that are used in research, learning as well as in teaching. The scholarly communication and its deliverance to the public has now changed to digital compared to the traditional ways used before. On the weight of such phenomena, the collection, acquisition, processing, preservation and dissemination are done digitally (Donner, 2023). Therefore, in order

to cope with this trend, universities globally are developing IRs to collect, acquire, process, store and disseminate their research findings. In fact, IRs offer a room to acquire contents and archive such contents in a single location while providing unlimited access to the institution's intellectual outputs. (Kayungi, 2021).

1.3 Statement of the Problem

It is un questionable that IRs have enhanced the global visibility and impact of research outputs. Besides that, it has accelerated the reputation, ranking, marketing and citation for the institution itself and its members (Mbughuni, et al.; 2021). Several studies have investigated the issues related to IRs in Tanzania, but none of this study was conducted focusing on accessibility and usage of IR at Mbeya University of Science and Technology Library. Therefore, this in-depth study was conducted to fill this information gap.

1.4 Research Objectives

1.4.1 General Objective

The main objective of this research was to assess the accessibility and usage of the Institutional Repository at Mbeya University of Science and Technology.

1.4.2 Specific Objectives

Based on the general objectives, the specific objectives of this study were to:

  i. Determine the level of awareness among users on the availability of Institutional Repository at Mbeya University of Science and Technology

 ii. Examine the extent of utilization of the Institutional Repository at Mbeya University of Science and Technology

iii. Assess the challenges facing users in accessing and using the institutional repository at Mbeya University of Science and Technology.

1.5 Research Questions

 i. What is the level of awareness of users on the availability of Institutional Repository at Mbeya University of Science and Technology?

 ii. What is the extent of utilization of the institutional repository at Mbeya University of Science and Technology?

iii. What are the challenges facing the accessibility and usage of the institutional repository at Mbeya University of Science and Technology?

1.6   Significance of the Study

The findings of this study bring significance in many ways as follows:

The findings of the study provide information to universities management on the centrality of IR in making their research outputs easily accessible to users, improving wider dissemination and making the input of Tanzania to the world body of knowledge. However, the outputs of this research could create as well as improve awareness on the vital part played by academic libraries, increase the visibility of the Institutional Repositories and market the findings produced from the member universities and academic libraries in general.

The purpose of any study is aimed at generating new insights in expanding the frontiers of knowledge. Thus, this study is expected to cover what is not known in

terms accessibility and usage of IR contents. Also, this research could be used by other researchers on the area of the accessibility and usage of the institutional repository

The outputs of this research act as a way for informing researchers nationally and at MUST community in particular, about the role of IRs in facilitating the open access philosophy which is the worldwide movement that requires information generated to be freely accessed without any restriction and Tanzania as part of the world community is expected to make their research outputs accessible globally. Lastly, the results of this research are expected to have practical base and policy implications in understanding the challenges and mitigate measures to help MUST policy makers devise strategies that are put in place to ensure that the goal of IR is achieved.

1.7 Scope of the Study

The topic of IR is very wide to be fully captured by a study of this nature. This study was thus be limited to the accessibility and usage of institutional repository at MUST. For that much, the knowledge which is generated by this study can be used on a wider scale just for comparative purposes. The study involved postgraduate students, who forms the user category because they are considered to as the potential users of the IR contents to support their finding undertakings, Academic staff are involved based on their roles of generating content through teaching, research and consultancy which are uploaded to IR, librarians are included because of their role in collecting, processing and making IR contents accessible to users. Besides that, they are responsible in promoting the availability of IR services through information

literary trainings, the Director of Library Services is involved as the overseer of the IR, custodians of university policies which includes the management of IR, while the Director of Information and Communication Technology (ICT) is responsible in making sure that the systems supporting IR are well managed and the basic infrastructures supporting IR are in place and the Director of Post graduate studies, Research and Publications acts as a focal point of all publications at the University level.

1.8 Limitations of the Study

The main limitation of this research was that, not all academic libraries in the country were involved. However, it is anticipated that the outputs of this study could be replicated to other institutions working under similar environment with MUST.

1.9 Definition of key Terms

1.9.1 Academic Library

Ashikuzzaman (2023) defined academic library as a specific archive of information in Universities, Colleges and School centers. Academic libraries are concerned with the exact desires of students, staff, researchers, and other community members. These libraries perform a potential part in supporting the educational mission of their institutions by offering an extensive variety of materials that facilitate teaching, consultancy, learning and research (Tzanova, 2020).

1.9.2 Access

Walsh and Rana (2020) defined access as a state in which electronic materials are

completely, freely, instantly and enduringly obtainable and can be observed and re-used with no or with slight restrictions.

1.9.3 Higher Learning Institutions

According to TCU (2005) higher Learning Institution is a university that provides a level of academic education as well as professional training that produce a full academic, professional qualifications and competence. However, Kipesha and Msigwa (2013) stated that, Higher learning institutions are knowledge-based Institutions that deals with generating, acquiring and transferring of knowledge to societies and communities in different levels.

1.9.4 Information and Communication Technologies

Rouse (2023) ICT means the totality use and apply of machines, computers and telecommunication tools and systems in facilitating creation, collection, processing, transmission and storage of information. (ICT) deals with all the technologies used in managing communications, broadcast media, audiovisual processing and transmission programs, network-based control and monitoring purposes (Wawrzak & Kowal, 2015).

1.9.5 Institutional Repository (IR)

Mbughuni et al., (2023). argue that, IR is central archive of all digital publications of a member institution. It includes with it a number of services that an institution provides to its community members in managing and disseminating electronic resources. It offers a long-term preservation and central location to digital contents while providing 24/ 7 free and unlimited access to its users (Nunda & Elia, 2019).

1.9.6 Usage

Usage implies an act of retrieving and using information in order to fulfill certain goals. (Mbughuni et al., 2023). In this study usage refers to the ability to retrieve digital contents available in the Institutional Repository and solve or meet the users' information gap.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter involved the review of other researcher's works related to this topic. In these scholarly works the researcher particularly was guided with the objectives of the study to answer the research questions as well filling the existing knowledge gap on the access and use of the institutional repository at MUST. This chapter provided the general picture of the research to be conducted. The theoretical base, the empirical study, the conceptual framework as well as the research gap.

2.2 Theoretical Framework

The theoretical framework refers to the baseline, thoughts or ideas which provide directions and support a theory used in certain research finding (Bryman & Bell, 2011). It explains the reasons to why the research problem under the specified topic occurs. A theory is a combination of concepts, ideas, thoughts that describe a certain phenomenon through stipulating relations between variables, to clarify and forecast the phenomena (Bryman & Bell, 2011). This study adopted the following theories; namely Technology Acceptance Model and the Social Exchange Theory.

2.2.1 Technology Acceptance Model (TAM)

This study based on the Technology Acceptance Model (TAM), a theoretical framework initially suggested by Davis (1986, as cited in Lee, et. al., 2003) to clarify the influences that lead to the acceptance or rejection of technology by people. The acceptance or rejection of a technology is habitually reliant on the perception of how

something useful is something and how ease of use it will be. The more the benefits towards the use of a technology, the more the acceptance among individuals. However, the ease of use of the technology, the more the acceptance of such technology. Therefore, TAM is influenced by the perception of usefulness, perception of ease of use and the attitude of the individual towards the technology. Individuals perceive usefulness as the certain use will affect their daily work performance (Davis et. al., 1989). The person can be motivated with other factors in a system including external factors.

In other words, it is to say that when Institution or organization communities see the IRs as something can provide information that suits their needs and use it with little energy, they are likely to accept and use such system. Likewise, if individuals do not see potential benefits nor ease of use in using Institutional Repositories, they will also reject the system. In this view, the individuals will employ new technology if their perception about it will improve their current state. Therefore, the model proves how the expected profits and ease of use are the major factors governing the use and acceptance of a system.

However, Ajibade, 2018 argues that the TAM model was more appropriate for individual use and acceptance of technology rather than in a corporate or institutional application that requires integration of information technology. Despite the said challenges, yet several scholars continue utilizing this theory in the field of librarianship. Example the study conducted by Salim, & Abdullah (2020) "Technology Acceptance Model in the adoption of mobile library applications: A

case Study of university libraries", exploring librarians' perception towards the use of library management software: A TAM approach (Gupta, & Agarwal, 2019) and understanding digital library use among librarians: A technology acceptance model approach (Lee & Kim, 2021). This is the clear indication that, TAM model is a very useful theory in the technology-based topics.

The (TAM) was taken to guide this research as it directly links open-access movements in academic libraries with other movements towards the access to information. The library management, librarians and library users need to accept the usefulness of technologies in the provision of library services such as institutional repositories and other services. Library staff are utilizing Internet technologies to extend their apparent realm of profession, ingoing to the domain of analogy publisher services and advocating for new directions in scholarly information access, also library users need to change their perspective and start using electronic resources from an institutional repository. This theory was used to establish the extent of utilization of IR at Mbeya University of Science and Technology.

2.2.2 Social Exchange Theory

Homans (1958) and Thibaut and Kelley (1959) introduced associated theories clarifying social behavior as a course of exchange among two or more persons in the society, whom are likely to influence one another. The founder of social exchange theory indicates that, people involve in exchange for sharing of goods (knowledge) based on the following key reasons

i. Anticipated Reciprocity,

ii. Expected gains in reputation and influence on others,

iii. Feelings of altruism and/or perceptions of self-efficacy and self-worth,

iv. Direct reward (social, professional/career, or financial)

Research in the similar topic concerning knowledge in relation with information management use social exchange theory to elucidate open information-sharing conduct in professional environments (Kim & Lee, 2023). Several studies adopted social exchange theory and some of those studies include Understanding the Adoption of Digital Libraries: A social exchange perspective (Wang & Wang, 2020), social exchange in library-patron relationships: A conceptual framework (Moen & Li, 2018).

On the other side this study therefore, used social exchange theory to show what can influence MUST Community to access, use and share their finding outputs for archiving in the Institutional Repository. Social exchange theory indicates that, persons are influenced to share their social goods (information) among each other based on an expected gain. (Zhang & Chen, 2021).

2.3 Empirical Review

2.3.1 Awareness of users on the availability of Institutional Repositories (IRs)

According to Kayungi, Ndenje-Sichalwe, and Manda (2021), awareness means the knowledge and understanding whether or not something exists. It implies that users can utilize the information available through IR only when they are aware of its existence. Chilimo (2016) argued that Creating awareness is a vital factor in

development of a successful Institutional Repository. This is due to the fact that, awareness enables users to become conversant with the numerous profits brought by IRs. Ogbomo and Muokebe (2015) citing the situation in Nigeria revealed that lecturers and scholars could utilize Institutional Repositories only if they know it exists. Dlamini and Snyman (2017) conducted a study on African academic institutions, they found out that lack of awareness is the main challenges facing the adoption and utilization of Institutional Repositories.

