Usability of the Institutional Repository by Faculty and Postgraduate Students at the University of Swaziland

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Thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy (Information Studies) in the School of Social Sciences, College of Humanities, University of KwaZulu-Natal, Pietermaritzburg, South Africa.

Supervisor

Professor Stephen Mutula

2017

DECLARATION

I, **Nokuphila Rene, Saulus**, declare that

1. The research reported in this thesis, except where otherwise indicated, is my original research.
2. This thesis has not been submitted for any degree or examination at any other university.
3. This thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
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ABSTRACT

This study investigated service quality and technology acceptance factors that promote or inhibit UNISWA faculty and postgraduate students from effectively using their IR. This is based on the premise that the IR has remained under-utilised by faculty and postgraduate students, majority of whom are involved in research. They have also not been keen to deposit their published work in the IR. The study sought to address the following research questions: What are the perceptions of faculty and postgraduate students towards service quality in the use of the UNISWA IR? What quality factors influence the usability of UNISWA's institutional repository by faculty and postgraduate students at UNISWA? What is the level of usage of UNISWA's institutional repository by faculty and postgraduate students? What are the challenges of service quality facing faculty and postgraduate students in the use of the UNISWA IR? What is the role of librarians in promoting service quality of the UNISWA IR?

The study was underpinned by the Unified Theory of Acceptance and Use of Technology (UTAUT), and the Service Quality model (SERVQUAL). The study adopted a post positivist paradigm using the survey research design. A mixed methods approach was used, focusing on faculty, postgraduate students, and librarians. Data was collected using survey questionnaires and interview schedules. Quantitative Data was analysed using the Statistical Package for Social Sciences (SPSS) to produce descriptive statistics, and qualitative data was analysed thematically and presented through narration and tables.

The findings revealed that the UNISWA IR did not satisfy users' service quality needs. It was further revealed that faculty and postgraduate students' intensions to use and adopt IR were influenced by UTAUT constructs including, effort expectancy, performance expectancy, and facilitating conditions. The findings also indicated that majority of faculty were aware of the existence of the IR, while many students were not. Even though awareness levels were high amongst faculty, many of these respondents did not use the IR, followed by those who infrequently used it. Reasons for the poor usage included lack of awareness, limited time, lack of knowledge, preference for other web sources, lack of skills, discouraged by slow internet, and preference for reputable journals among others.

The findings indicated that while students were likely to be inhibited by lack of computer access from using the IR, this was not the case with faculty. Moreover, respondents were not likely to be inhibited by fears of violating copyright restrictions from using the IR. The results further revealed that librarians' IR promotion efforts were not adequate. Respondents

suggested IR promotion strategies that would include specialised departmental workshops, periodically emailing users, seminars and presentations, posters, brochures and leaflets, orienting new staff and students, library skills classes, using faculty board meetings, social media, media, and word of mouth.

This study has implications for practice, policy, and theory. From the practical perspective, the study enhances awareness about the role of IRs in gathering, preserving and disseminating scholarly content. The study further provides information upon which relevant training programs for faculty and students can be based to enhance the IR service. From a policy perspective, the study provides a framework for the development of relevant policies to guide IR content recruitment procedures, and the overall functioning of the IR. Theoretically, the study validates the applicability of the UTAUT theory and SERVQUAL model in an online library setting, from a developing country context.

The study recommends amongst other things the need for IR administrators to conduct regular service quality assessments and usability studies in order to understand users' service and technology needs. The study further recommends the improvement of IR usage levels through raising awareness about the IR, frequently training users, and the formulation of policies to guide the overall functioning of the IR.

DEDICATION

This thesis is dedicated to the almighty God who gave me the strength to soldier on; to my mom, Dudu Saulus, and dad Daniel Saulus for their patience, prayers and encouragement; to my husband, Mr Mbongiseni Matsenjwa for his love, motivation, and sacrifices during the entire period of my studies; and to my daughters Phiwayinkhosi and Sinemelusi Matsenjwa for understanding and accepting that mommy must go to school. Thank you so much, without you all, this journey would have remained a dream.

ACKNOWLEDGEMENTS

For I the Lord your God, will hold your right hand, saying to you, fear not, I will help you (Isaiah: 41:13)

I thank the almighty and limitless God for granting me the strength, health, wisdom, grace, and determination to complete this PhD journey. I thank you Lord for holding my hand and leading me even when I didn't see the way.

I am indebted to my supervisor, Professor Stephen Mutula for his constructive criticism, guidance, contributions, and commendation while I was conducting the study. I thank you Prof, for moulding my research, writing, and critical thinking skills. I am also thankful to staff members from the School of Social Sciences, Information Studies department, Pietermaritzburg campus, for their great input during proposal defence, and the pilot testing of survey questionnaires. I am also grateful to UKZN students, Pietermaritzburg campus, for their participation in the piloting of survey questionnaires. I sincerely thank librarians from the Cecil Renaud main campus library, Pietermaritzburg, for their invaluable contributions during the pilot testing of interview schedules. I am indebted to Dr Tom Kwanya, Dr Anne Stanton, and Dr Noleen Loubser for their review of my PhD proposal in spite of their busy schedule.

I am sincerely thankful to my PhD colleagues, Emily Ng'eno, Beatrice Kiruki, George Chipeta, Robert Buwule, Rhodes Mwageni, Rehema Ndumbaro, and Dr Zakayo Maiga for their emotional support and encouragement. I also appreciate the advice, encouragement, and motivation from Dr Rebecca Majinge. I am also thankful to Simeon Nwone, and Forbes Kaseke for their assistance with data analysis.

My gratitude to the University of Swaziland for granting me study leave, and providing me with all the support I needed. I sincerely thank the University of Swaziland for allowing me to collect data from faculty, postgraduate students, and librarians. I thank my bosses, the current and former librarians from the University of Swaziland for encouraging and supporting my academic endeavours. I highly appreciate faculty, students, and librarians from the University of Swaziland for their time, and participation in the study. Special thanks go to the late Dr D. Manyatsi for encouraging me to embark on this PhD journey, and for his assistance during data collection. Thank you for believing in me.

I am sincerely thankful to my husband, my better half, for his love, unflinching support, encouragement, and motivation. You are one of a kind my love. I thank God for you. I

express my heartfelt gratitude to my parents, Mr and Mrs D. D. Saulus. Thank you, mom, and dad for raising me to be the strong woman that I am. Thank you for your prayers, patience, and encouragement. Thank you for taking care of my kids while I pushed my passion. You guys are awesome. I am really blessed to have you. May the limitless Lord increase your days, and grant you all your desires. To my daughters, thank you girls for loving me unconditionally, and putting up with my absence. To my friends, Bongiwe Mazibuko, Dr Ncamsile Dlamini-Khumalo, and Hlobsile Kgomo, thank you for the emotional support. To my brothers, whole family, church, the Magagulas, colleagues and friends whose names I couldn't mention, thank you so much.

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LIST OF ABBREVIATIONS

A	Attitudes
ARL	Association of Research Libraries
AS	Affect of Service
B	Behavioural
BC	Behavioural Control
BI	Behavioural Intension
C	Cognitive
CTPB-TAM	Combined Theory of Planned Behaviour and Technology Acceptance Model
DF	Degrees of Freedom
DOI	Diffusion of Innovation Theory
E	Environmental
E	Expectations
EE	Effort Expectancy
ELS	Electronic Library System
FC	Facilitating Conditions
GEP	Geography Environmental Science and Planning
HCI	Human Computer Interaction
IC	Information Control
ICT	Information Communication Technologies
IR	Institutional Repository
LIBQUAL	Library Quality Assessment
LIS	Library and Information Science

LP	Library as a Place
MM	Motivation Model
MPCU	Model of PC Utilization
OA	Open Access
OPRS	Office for the Protection of Research Subjects
P	Perceptions
P	Personal
PBC	Perceived Behavioural Intension
PE	Performance Expectancy
PEOU	Perceived Ease of Use
PU	Perceived Usefulness
SCT	Social Cognitive Theory
SERVQUAL	Service Quality Model
SI	Social Influence
SN	Subjective Norms
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UK	United Kingdom
UKZN	University of Kwazulu-Natal
UNISWA	University of Swaziland
USA	United States of America
UTAUT	Unified Theory of Acceptance and Use of Technology