Kayungi et al (2021) did research on Academic Staff Awareness of IRs in Tanzanian Universities. the results showed that (84.1%) of the respondents were aware on the availability of IRs whereas (15.9%) were not aware. Additionally, Jayakananth and Jeyaraj (2023) on their study of Awareness and Attitude towards the use of IRs among academicians in the Eastern University, Sri Lanka. The results indicated that academicians are well aware concerning the issues of IR, although they have uncertainties whether or not to use Institutional Repositories to teach in their academic work.

Akingbade (2022), Lecturers' Awareness, Perception and Utilization of IRs in Two Universities in Nigeria, the results indicated that there is moderate level of awareness among for the average of (65%). Saulus and Mutula (2019), investigated the level of awareness and altitude among faculty member as well as postgraduate students at the University of Swaziland (UNISWA) about the Institutional Repository. The findings indicated that the majority of UNISWA's faculty were aware of IR, while a number of the postgraduate students were not aware about it. The findings further showed

despite the fact that majority of the faculty members were aware about the IR, yet very few deposited their research publications. The reasons behind were few or no publications to deposit, lack of awareness and heavy workloads among faculty members.

A study by Okoroma (2018) on the perception and behavior of faculty members about IRs in academic libraries in Nigeria revealed that many faculty members in Nigeria are either not familiar with the concept of IRs or are not well informed about the aims and objectives of IR. On top of that, Msagamas and Samzugi (2022) did research about IR adoption in selected academic libraries in Tanzania, they found out that (94.44%) of the respondents were aware of the concept of "Institutional Repository while only 5%, of the respondents were not aware of IR. Nevertheless, as reported by Muneja (2010) on the creation of an institutional repository at the University of Dar es Salaam, he found out that, in spite of the efforts done on IR sensitization and advocacy, still number of academics staff for about (65%) were not aware of the concept of Institutional Repository.

Mgonzo and Yonah (2014) pointed out that, Students have low levels of awareness and only a few uses institutional repository for any purpose. Nunda and Elia (2019) and Dutta and Paul (2014) on their study of Institutional repositories adoption and use in selected Tanzanian higher learning institutions they discovered that; the majority of faculty members were not aware of the term Institutional Repository. In additional, (Fasae and Adekoya (2021) and Sang and Odini (2021) reported that majority of academicians were not aware of the concept of Open Access Institutional

Repositories. The literature review has provided a mixed feelings on the level of awareness of users on the availability of IR. However, in the context of MUST whether users are aware of the existence of IR is not known thus, remains a subject of investigation.

2.3.2 Utilization of Institutional Repositories (IRs)

The concept utilization refers to the action of using something. On the view of this study utilization simply means the use of information resources or contents available in the institutional repository (Msoffe, 2023). The goal of developing the IRs is to save the needs of a particular patron. moreover, many factors influence patrons to utilize Institutional Repositories. Several researchers have pointed influential factors for the utilizing IRs based on empirical and theoretical point of view. Rifai and Hasan (2016) did the research their study used the Unified Theory of Acceptance and Use of Technology (UTAUT) model. In their finding they concluded that, user expectation results in using Institutional Repositories are one among the influential factors for utilizing IRs. Based on the UTAUT model, user is motivated to utilize the Institutional Repository only when she or he is able to access the available resources in the IR (Puspitasari, et.al, 2019).

Borgman (2000) on his study, pointed out that, the new trend in electronic communication has in number of ways impacted to the information related behavior of researchers. On the weight of this view, academicians, students, and researchers are depending on digital resources in taking their research and academic work. However, scholars globally are arguing on the significance of creating awareness,

adoption, utilization, use, challenges etc. regarding IRs. The development of Institutional Repositories has brought positive impacts in simplifying utilization, management, access and dissemination of research findings (Omeluzor, 2014).

Academic libraries have gradually developed IRs in supporting the use of its findings in their Institutions (Saini, 2018). Thus, the goal of developing IRs is to speed up the use of scholarly contents and the utilization of scholarly materials created by scholars in a particular Institution (Russell & Day, 2010). Mnzava and Chirwa (2018) on their study assessing the usage of Institutional Repository at Sokoine University of Agriculture, the findings show that the availability of reviewed local scholarly information from known reputable scholars is a factor that influence patrons to utilize Institutional Repository. Mbuguni, (2019) revealed that the majority of users used Institutional Repositories very rarely due to the fact that IRs had few or lacks enough materials.

However, Safdar (2021) and Shuhaiber (2016) argued that, the free access of information is the one among the most factors influencing students to utilize digital contents in the Institutional Repositories. The study about Institutional Repositories adoption and use in Universities in Tanzania revealed that good and enriched contents that meet the needs of users also influence users to utilize Institutional Repository resources (Nunda & Elia 2019). The factors indicated includes availability of enough materials in the Institutional Repositories, full-text documents, free access to IR materials as well as appropriate training. Mbuguni (2022) on the study of Usage patterns of Open Access Institutional Repositories in Tanzania, found

out that, the Open Access Institutional Repositories are being used very often, sometimes while others indicating that they have never used IRs. The researcher also identified that, journal articles, research reports and technical reports were most used in the IRs.

On top of that, Dutta and Paul (2014) on their study of Institutional repositories adoption and use in selected Tanzanian higher learning institutions they found out that the majority were using Institutional Repositories for more than 78.2%, whereas 21.8% were never used the Repositories to access the scholarly publications. They further indicated that there is low usage of Institutional Repositories subjected to qualitative responses. Another study by Mosha and Ngulube (2023) revealed that more than half of their respondents (55%) were not aware of the Institutional Repositories and therefore they were not using it. Saini, (2018) and Fasae, et all (2017) reported the low extent of utilization of Institutional Repositories in different countries.

Nunda and Elia (2019) were interested to know the frequency of use of IRs among postgraduate students. They found out that a large number of (27.3%) were using IR once a week, (25.5%) were using IR once a week, (20%) were using IR every day, while (10.9%) were using IR rarely. The reviewed literature on the utilization of Institutional Repositories indicate institution members use the IRs frequently, occasionally, rarely while very few never use the IRs depending with number of factors including the lack of contents in the repositories. On the weight of this view, a researcher wanted to investigate how is the situation at Mbeya University of Science and Technology in the context of utilization.

2.3.3 Challenges Facing Users in Accessing and using the Institutional Repository at Mbeya University of Science and Technology

Notwithstanding with the number of positive impacts brought by Institutional Repositories, yet there are lots of challenges hindering the accessibility, utilization and use of it. Gedion and Samzugi (2024) conducted a study about the Role of Institutional Repositories in Facilitating Scholarly Communication at the Open University of Tanzania and University of Dar es Salaam. One of their specific objectives was to investigate the challenges facing the use of IRs in the said Universities, the findings showed poor internet connectivity (83.6%), unreliable power supply (73.1%), inadequate number of publications (61.2%), lack of wider access to the IR content (50.7%) and unnecessary restrictions to IR contents (43.3%) were the major challenges at OUT nad UDSM's IRs.

Samzugi, (2017) did research about IR adoption in selected academic libraries in Tanzania, they investigated the Challenges facing academic staff on accessing IRs in Academic Libraries, they found out that**,** the majority (58%) faced challenges, while 108 (42%) said No. However (43%) of the respondents identified "Institutional Repository is often offline" and "difficult in navigating" while others reporting lack of enough contents uploaded in IR, lack of fund and internet connectivity to be their big challenges.

Ukwoma and Ngulube (2019) conducted a study to obtain the hindrances to the use of Institutional Repositories in academic libraries in higher learning institutions in Nigeria. The results showed that the main challenges inhibiting the use of IR were

lack of awareness, insufficient infrastructure and lack of frequent training programmes.

Mbuguni (2022) on the study of Usage patterns of Open Access Institutional Repositories in Tanzania, found out that, lack of scholarly publications uploaded in the Institutional Repository was their main challenge. Muneja & Sichalwe (2016) assessed Institutional Repository Initiatives in Tanzania: Opportunities and Challenges he found out that, absence of IR was a biggest challenge facing academic libraries in the use IRs.

Joo, Hofman and Kim (2018) investigated challenges in academic Institutional Repository, the findings reported insufficient budget, few staff and poor management support were the challenges inhibiting the full utilisation of Institutional Repository in academic libraries.

Abrizah et al. (2015), did research on the motivating and impending factors in Institutional Repository. The responses showed that, lack of guiding policy was a challenge hindering the uploading of contents in the IR. Vardakosta and Kapidakis (2017) argue that accessibility to Institutional Repository contents by postgraduate students is affected by housed collections and poor technical support.

Jabbar, Saqib and Muhammad (2020) studied awareness and use of open access materials among the library users of Cochin University of Science and Technology (CUSAT), the results indicated that library users face challenges of repositories'

interface resolutions, lack of enough instructional programmes, lack of training and poor searching skills.

Swanepoel and Scott (2018) carried out a study about Canadian and South African scholars' use of IRs, ResearchGate and Academia.edu. They found out that, few scholars and postgraduate students fail to access Institutional Repository resources because they had tiny knowledge, inadequate time and copyright infringement issues. Furthermore, Samir (2017) researched about open repository in Algeria, Morocco and Tunisia, the findings of the study revealed that, lack of awareness was the biggest challenge hindering the use of IRs. Yonah (2014) reported that the main challenge was poor advocacy of information professionals in creating awareness to patrons concerning Open Access institutional Repositories.

Mbuguni (2022) indicated that, Open access institutional repositories have (little) or insufficient scholarly publications uploaded and also most of them do not meet users' needs. Also, Muneja and Sichalwe (2016) reported that academic staff in UDSM stated that numerous resources were not available in IRs.

Priti (2012) Kathewera's (2016), Adedapo's (2020) study identified poor network infrastructure and lack of awareness, management suport, copyright management issues, working culture and policy issues, benefits not being marketed and appreciated were the challenges facing academic institutions in developing Institutional Repositories. Other challenges that hinder the usage of OAIRs as pointed out by Ratanya (2017, Nwachi and Mole (2020); Nwokedi and Nwokedi

(2018) that, poor internet connectivity, unreliable power supply, and lack of contents of interest deposited in the IR were the challenges hindering usage of OAIRs.

Nunda (2018), Nunda, and Elia (2019, Muneja, (2022), Mbughuni, (2022) also conducted a study and reported that, lack of policy was the major challenge that hinder the effective adoption and use of IRs in Tanzania's institutions of higher learning.