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

ICT developments, particularly the World Wide Web, made unprecedented collaborations in the production, dissemination, and exchange of information by scholars across the world, irrespective of their geographical, economic and social backgrounds (Christian, 2008). These technological advancements fuelled the establishment and growth of Open Access (OA), and Institutional Repositories (IRs) (Dubinsky, 2014; Christian, 2008). Open access entails free and unrestricted access to peer-reviewed journal literature by scientists, scholars, teachers, students, and other curious minds the world over, without any financial, legal or technical constraints (Budapest Open Access Initiative, 2002). OA encompasses "free availability on the public internet, permitting users to read, download, copy, distribute, print, search, or link to full text articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purposes, without legal, financial, or technical barriers other than those inseparable from gaining access to the internet itself"' (Budapest Open Access Initiative, 2002, para. 3). OA to scientific research therefore means online access without any charges to readers or libraries (Suber, 2002).

The open access movement can be traced back to the 1960s, but gained momentum in the 1990s with the growth of modern information technologies (Christian, 2008). Budapest Open Access Initiative (2002) recommended two complementary OA approaches, which include open access journals and OA institutional repositories. The former comprises a model of publishing which makes journals available to the public immediately after publication. OA journals no longer invoke copyright restrictions, and do not charge subscription or access fees, but use alternatives such as foundations and government to fund their research expenses.

Open access self archiving on the other hand entails the deposition of refereed journal articles by scholars in open access institutional repositories or archives. Lynch (2003) defines IRs as 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. Kiran and Chia (2009) define IRs as web-based archives or digital collections of scholarly materials. IRs have become an essential component of the technical

infrastructure in research intensive institutions, and a favoured strategy for providing OA to research without any barriers (Abrizah, Noorhidawati & Kiran, 2010). Similarly, Ammarukleart (2017) views IRs as innovative and alternative technology for scholarly communication that have received significant attention from scholars worldwide.

OA institutional repositories were introduced to ease the information access constraints of the "1990s" that were faced by libraries across the world, but more so in developing countries. These constraints included budget cuts, annual increases of journal prices above inflation rates, and the devaluation of local currencies. These constraints made it difficult for libraries to maintain their journal subscriptions (Hoskins, 2009). In the same vein, Christian (2008) asserts that open access IRs were introduced in response to the increasing legal and economic barriers imposed by commercial publishers, which made it difficult for scholars to access research output and information. Caslin (2009) asserts that IRs have played a significant role in collecting, organising, and providing access to a wide range of content which was previously scattered and inaccessible for scholars. Singeh, Abrizah, and Karim (2013) aver that IRs capture and preserve the university's intellectual output, which eventually contributes to an institution's visibility. Similarly, Correia and Teixeria (2005) opine that institutional IRs: improve the archiving of scientific data; benefit scholars in organisations and countries which are poorly resourced through enhancing their access to research; and increase the visibility, prestige and public value of academic institutions.

Nyambi and Maynard (2012) opine that IRs could partly resolve the information poverty which is currently experienced in most African countries particularly where the issue of books and the availability of journals is a major concern. Mark and Shearer (2006) assert that even though the lack of access to research information is a major concern for scholars across the world, the situation is more critical in developing countries where library budgets can be extremely small. Open access IRs therefore improve access to: articles from refereed journals, grey literature, and other research output generated by African scholars (Nyambi & Maynard, 2012). On the same note, Chan and Costa (2005) pointed out that IRs improve access to primary data such as theses and dissertations, datasets, technical reports, and other forms of electronic publications. Hoskins (2009) asserts that IRs improve access to research published by African scholars in international journals which are difficult to access. Organ and Mandl (2007, p. 353) stated that the research materials which "have been locked away in print subscriptions or password protected online databases" could be made available to any researcher through OA IRs.

Libraries expected IRs to be accepted and optimally utilised to ease the information constraints which were faced by libraries. Other studies (Mark & Shearer, 2006; Dubinsky, 2014; Kiran & Chia, 2009; Dutta & Paul, 2014) however, revealed that IRs have grown much slower than anticipated and that it has not been easy to convince faculty to make their scholarly work available in institutional repositories. Mark and Shearer (2006) assert that, this is a worldwide phenomenon, which is rife where voluntary compliance is the norm. The reasons often cited by users for the poor uptake of IRs include the lack of awareness about the existence of IRs; fear of violating copyright and intellectual property agreements; fear that posting research in IRs will be regarded as prior publication; and the lack of perceived incentives for IR deposits (Mark & Shearer, 2006). Other barriers to faculty participation in IRs include redundancy of the IR with other modes of disseminating information, fear of plagiarism, and the preference to archive scholarship in disciplinary repositories (Dubinsky, 2014). Literature also revealed that the slow adoption of IRs by academics is attributed to inertia on the part of faculty, lack of knowledge regarding the advantages of OA, and fear that self-archiving work in IRs could consume more time (Singeh, Abrizah, and Karim, 2013). Mark and Shearer (2006) aver that all these hurdles must be crossed if IR administrators have to succeed in populating the growing number of institutional repositories across the world.