In spite of the challenges faced by various local academic libraries, Tanzania has countless benefits of creating Institutional Repositories which can rise the collection, preservation and visibility of scholarly findings. Sofar many academic libraries are yet to do so, this is because of some reasons as narrated in the above reviewed literature (Samzugi, 2017). Likewise, it is yet a question to be answered that the mentioned challenges in the literature review similarly exist in the institution under investigation in this study and the measures that have been projected to solve the challenges, therefore it is worth examining since it has not been well-known empirically, especially at MUST.

2.4 Conceptual Framework

A conceptual framework establishes what is suspected to be found during the research study. It defines the pertinent variables for a research and show how they are related to each other (Haim & Zubidat, 2015). The conceptual framework used in this study showed how the independent and dependent variables interact to affect the outcome.
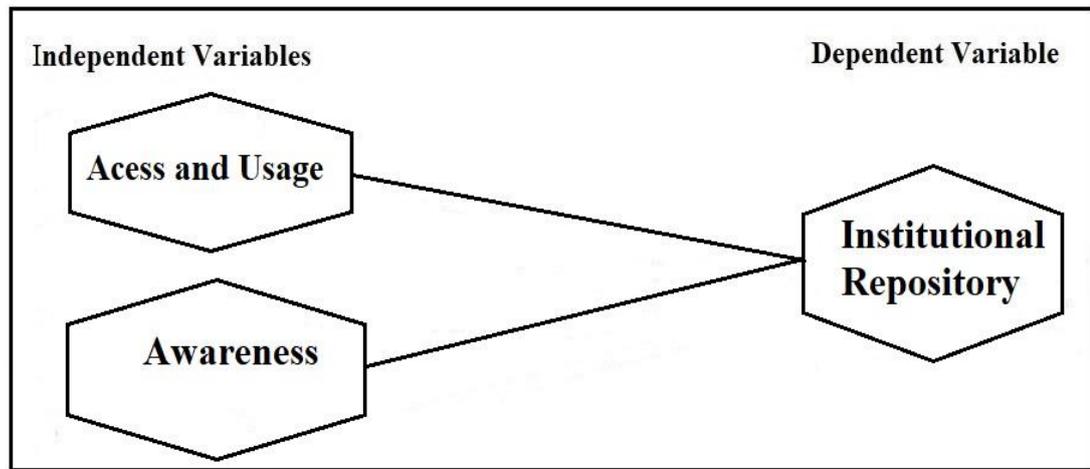
Figure 2.1: Conceptual Framework Explaining the Access and Use of the Institutional Repository at Mbeya University of Science and Technology-Mbeya Region.

Source: Researcher (2024)

The conceptual framework indicated in Figure 1 will guide the researcher to link independent and dependent variables to the study. Explanations of these variables can be found below.

2.5 Dependent Variables

2.5.1 An Institutional Repository

An institutional repository is a set of services that an institution provides to its community members for the distribution and dissemination of digital scholarly contents created by its members. Much more institutional repositories perform a vital role in creating the system of sharing scholarly communication by increasing access to research findings which is an important part played by libraries. Therefore, the association between academics and storing knowledge has been established by scholarly communication through IRs (Mbughuni,2022).

2.5.2 Independent Variables

2.5.2.1 Access and Usage

Access refers to the ability to obtain or use something, in this case, it implies having the opportunity or means to use technology, such as owning a device or having internet connectivity. Usage refers to the act of using something, in this case, technology. It implies the actual application or utilization technology for various purposes, such as communication, entertainment, or productivity (Kayungi et al, 2021). This involves the extent of the access and utilization of IRs by the MUST community such as Post Graduate Students, Academic Staff, Librarians etc.

2.5.2.2 Awareness

Walsh and Rana (2020), awareness is knowing of the existence of something such as situation or subject at the moment grounded information, knowledge or experience: this involves the situation of knowing what is institutional repository, the purpose of it, and how it can be used whenever needed to support the scholarly journey of institution community.

2.6 Research Gap

2.6.1 Contextual gap

Numerous studies (Dulle 2010; Muneja 2010; Lwoga & Questier 2014 and Mgonzo & Yonah 2014 Mhongole and Loserian (2014), Samzugi (2017), Dulle (2010), Muneja & Sichalwe (2016), Chirwa & Sife (2018), Malekani & Kavishe (2018) and Mnzava & Chirwa (2018) have been conducted on the IRs in Tanzania. Such studies have revealed that institutional repositories in Tanzania have yet to be fully

discovered among its users. On the view of this phenomena there is no any research that could be traced that specifically assessed the access and use of the institutional repository at Mbeya University of Science and Technology -Such a move raises important questions on the extent to which IR is used at MUST.

2.6.2 Conceptual Gap

Institutional repositories (IRs) are designed to store and provide open access to a wide range of scholarly outputs, thereby facilitating the dissemination and preservation of academic knowledge (Jabbar, & Muhammad, 2020). Despite their growing prevalence, there remains a significant conceptual gap in how to understand the complex issues related to the accessibility and usage of these repositories (Hancock, Algozzine & Lim,2021). While much research has focused on technical and operational aspects such as repository design, user interface and metadata there is a need for deeper conceptual exploration into the theoretical frameworks, principles, and assumptions underlying IRs, as well as their role within the broader research ecosystem.

2.6.3 Methodological Gap

Mixed approaches: Most studies on institutional repositories rely heavily on quantitative metrics, such as repository usage statistics (downloads, deposits, visits) and citation counts, to measure accessibility and impact (Wheeler et all, 2022) While these metrics provide valuable insights, they fail to capture the why behind user behaviors or the *context* of repository engagement (Safdar, 2021). There is a methodological gap in integrating both quantitative and qualitative approaches. More

mixed-methods research could explore how user perceptions, motivations, and experiences shape repository usage, combining large-scale data analysis with in-depth qualitative insights from interviews. Therefore, this study was conducted using mixed approach as a result of a research gap from other scholars.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology that was used to conduct this study and thus focuses on the following: research design, area of the study, population and sampling techniques, data collection methods and Instruments, research procedures, and data analysis methods. According to Kothari (2014), research methodology means the specific techniques and procedures that are used to find, select, process, and analyze information on a particular study.

3.2 Research Design and approach

3.2.1 Research Design

A research design as described by Wang and Cheng (2020) is a blueprint, a guide, control or strategies through which a researcher follows during the research process. This study adapted cross sectional research design since it assists the researcher to gather information once in a single point. A cross-sectional research design allows a researcher to collect data, do observation at a single specific time since it assists the researcher to gather information once in a single point, also it is faster and inexpensive (Spector, 2019).

3.2.2 Research Approach

A research approach is the measures of research that includes the steps from wide assumptions to data collection analysis and interpretation (Kumar, 2016). This study used the mixed approach methods. A mixed approach is an approach where

researcher collects and analyses quantitative and qualitative data within a single study to answer the research questions. Mixed methods approach was adopted in this study since it enables the triangulation or corroboration of the data or results because they tend to complement each other, also it allows generalization of data and flexibility in data collection. Thus, what have not been covered in quantitative data collection can be covered in qualitative data collection (Dubey, 2022)

3.3 Population of the Study

Population of the study is a portion of the whole universe of people selected as the objective audience (Ketchen & Bergh, 2006). Population means the entire collection of items in which a scholar wishes to make some inferences. Participants in this study were Post Graduate Students, Academic Staff, Librarians, Director of Library Service, Director of Information and Communication Technology (ICT) as well as the Director of Post Graduate Studies, research and Publications. The population of the study helped the researcher to know the situation of the accessibility and usage of IR at Mbeya University of Science and Technology-Mbeya region.

The total number of the study was 470. It involved 69 Post Graduate Students, 378 Academic Staff, 20 Librarians, 1 Director of Library Services, 1 Director of Information and Communication Technologies (ICTs) and 1 Director of Post Graduate Studies, Research and Publications. Postgraduate students and academic staff were selected because they form a user category of IRs contents at the same time academic staff are engaged in generating of IRs Contents. Directors were purposively selected because they are information-rich cases and custodians of

various policies related to the accessibility and usage of institutional repositories. librarians were involved in the study because of the nature of their work which include collecting, processing, uploading and conducting information literacy training to users on how to access and use the contents of IRs. The information provided by librarians were used as the basis for obtaining information about the accessibility and usage of IR in that library. Details on the population study is provided in table 3.1.

Table 3.1: Population of the Study

SN	Participants	Number of Participants
1	Academic Staff	378
2	Post Graduate Students	69
3	Librarians	20
4	Directors	3
5	Total	470

Source: Human Resources Office and department of Post Graduate Studies, Research and Publication 2024

3.4 Description of the Study Area

Hancock (2021) describes a study area as a place or location in which a research study is to be conducted. This research was conducted at Mbeya University of Science and Technology in Mbeya region. The Selection of this study area was due to the fact that MUST is well established with number information materials available in IR, yet its usage and accessibility is not known. Furthermore, the selected University has been in presence for quite a number of years and it has a rich collection of both printed and grey literature information emanated from research which is worth preserving and worth sharing in order to make practical use in the

society. Besides, the nature of materials is specialized in technical and engineering and thus their accessibility and usage are likely to add new knowledge and make it a contribution of Tanzania to the global world of knowledge.

3.4.1 Mbeya University of Science and Technology

Mbeya University of Science and Technology (MUST) is a product of transforming of the Mbeya Institute of Science and Technology (MIST) over the Universities Act No.7 (2005) and Mbeya University of Science and Technology Charter, 2013. The Universities Act requires universities to draft charters and have them approved as a condition for providing university education. In compliance with the requirements of the university Act, Mbeya University of Science and Technology has been established under Part II, Article 3(1) of the Mbeya University of Science and Technology Charter (2013).

3.5 Sample Size and Sampling Procedures

3.5.1 Sample Size

According to Kothari (2014), a sample size is the number of objects chosen from the population to represent a sample. It contains various components in a population a researcher desires to conclude the whole population. In addition, the appropriation sample size by using Yamane formula of 1967 was 216. However, in order to avoid the drop out, the researcher added 40 respondents. Therefore, the sample size was 251which included (50) Post Graduate Students (190) Academic Staff, (13) Librarians, (1) Director of Library Services, (1) Director of Information and Communication Technologies (ICTs) and (1) Director of Post Graduate Studies and

Publications. According to Yamane (1967), The following is a formula to determine the sample size of the study

Formula:

$$n = \frac{N}{1+ N(e)^2}$$

Where by:

n= Sample size needed

N = Population proportion

e= Margin of error

$$n = \frac{470}{1+ (470) (0.05)^2}$$

$$n = \frac{470}{1+ (470 \times 0.0025)}$$

$$n = \frac{470}{2.175}$$

$$S = 216$$

The total sample size considered was 216.