According to Kiran and Chia (2009), the success of IRs is also influenced by the experience of users. This is in the sense that users who have successfully used IRs are more likely to value the service, and promote it to others within their institution or research communities. McKay (2007) in a study which examined the usability of IRs, nevertheless revealed that while IR authors are well studied, very little is known about the usabilty of IRs from users or information seekers' point of view. In the same vein, Jean, Rieh, Yakel, & Markey Jean (2011) pointed out that despite the widespread recognition of the central importance of end-users to the ultimate success of IRs, very little is known about them. Jean et al. (2011) stated that even though literature demonstrates that IRs without content are like empty shelves, IRs with no end users are similarly pointless. According to Kiran and Chia (2009) a study of end-user's needs and their perceptions of IRs can provide important insights to system design, content and functionalities. Usability and service quality issues have gained increasing attention in libraries as users are no longer confined to their library holdings but can now seek and access information through various avenues such as IRs, digital libraries, databases and more (Tibenderana, 2010).

1.2 Study Site and Higher Education in Swaziland

Swaziland is a small landlocked country in Southern Africa with an area of 17, 363 square kilometres (6704 miles) which extends from 176 kilometres (109 miles) from north to south, and 135 kilometres (84 miles) from east to west. The country shares a boarder of 105 kilometres (65 miles) to the east with Mozambique, and is otherwise surrounded by South Africa, which it shares with a total boarder of 430 kilometres (267 miles) (Encyclopedia of Nations, 2017). The country is located at geographic coordinates of 26°30′S 31°30′E, and is divided into four administrative regions including Hhohho, Lubombo, Manzini, and Shiselweni (World Atlas, 2017).

The country has four degree and post graduate degree granting tertiary institutions, which include the University of Swaziland, Southern African Nazarene University, Swaziland Christian University, and the Limkokwing University of Creative Arts and Technology (Africa Universities, 2016). UNISWA is the biggest tertiary institution in the country, and the only university offering post graduate programs such as Masters and PhDs. UNISWA was established in 1982 by an act of parliament with mandates including teaching, research, and community service. The University of Swaziland has three campuses including Kwaluseni, Luyengo, and Mbabane. Kwaluseni campus is located at 9 kilometres from the city of Manzini, and 34 kilometres from the capital city, Mbabane. This campus is close to the main road linking Manzini and Mbabane. Luyengo campus is located at Malkerns valley at approximately 37 kilometres from Mbabane, and 27 kilometres from Manzini. Mbabane campus is at the city of Mbabane, approximately 37 kilometres from Kwaluseni campus (Universities of Swaziland, 2016). UNISWA was selected for this study, as it is the only tertiary institution in the country with an established IR. Figure 1.1 below shows the map of Swaziland and UNISWA campuses.