3.5.2 Sampling Procedures

This study adopted the use of probability and non-probability sampling procedures. Probability sampling procedure is the one in which every respondent has got equal chance of being selected in a sample, whereas non-probability procedure is the one which not all members have equal chance of being selected to participate in the study (Cohen, 2007). Sampling procedure deals with procedures applied to get a sample

studied or to select items from the population. Combination of purposive and simple random sampling techniques were applied to obtain the required sample size.

3.5.2.1 Purposive Sampling

Is a type of non-probability sampling whereby decisions about the items to be involved in the sample are decided by the researcher in relation to various criteria which may comprise specialist knowledge of the study topic or capacity and readiness to participate in the study (Paul, 2006). 16 respondents were purposely selected because of their position and information rich cases on issues related to IRs. It involved (13) Librarians, (1) Director of Library Services, (1) Director of Information and Communication Technologies (ICTs) was involved in this study because is an overseer of all the infrastructures to support the operationalization of institutional Repositories and (1) Director of Postgraduate Studies, Research and Publications was involved because of coordinating, monitoring and organizing postgraduate programmes, research, and publications at the University.

3.5.2.2 Simple Random Sampling

Simple random sampling is the utmost type of probability sampling. The choice of this type of sampling is motivated due to the truth that they give an equal opportunity to all individuals of the population to be involved in the research (Bryman and Bell, 2011). This study used simple random sampling in the selection of (50) Post Graduate Students and (190) Academic Staff. Academic staff and post graduate Students were involved because they form a user category of IRs contents at the same time academic staff are engaged in generating of IRs Contents.

3.6 Data Collection Methods

Data collection methods are the ways a researcher uses in gathering and obtaining the information (Scribrr, 2020). The researcher opted interviews and questionnaires as data collection methods. In order to carry out successful research both secondary and primary data were collected from various sources. The study based on the primary data collected by using questionnaires and interview while secondary data was collected from various documentary sources.

3.6.1 Primary Data

Primary data or first-hand information are data that the researcher collects for the first time from the field. Primary data was gathered straight by the researcher from the field by using questionnaires and face to face interviews from librarians and directors. The primary data used because it provides first-hand original data, flexibility and customization, current and updated information it also allows accuracy and reliability (Kothari, 2014).

3.6.2 Secondary Data

Kelly (2005) Secondary data is the data type which has been previously gathered by scholars and made accessible from other sources). Documents that were used by the researcher as useful sources of information for the study are termed as secondary tata. In this regard both published and non-published documents were reviewed. Secondary data is the one that has been previously collected by someone else and already been published hence obtained through literature sources, such as documentary reviews in which this the study acquired secondary data to be

accomplished. Data in particular be obtained via online libraries, research, publications and other documents, including electronic website archives as well as reports. The intention of using this strategy is to obtain archive information to enable the collection of raw data from the ground throughout this investigation.

6.2.3 Primary Data Collection Methods

Primary data collection methods refer to the techniques used to collect or gather original data directly from the source. Such methods are designed to collect information that is relevant to the to the research questions (Kothari, 2014).

3.6.3.1 Interview Method

According to Kothari (2004) an interview is a set of question administered through oral or verbal communication or face discussion between the researcher and the interview respondent. The interview was used because in this method respondent are more willing to talk than to write, and also the researcher was able to collect a lot of information from respondent.

In this study, interview was used to collect primary data from librarians, Director of Library Service and Director of Information and Communication Technology (ICT) and the Director of Post Graduate Studies and Publications. Interview was selected as it helps to save time of the research in selecting the suitable respondents. In a minimal time, data can be gathered through the use of interview. In order to get key information from the respondent's perspectives freely on the subject under consideration, interviews were scheduled.

3.6.3.2 Questionnaire Method

According to Aina (2004) questionnaires are instruments that contain set of questions to be answered by respondents or questionnaires is a set of questions which are generally sent to the chosen respondent to answer those questions at their suitable time and return back the answered questionnaires to the researcher. On the base of this study, questionnaire guide was used as a tool to collect primary data. The questionnaire guide included both closed-ended and open-ended questions. Questionnaires was administered to postgraduate students and academic staff for completion.

3.6.4 Secondary Data Collections Methods

This refers to the act of gathering data that have already been made available by others, it's the that already exist. This study used secondary data collection methods co collect data from literature review, documentary review, government and public records, statistics, reports, books, journals and dissertations Gupta and Gupta, 2022).

3.6.5 Data Collection Instruments

Data-collection instruments" means tests, questionnaires, inventories, interview schedules or guides, rating scales, and survey plans or any other forms which are used to collect information on substantially identical items from respondents (Spector, 2019). The interview guide and questionnaire guide were used as data collection instruments in this study.

3.6.5.1 Interview Guide

An Interview Guide is a tool used in research to help focus and organize the line of

thinking and questioning during an interview. In this study the interview guide was used to conduct interview for librarians and Directors (Dubey, 2022).

3.6.5.2 Questionnaire Guide

A questionnaire is a list of questions or items used to gather data from respondents about their attitudes, experiences, or opinions. In thus study a questionnaires guide was used to guide a researcher in quantitative data collection from the Academic staff and Post graduate Students. (Kumari, 2023).

3.7 Data Analysis and Presentation

Data processing means the computation of procedures along with searching for patterns of relationship that occur between data groups (Pruzan, 2016). This study analyzed both qualitative and quantitative to generate a meaningful result.

3.7.1 Quantitative Data Analysis

According to Scribrr (2020), quantitative data analysis is the process of analyzing and interpreting numerical data. Quantitative data were coded, analyzed by using statistical data packages SPSS version 22.0, cleaned and presented in figures.

3.7.2 Qualitative Data Analysis

Qualitative data analysis is a process of gathering, structuring and interpreting qualitative data to understand what it represents. Qualitative data were analyzed with the use of narrative analysis to get a deep understanding of respondents' perspectives on the research questions (Dzwigol, 2022). Qualitative data were gathered, organized by theme and results, coded, presented and reported though narrative.

3.8 Data Quality Assurance

Data quality assurance is the act of identifying and screening irregularities through the use of data profiling, data cleaning and eliminating obsolete information, (Dilmegani, 2023). This study used validity and reliability techniques to make sure the quality of data collected. Data quality control is necessary to ensure the accurateness of information collected from informers and to minimize partiality. To reduce the weaknesses, the researcher pre-tested the questionnaires before data collection to ensure clarity of questions, constantly making follow-ups and using the interview method.

3.8.1 Validity

Validity is the degree to which a test measures what it purports to measure (Pruzan, 2016). The researcher 's concern in this case was content and construct validity in respect to whether or not the data collecting tools would enable gathering the data necessary in assessing the access and use of IRs among MUST community. In this case, the contents were appropriate, comprehensive and consistent with the variables and also readable.

Postgraduate students, librarians, academic staff questionnaires and Director of Library Service, Director of Information and Communication Technology (ICT) and the Director of Post Graduate Studies, Research and Publications' interview schedules was borrowed from the previous researchers to ensure questions and language are clear, relevant, correct and easily understandable in this research also Pre testing and triangulation were used to validate data

3.8.2 Reliability

Reliability means degree of consistency results of a construct measure (Heale & Twycross, 2015). This consistency gives the researcher confidence that the findings represent the outcome of the research being undertaken. The observation schedule was piloted by the researcher for validity and reliability. This was rectified in the observation schedule before actual data collection is done to improve both the validity and reliability.

3.9 Research Ethics

Ethics refers to morals that are acceptable it also focuses on the right and wrong among members of a particular society or community. Thus, it is very important that scholars and researchers to observe the ethical issues during their study under investigation. (Babbie 2009). The researcher ensured that the information provided by the respondents are only used for research purposes and not subject to leakage into other objectives. This helped the researcher to get sufficient information from the respondents.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.0 Introduction

This chapter presents data analysis and discussion of the key findings of the study obtained interview and questionnaire. The major objective of this study was to assess the accessibility and usage of the Institutional Repository at Mbeya University of Science and Technology. The study was guided by three specific objectives which were to; Examine the extent of utilization of the institutional repository at Mbeya University of Science and Technology, determine the level of awareness among users on the availability of IR at Mbeya University of Science and Technology as well as to assess the challenges faced in accessing and using the institutional repository at Mbeya University of Science and Technology.

This chapter describes the demographic background of the respondents, as well as the responses relating to the study objectives, profile and the respondents' relationship with the study. The purpose is to provide a background of the profile of the respondents. Findings related to the respondents are also presented. Besides that, supporting tables and figures are provided to support the discussion. This chapter presents data analysis and discussion of the key findings of the study. Results in the chapter are arranged according to sub headings emanating from specific objectives of the study.

4.1 Demographic Characteristics of the Respondents

The objective of this section was to provide demographic and socioeconomic profile

of respondents. Information on the basic characteristics of women and men involved in the study is essential for the interpretation of findings presented. The section begins by describing basic background characteristics, including age, educational level, and gender. This information was crucial and provided working knowledge on the characteristic of the population studied.

4.1.1 Sex of Respondents

Sex data was important to show how gender is presented in the study. Therefore, the respondents were asked to indicate their gender. According to Table 4.1 out of 235 respondents 145(61.7%) were males, while 90(38.3%) were females. It is worth noting from these findings that gender balance was closely observed in the selection of the sample for this survey. Thus, data on sex was important to show how gender was represented in this study.

 It is submitted that the number of males both students and staff at Mbeya University of Science and Technology is higher than that of females. These results relate with those of Nunda and Elia (2019) on their study of Institutional repositories adoption and use in selected Tanzanian higher learning institutions where by the number of males respondents were high compared to number of females from MUHAS and SUA. This is a clear indication that the majority of people obtaining higher education in Tanzania is dominated by males while females are still few in higher education especially in science and technology, this is despite the government's affirmative action taken to ensure equal gender representation in all walks of life. Is higher than that of females as illustrated on chart below.

Figure showing a bar chart titled "Demographic information - Gender" with y-axis "Number of respondent" (0 to 160) and x-axis "Sex".

	1	2
Male	145	61.70%
Female	90	38.30%
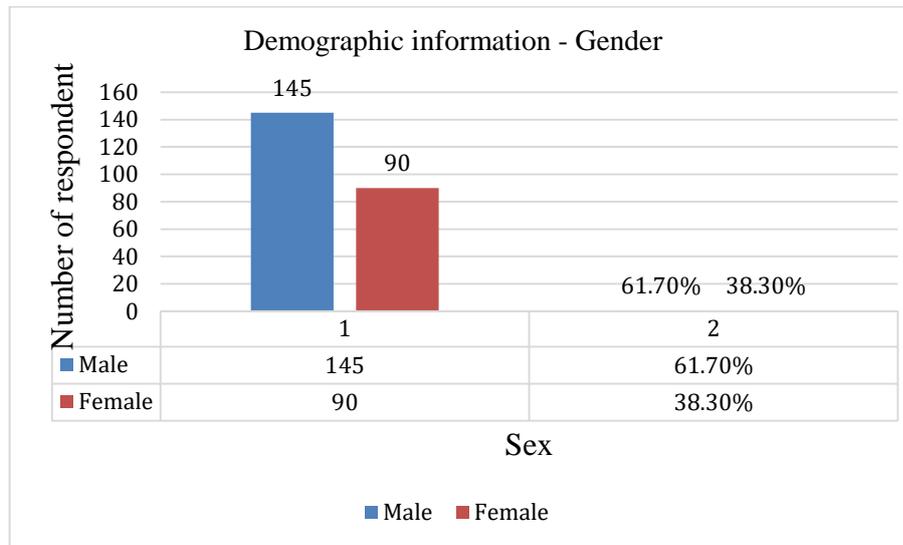
Figure 4.1: Demographic Information – Gender

Source: Field survey 2024

4.1.2 Age of Respondents

In relation to respondents age profile, 109 (46.4%) were aged between 31-40 years old, followed with 70 (29.8%) who ranged between 18-30 years old, followed by 39(16.6%) who ranged between 41-50 and 17 (7.2%) who ranged 50+. This shows that MUST is dominated with large number of youths. The age profile is a clear indication that the respondents are mature enough to provide the required information on the subject under investigation.
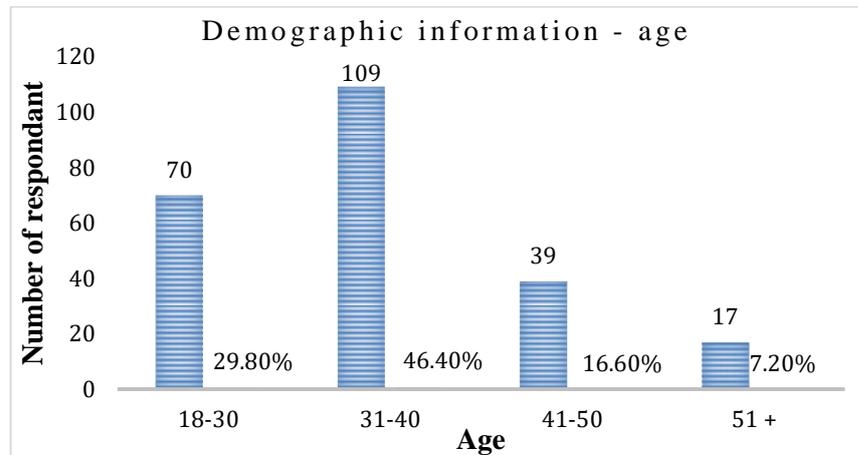
Figure 4.2: Demographic Information – Age

Source: Field survey 2024

4.1.3 Education Level of Respondents

With regard to educational level, 90 (38.5%) were holding masters', 89 (38%) were bachelor degree' holders and PhD were 26 (11.1%). This indicates that the majority of MUST academic staff are Masters degree holders (assistant Lecturers) followed by bachelor degree holders (Tutorial assistants) and very few PhDs (Lecturers) and Professors. It also reveals that the education level in developing countries is pirahramid in shape that is as you go higher academically the number of people decreases. However, it is reasonable to assume that the respondents had adequate level of education and knowledge to shape the findings through providing the required information
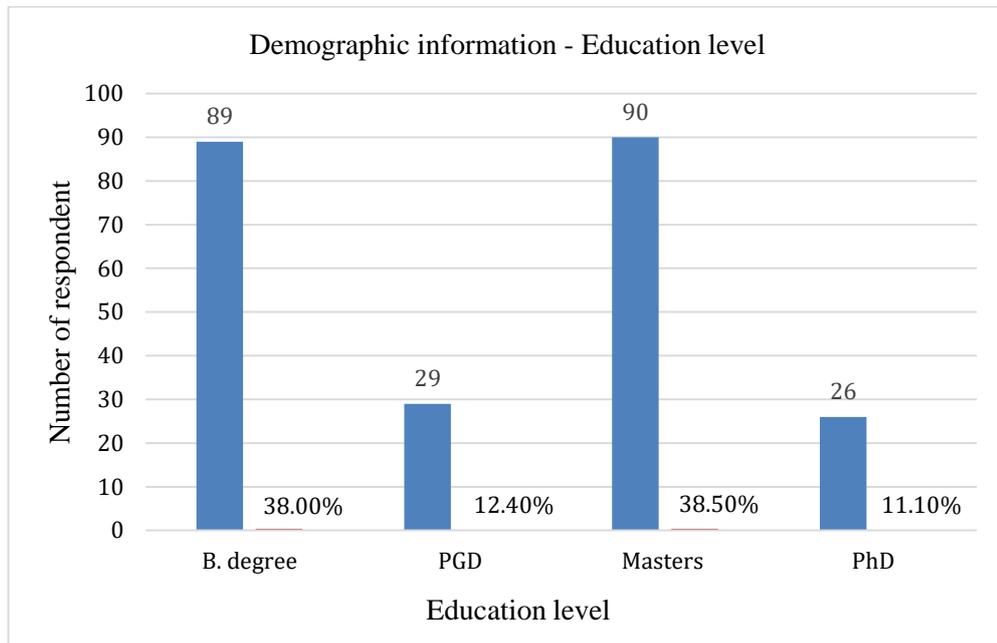
Figure 4.3: Demographic Information – Education Level

Source: Field survey 2024

4.2 Awareness of among Users on the Availability of IR at Mbeya University of Science and Technology

Users can only access and utilize information if they are aware of its availability. It was therefore considered important to establish the level of awareness of users on the availability of IR at MUST. Out of 235 respondents, 202 (86%) were of the view that they were aware of the availability of IR at MUST while 33 (14%) were not aware. The findings paint a very positive image on the part of MUST on raising awareness of IR among its users. Such a situation was attributed to gradual trainings and exhibitions conducted at MUST library. The findings are alike with the study conducted by Kayungi et al (2021) who undertaken a study on Academic Staff awareness of Institutional Repositories (IRs) in Tanzania Universities. The outcomes revealed that the majority (84.1%) of the respondents were aware of the availability

of IRs in their institutions while very few (15.9%) were not aware. However, still there is a need to continue with the efforts to make sure that   all users become aware of IR.
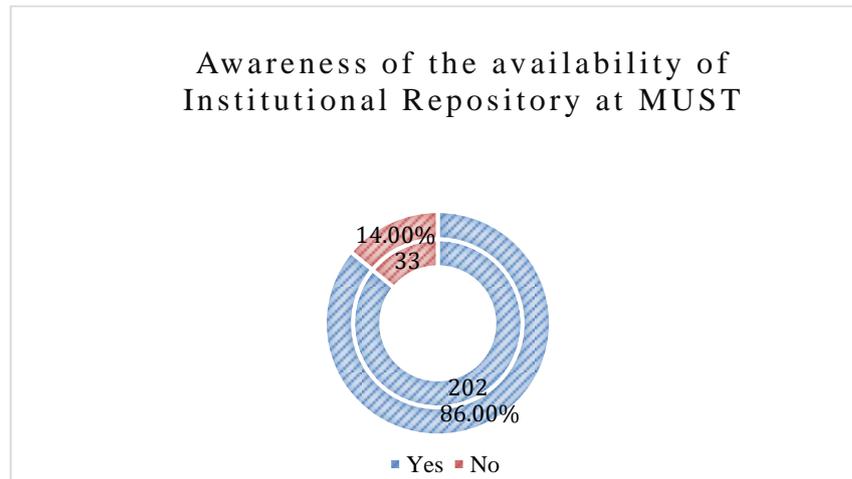
Figure 4.4: Awareness of the availability of Institutional Repository at MUST

Source: Field survey 2024

4.2.1 The Level of Awareness of among Users on the Availability of IR at Mbeya University of Science and Technology

Furthermore, respondents were asked to rate their level of awareness concerning the availability of institutional repository at Mbeya university of science and technology, The study found out that, the level of awareness on the availability of the Institutional Repository at Mbeya University of Science and Technology were generally high as the majority 88 (37.4%) of respondents indicated to have high level of awareness on the availability of Institution Repository, followed by 75 (31.9%) respondents who indicated that they had medium/ moderate level of awareness on the availability of the IR, 39 (16.6%) indicated very high level of awareness, whereas 24 (10.2%) indicated to have low level of awareness about IR.

During interview the following excerpts elucidated:

> *"We are very much aware of the existence of Institution Repository at our library, at first it was seen to be something very complex, but with the continuing training and seminars it is now understandable and we can use it"* (Respondents, MUST 2024)

Another respondent had this to say:

> *"I am quite sure that, number of users are very aware of the existence of IR at MUST as we have conducted many trainings through information literacy (IL) which is a university wide programme offered to students and staff. We also conduct seminars and even exhibitions just to make sure everyone is aware of IR and services at our library"* (Director A, MUST 2024)

The findings of this study are contrary with those of Muneja (2010) and Akingbade (2022), who found out that Lecturers' level of awareness of IRs was moderate the average of (65%). However, there are considerable development probably because the study was conducted some years back while universities in Tanzania has embarked on the crusade of using various methods in promoting awareness on IR. Therefore, the findings of this study indicate that, number of Must Community were aware of the availability of IR, however, more awareness is yet required especially to postgraduate students.
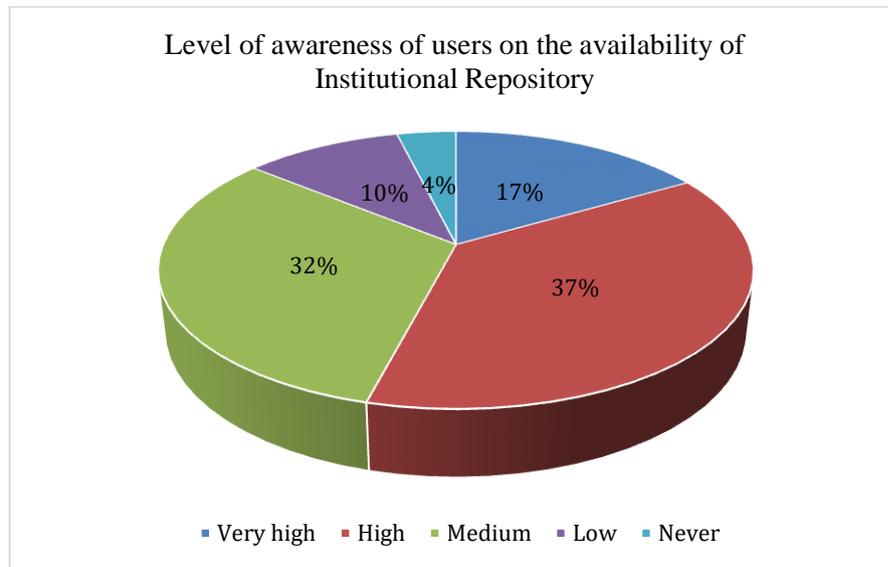
Figure 4.5: Level of awareness of Users on the Availability of Institutional Repository

Source: Field survey 2024

4.3 Utilization of the Institutional Repository at Mbeya University of Science and Technology

The respondents were asked if they utilize Institutional Repository, 199 (84.7%) said they were utilizing IR, while very few 36 (15.3%) said they were not. The findings of this study corroborate well with those of (Nunda and Elia 2018, Dutta and Paul 2014) on their study about adoption and use of IR in selected Universities, where they found out that (78.2%) were using IR while (21.8%) were not. This is a clear indication that to a large extent users are now familiar with the importance of IR in meeting their information needs. The interview with the librarians who were asked if they were utilizing IR to upload the materials in the repository, they affirmed that they were utilizing it. They had this to say:

"Yes, we are all assigned with the task of uploading materials in the IR system to populate it with adequate contents which in turn will attract users to utilize it. Besides, uploading the materials in IR is part of the targets to be fulfilled under Online employee self-service system (PEPMIS) that influence and make us utilize the repository" (Respondents, MUST 2024).

The findings indicates that both users (user category) and library staff utilize IR to fulfill different tasks and needs.

Utilization of the institutional repository

	Utilizing IR	Not utilizing IR	Total
■ Frequency	199	36	235
■ Percentage (%)	84.70%	15.30%	100%
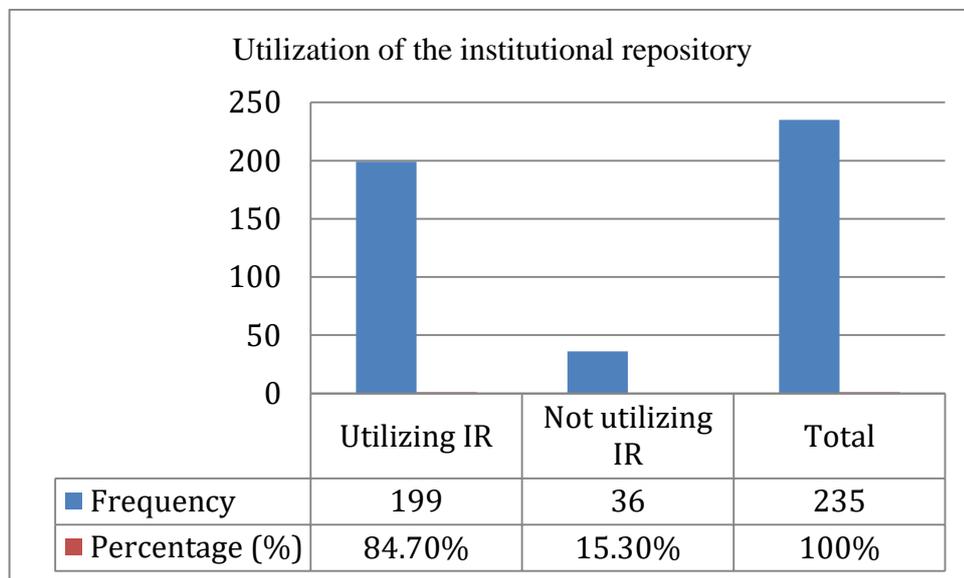
Figure 4.6 Utilization of the Institutional Repository

Source: Field survey 2024

4.3.1 Extent of Utilization of Institutional Repository at Mbeya University of Science and Technology

The respondents were also asked to rate the extent to which they were utilizing the Institutional Repository at Mbeya university of science and technology. The study found out that the extent of utilization of Institutional Repository (IR) at Mbeya university of science and Technology was average with the majority 80 (34.2%) of

the respondents who used the IR moderately followed by 55 (23.5%) who used the Repository rarely, while 54 (23.1%) of the respondents used the Institutional Repository frequently. This shows that the extent of utilization of Institutional Repository at MUST is not bad. However, the use of the Institutional Repository relies on several factors according Mnzava and Chirwa (2018), the availability of reviewed local scholarly information from known trustworthy researchers is one of the factors influencing users to utilize Institutional Repository contents.

Other findings including that of Shuhaiber (2016) indicated that free accessibility to scholarly electronic materials is one among the factors that influence students to utilize scholarly contents including those available in their respective IRs. Good and enriched intellectual resources that fulfills the needs of the users convince users to utilize materials in the Institutional Repositories (Nunda & Elia 2019). This concept is in line with the Technological acceptance model (TAM) since the theory indicate that, users are likely to accept the technology based on its ease of use, usefulness and gains they obtain from it, that if the technology is easy to use and brings positive impacts to their work, they are likely to accept it, if the technology seems to be difficult to use and brings negative impacts to their work, then they are likely to reject it.

As indicated in this study that the extent of utilization of Institutional Repository at Mbeya University of Science and Technology was average due to several factors such as lack of enough contents in IR, its therefore true to say that, the contents available in IR at MUST do not meet the needs of its users thus reduces the fully

utilization of it. Moreover, Mbuguni (2022) indicated that, the extent of utilization of institutional repository depends on the motivating factors for researchers, lecturers, postgraduate students and other university community and staff, such motivating factors include accessibility to intellectual contents particularly full-text papers, availability of resources in the Institutional Repositories from well-known writers and publishers, freely access to institutional repository materials and regularly training.

Based on the interview with Director (A) the following was revealed:

> "*There is low level of utilization of our Repository since there is regular failure of the system, it has been almost four months now the system is not working, but it has already been resolved. It took time to resolve this problem because we don't have a IR specialized personnel in our library hence it is required to outsource the expert from outside which also consumes time*" (Director A,2024)

While another Director equipped that:

> "*It is very challenging to exact indicate the extent of utilization of IR because so far a system is often off-line which makes it difficult to tracks the usage of IR however, this office ensures that the quality of all the collected materials is well observed, Thesis, Dissertations etc. to be uploaded in to the IR are to be of high quality and undoubtable, we make sure that all the publications are first published in the indexed journals before being uploaded in the IR. The work of this office is to ensure all contents do meet the eligibility of being uploaded in to the system that could be the base for the efficiency utilization of IR because users could make reference to materials which are credible*" (Director B 2024)

Director (C) informed that:

> *"I can say that, the extent of utilization of Institutional Repository is very low. This is due to the fact that there are no enough contents deposited in the system, users tend to visit the system only if there is a need to do so, thus if there are no contents users will not utilize the IR"*

The findings of this study corroborate well with those of Mbuguni, (2019), Dutta and Paul (2014), Mbuguni (2022) who affirmed that the majority of users used Institutional Repositories very rarely due to the fact that IRs had few or lack enough materials.

Extent of utilizing IR

		Frequently	Moderately	Rarely	Occasionally	Not at all
■	Frequency	54	80	55	24	21
■	Percentage	23.10%	34.20%	23.50%	10.30%	9.00%
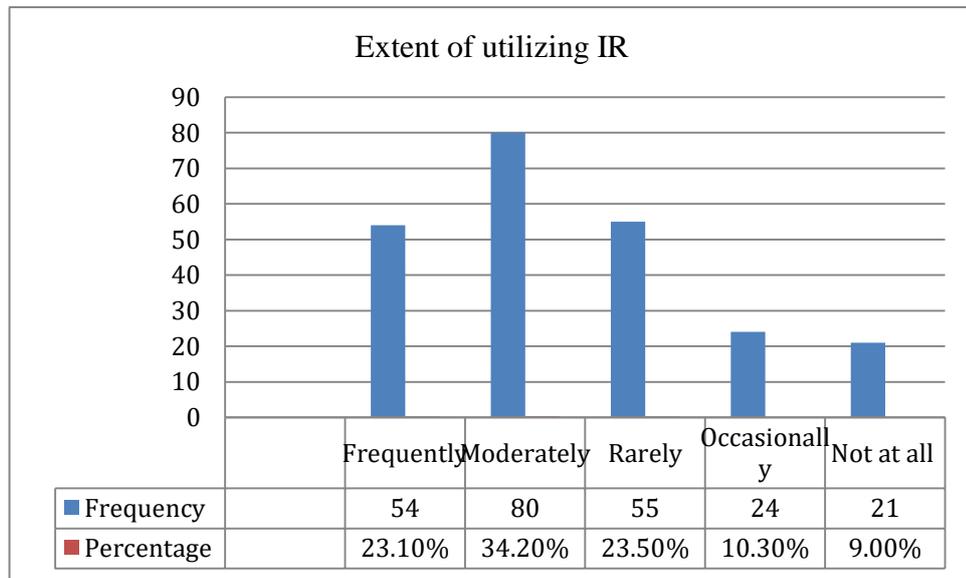
Figure 4.7: Extent of Utilizing IR

Source: Field survey 2024

4.4 Resources Preferred by the Institutional Repository Users at Mbeya University of Science and Technology

The respondents in Table 4. 3 were asked to indicate the type of resources which

they prefer most in the IR, 148 (68.8%) of the respondents were using electronic journal articles, followed by 131(60.9%) using electronic books, electronic dissertations/Thesis had 79 (36.7%) users, e-pamphlets 48 (22.3%) and reports 32 (14.9%). The implication of the results is a clear indication that scholarly contents produced by Mbeya University of Science and Technology staff and students are preferred in meeting their information needs.

However, this brings us to the question how come thesis and dissertations they occupy minimal preference among users. Probably, these are preferred by postgraduate students and researchers whose works are research oriented. The findings of this study are in line with the definition of IR which states that 'An institutional repository is a set of services that a university or an organization offers to the members of its community for the management and dissemination of digital materials created by the institution and community members and there is no university worth its name that could generate information which is not relevant because in so doing is likely to tarnish its image. Based on the suitability of the resources it calls for a need   to populate the Institution repository with more information resources.

Through interview extract it was reported that the digital contents which are available in the IR were journal articles, thesis and dissertations, public lectures, books, book chapters, tutorials, reports, pamphlets as well as conference proceedings. Interview with Director (A) was noted that:

> *"Our IR is designed in such a way that varieties of contents emanated from MUST can be uploaded, example of the*

resources uploaded in this database are, journal articles, books, Thesis and Dissertations, public lectures, book chapiters, tutorials, reports and many more" (Respondent A, MUST 2024)

The results of this study are in conformity with those of Mbuguni (2022) which indicated that the information materials which are uploaded by the librarians were journal articles, Thesis, dissertations, Books, Conference, Tutorials, and public lecture which the majority of them are generated by the university

Informational materials accessed in MUST Institutional Repository

	E-books	E-journals articles	E-pamphlets	E-dissertations and Thesis	E-reports
■ Repondent percentage	60.90%	68.80%	22.30%	36.70%	14.90%
■ Repondent	131	148	48	79	32
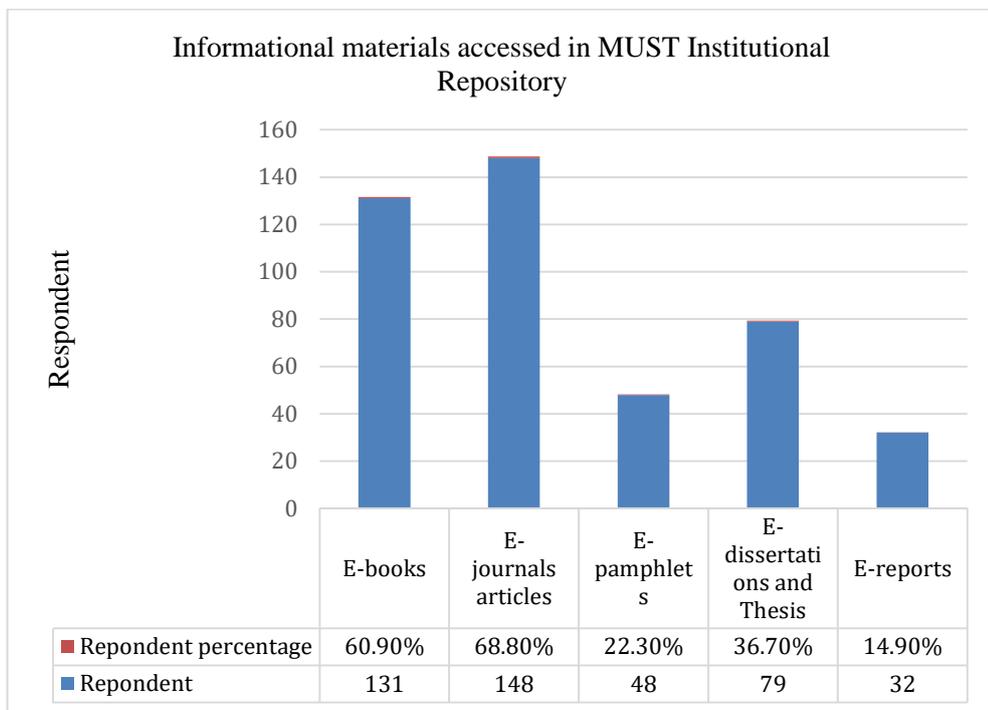
Figure 4.8: Informational materials accessed in MUST Institutional Repository

Source: Field survey 2024

4.5 The Tool used to Access the Institution Repository

It is the interest of the University to see that the available resources in the IR are accessed and used. In order to facilitate the accessibility of IR, respondents were requested to indicate the digital devices that they were using frequently to access the

institution repository, the majority 161(79.7%) of the respondents indicated that they were using their Personal computer, 118 (68%) used their smartphone, via MUST library computer 37 (18.3%), Via MUST faculty computer lab 16 (7.9%), Internet café 7(3.5&) to access the institutional repository. This indicates that, users are more comfortable to access the Institution Repository using their laptops compared to other digital devices. Plausible reason may be attributed by the facts that they want to download and serve them in their laptop/ smartphones for future reference, because laptops and smartphones are portable to be used anywhere hence users opt them to access the IR or computers are not working properly. From interviews with the respondents, it was noted that,

"The library has a computer laboratory to be used by every user, but guess what, there is very low number of users who visit and want to use the laboratory. It is something that need to be investigated as to why they don't make maximum use of the computer lab." (Respondents, 2024)
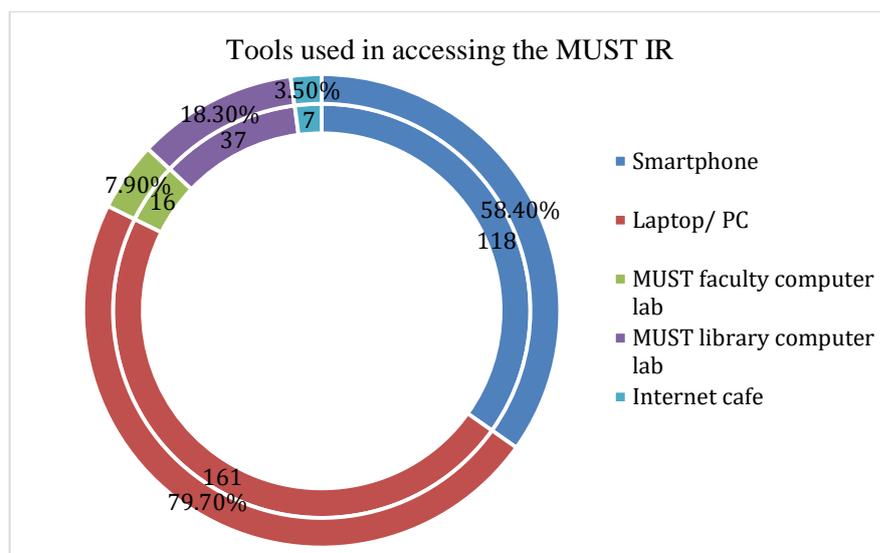
Figure 4.9: Tools of Accessing the MUST IR

Source: Field survey 2024

4.6 Challenges faced in Accessing and Using the Institutional Repository at Mbeya University of Science and Technology

Respondents were asked about the challenges which they were facing when accessing and using institutional repository, The study found out that the major challenge facing institutional repository users at Mbeya university of science and technology were Inadequate of materials with the average of 92 (55.1%) followed by 71(42.5%) Inadequate of ICT infrastructures and Lack of awareness 65 (38.9%). The interview results revealed that lack of librarians with ICT skills was a major challenge together with the failure of the IR database. This study is in line with the study conducted by Ukwoma and Ngulube (2019) in Nigeria that found out that the key barriers to the utilization of IRs were inadequate ICTs infrastructure that was used to access the institution repository, lack of institutional repository scholarly resources knowledge and lack of frequent sensitization programmes. Muneja & Sichalwe (2016) indicated lack of IR guidelines/policy to most academic libraries as a hindrance to making IR operational and sustainable.

Ashraf and Haneefa (2017) indicated that institutional repository users received inadequate hand on support from the librarians and technical staff this remains as the major challenges because the majority of institutional repository users lack the ability and necessary skills to use the institutional repository effectively considering the fact that the institutional repository is freely accessed for the purpose of increasing the usability of locally generated scholarly works (Joo et al., 2018). This stance is strongly supported by qualitative data from Librarians who asserted that they lacked necessary ICT skills to use and upload contents in the Institutional Repository,

inadequate of ICTs infrastructure including unstable internet was reported to be a challenge that inhibit the efficiency of running the IR. However, based on the interview results from the Directors indicated that system / database failure and lack of ICT personnels were among the cited challenges hindering the smooth running of the IR. Respondents had this to say;

> "*Yes, we are facing a number of challenges in using and interacting with IR, these challenges include but not limited to poor ICT infrastructures such as unreliable internet, the IR itself sometimes collapses, computers are not working properly, we have many computers but they are not working, and we don't have such ICT skills*" (respondents, 2024)

Director (A) had this to say;

> "*Yes, we have challenges, one of the biggest challenges is failure of the database, the system can collapse and take months to return to normal and this is because, we don't have ICT specialist in the library we are required to outsource from outside of which it takes time to solve this problem at that particular time users cannot access the system. Secondly, we don't have staff with ICT skills, however we are looking forward to recruit ICT personnel in the library (*Director A, 2024)*"

The findings correspond well with those of (Gedion and Samzugi 2024, Msagamas and Samzugi 2022, Muneja and Sichalwe 2016, Vardakosta and Kapidakis 2017, Ratanya 2017, Nwachi and Mole 2020, Nwokedi and Nwokedi 2018) whose findings illuminate that: lack of awareness, poor infrastructure, lack of contents in IR and lack of skills, poor internet and system failure were challenges in accessing and using IR. Therefore, these findings are regarded as a work up call for the library management and the university in particular to address those challenges for the benefits of MUST.

Challenges faced in accessing and using the institutional repository

	Inadequate of materials	Lack of ICT literacy skills	Inadequate of ICT infrastructures	Lack of awareness	English language difficulties
■ Frequency	92	29	71	65	10
■ Percentage %	55.10%	17.40%	42.50%	38.90%	6.00%
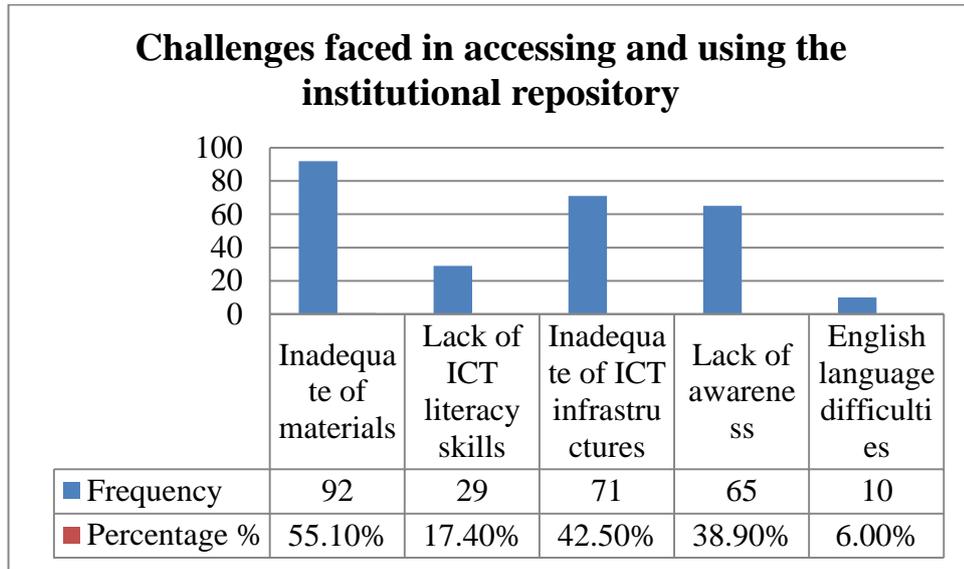
Figure 4.10: Challenges Facing Users in Accessing IR

Source: Field survey 2024

4.7 Strategies to Mitigate the Challenges

Based on the challenges mentioned the respondents were requested to recommend the strategies to mitigate the mentioned challenges for the improvement of access and use of institutional repository at Mbeya University of Science and Technology, 79 (33.8%) of the respondents suggested improvement of ICTs infrastructures which support users to utilize the institutional repository, 69 (29.5%) recommended raise the level of awareness on the availability of institutional repository at Mbeya University among postgraduate students, 34 (14.5%) opined that uploading more contents in IR would enhance the usability of the Institutional Repository. 28 (12%) recommended the recruiting ICT expertise in the library to solve trouble shooting issues for effective use of the IR, whereas 24 (10.3%) recommended training concerning IR to raise awareness which is likely to yield positive impacts in the use of IR. For details refer to Table 4.7
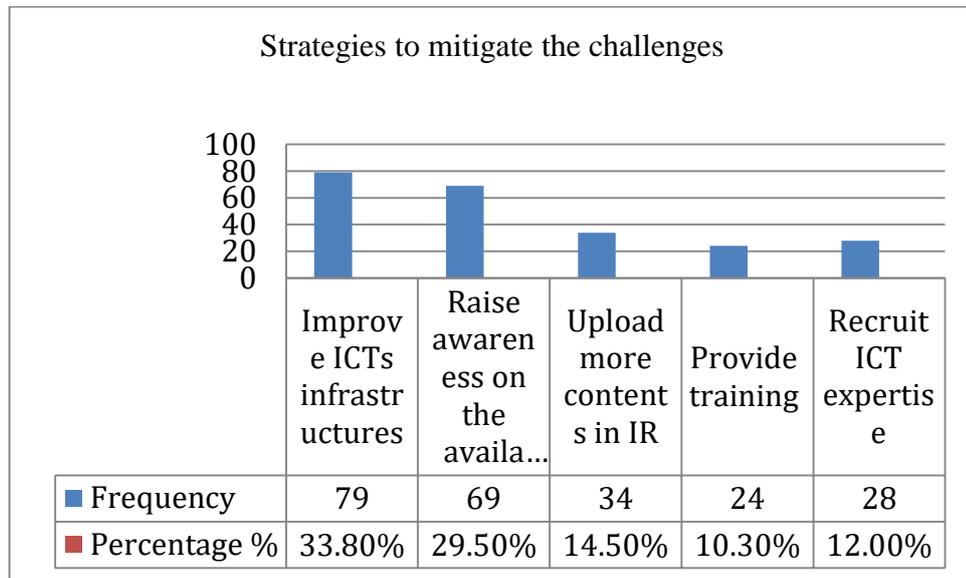
Figure 4.11: Strategies to Mitigate the Challenges

Source: Field survey 2024

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1   Introduction

This chapter presents the summary, conclusions and recommendations of the study based on the three specific objectives of   the study which were to determine the level of awareness among users on the availability of IR at Mbeya University of Science and Technology, to examine the extent of utilization of the institutional repository at Mbeya University of Science and Technology and to identify the challenges faced in accessing and using the institutional repository at Mbeya University of Science and Technology.

The population for this study was comprised of members of academic staff, post graduate students, Librarians, Director of library services, Director of ICT as well as the Director of post graduate studies and publications. The sample size for this study was 216 comprising of 13 library staff, 200 library users, Library users consisted of 50 post graduate students and 150 teaching staff as well as 3 Directors with a considerable gender balance. These were purposively and conveniently selected from a target population. Data for this study was collected using questionnaires with both close and open-ended questions, interviews and documentary review.

5.2 Summary of Key Findings

5.2.1 User's Awareness on the Availability of Institutional Repository

First, the study determined the level of awareness among users on the availability of IR at Mbeya university of Science and Technology. The findings revealed the

majority of IR users were aware on the availability of IR at MUST. Out of 235 respondents 202 were aware of the existence of IR. The findings paint a very positive image on the part of MUST on raising the awareness of IR among its users. Similarly, users were asked to indicate their level of awareness concerning the IR, findings showed large number of respondents rated their awareness to be high, followed by medium/ moderate level and very few rated low level of awareness on the availability of the IR. These indicate that MUST community is well aware of the IR system.

5.2.2 Utilization of Institutional Repository

Secondly, the study sought to examine the extent of utilization of Institutional Repository at Mbeya University of Science and Technology. It is found that the majority of respondents agreed to use the institutional repository in their administrative and academic journey. On the user's extent of utilization of IR, findings showed that both staff and post graduate students used the IR moderately, rarely and frequently. This is the evidence that Institutional Repository is being used at Mbeya University of Science and Technology.

5.2.3 Challenges faced in Accessing and using the Institutional Repository at Mbeya University of Science and Technology

Finally, the study sought to identify the challenges faced in accessing and using the institutional repository at Mbeya University of Science and Technology. Both qualitative and quantitative data revealed that, database/ system failure, few or lack of contents in IR, insufficient ICT infrastructure and skills, lack of awareness were

the most challenges associated with the use of IT at MUST. Therefore, the findings press the need for MUST and Tanzanian universities in general to incorporate ICT based subjects in all of their curriculum as a strategy to improve ICT skills to the graduates.

5.3 Conclusion

Based on the research findings on the accessibility and usage of the Institutional Repository at Mbeya University of Science and Technology, Institutional Repository is of great significance to its scholars, students, researchers, staffs, and the institution community in general. However, they still face valid concerns such as the Inadequate materials in the IR, some respondents were unaware of the availability of institutional repository at Mbeya university of science and technology, inadequate of ICTs infrastructure all together reduces the effectiveness of the use of the institution repository considering its richness of locally produced resources that could enhance the usability of material produced by MUST scholars.

Moreover, the effective use of the IR could in turn increase the citations, ranking, reputation as well as the exposure of the Institution based resources at the global level. Therefore, there is a need for higher learning Institutions particularly Mbeya University of Science and Technology to make use of the IRs for the institution own development and the National at large

5.4   Recommendations

Based on the findings of this study, the researcher recommends the following:

- The institution should increase the availability of updated contents in the IR as the academic writing guideline demands the use of the current information materials. Especially journal articles, thesis and dissertations.

- Training programme for postgraduate students, researchers and all other staff on the use of Institutional Repository should be continuously. The training can increase the level of awareness and usage of the Institutional Repository among users

- There should be regular user engagement practices to gather their views and contents of interest

- The library management should conduct more trainings on the benefits and opportunities concerning IRs to influence scholars to upload their findings in the database.

- The library management should improve the ICTs infrastructure and stabilize the internet,

- The management should recruit library staff with ICT skills or else to train the available librarians on how to interact, manage and use the IR database.

5.5 Areas for Future Research

This study was carried at Mbeya University of Science and Technology. Based on this study scope and coverage, there are yet more gap for other findings on this topic. The proposed areas for future studies are.

i. The evolution of Institutional Repositories trends and future directions in academic institutions in Tanzania.

ii. The impact of Institutional Repositories in academic research output and visibility in Tanzania.

iii. The role of Institutional Repositories in promoting open access publishing in selected academic libraries in Tanzania

iv. Institutional Repositories as tools for scholarly communication: opportunities and challenges in higher learning institutions

v. Legal and copyright issues in Institutional Repositories in academic libraries in Tanzania.

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APPENDICES

QUESTIONNAIRES FOR LIBRARY USERS (POST GRADUATE STUDENTS AND ACADEMICIANS)

Dear respondent

I am a student at The Open University of Tanzania. I am conducting research on assessment on the access and usage of the Institutional Repository at Mbeya University of Science and Technology as part of the fulfillment of my Masters Studies. Kindly fill in the attached questionnaire and return it to the undersigned person. The information you provide will be used for academic purposes only and not otherwise. Thanks in advance for your support, time and cooperation.

Please tick (√) the appropriate answer

Section A: Demographic characteristics of respondents

1. What is Your is gender?

a) Male   [   ]

b) Female   [   ]

2. Please specify your age?

a) 18-30   [   ]

b) 31-40   [   ]

c) 41-50   [   ]

d) 51-Above   [   ]

3. What is your level of education?

a) Certificate   [   ]

b) Diploma   [   ]

c) Post graduate   [   ]

d) Degree   [   ]

e) Masters   [   ]

f) Other…………………………………………………………

Section B: The extent of utilization of the institutional repository at Mbeya University of Science and Technology

4. Do you use institutional repository?

a) Yes   [   ]

b) No   [   ]

5. If Yes in the question above, In which extent do you use institutional repository?

a) Excellent   [   ]

b) Good   [   ]

c) Average   [   ]

d) Fair   [   ]

e) Poor   [   ]

6. What kind of informational materials do you access on institutional repository?

Tick more appropriate answers

a) E-books   [   ]

b) E-Journals   [   ]

c) E-Pamphlets   [   ]

d) E-Dissertations [   ]

e) E-reports   [   ]

f) Other, please specify………………………………………...…………

Section C: The level of awareness of users on the availability of IR at Mbeya University of Science and Technology

7.   Are you aware on availability of institutional repository at MUST?

a)   Yes   [   ]

b)   No   [   ]

8.   If yes in the question above, to what extent are you aware on the availability

of IR at Mbeya University of Science and Technology?

a)   Very aware   [   ]

b)   Aware   [   ]

c)   Somewhat aware   [   ]

d)   Not aware   [   ]

9.   How many times do you use institutional repository per week?

a)   Frequently   [   ]

b)   Occasionally   [   ]

c)   Not attend   [   ]

10.   How do you access institutional repository?

a)   Via my smartphone   [   ]

b)   Via my laptop/ PC   [   ]

c)   Via MUST faculty computer lab   [   ]

d)   Via MUST library computer lab   [   ]

e)   Internet café   [   ]

f)   Other please, identify ………………………….

Section D: Challenges facing users in accessing and using the institutional repository at Mbeya University of Science and Technology

11. Do you face challenges when you need to use institutional repository?

a) Yes   [   ]

b) No   [   ]

12. If Yes in the question above, What are the challenges do you face when accessing and using institutional repository? Tick more appropriate answers

a)   Inadequate of current information materials   [   ]

b)   Lack of ICT literacy skills   [   ]

c)   Inadequate of ICT facilities   [   ]

d)   Lack of awareness   [   ]

e)   Language difficult   [   ]

f)   Other, please specify……………………………………………………

13.   What are the possible solutions to overcome challenges you face when accessing and using institutional repository?

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INTERVIEW GUIDE FOR LIBRARIANS AND DIRECTORS

1. What is your age?

2. What is your level of education?

3. Do you have institutional repository at MUST?

4. Do your users aware on availability of institutional repository at MUST?

5. To what extent does users use institutional repository?

6. How does users access institutional repository?

7. What kind of informational materials do you provide/upload on institutional repository?

8. To what extent do users have awareness on the availability of IR at Mbeya University of Science and Technology?

9. Do you face challenges when provide/upload information materials on institutional repository?

10. What are the challenges do you face when provide/upload information materials on institutional repository?

11. What are the possible solutions to overcome challenges do you face when provide/upload information materials on institutional repository?