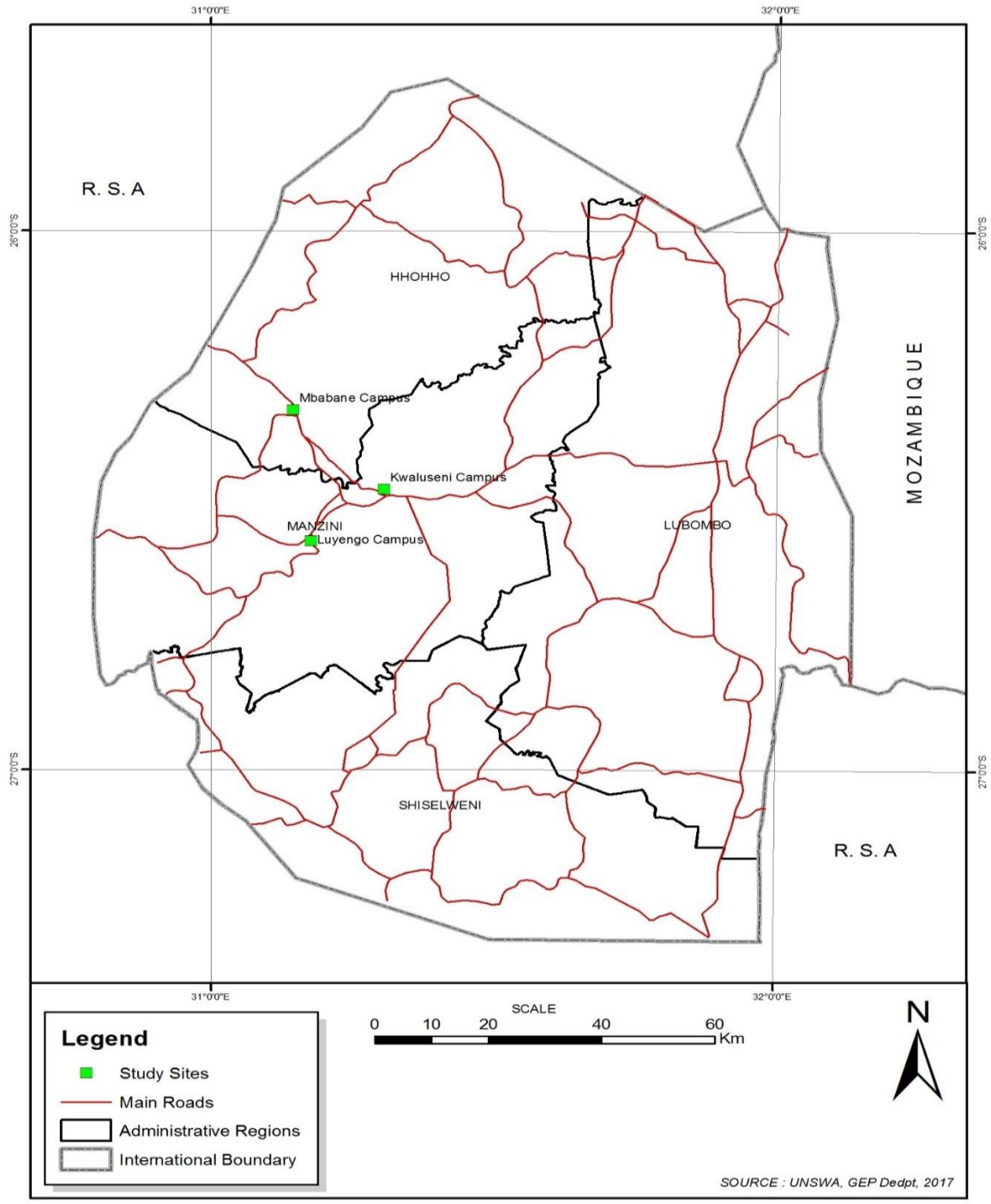

Figure 1.1: Map of Swaziland (Source: UNISWA GEP Department, 2017).

1.3 Usability and Service Quality of IRs

Usability is defined by ISO 9241-11 (1998) as the extent to which a product can be used by specified users to achieve their goals with effectiveness, efficiency and satisfaction, within a specified context of use. Usability studies therefore enable users to achieve their goals, enjoy their experience, and invite others to do the same; show areas where efficiency, effectiveness, and satisfaction can be improved; and give returns on investments. Holden

and Rada (2011) aver that there is a reasonable assumption that usability is a prerequisite for acceptance such that if a technology is considered as highly usable and useful, it is more likely to be accepted by targeted users. On the contrary, Dillion (2001) argues that this is not the case since many technologies had been perceived as highly usable and useful, but were never accepted by users. This is because such technologies were developed without an adequate understanding of the targeted users. In the same vein, Tibenderana (2010) opines that information systems can only add value to a country, organisation or individuals if the system is accepted and used. To predict and explain the acceptance and use of technologies, it is thus essential to examine why people use or do not use them.

Service quality on the other hand is defined by Groonroos (1984) as an outcome of an evaluation process where service users compare their expectations with a service they received. According to Zeithaml, Berry and Parasuraman (1996) user's perceptions of service quality are influenced by problems they encounter during service delivery. An effective resolution to these problems leads to stronger bonds between customers and service providers, which results in higher perceptions of service quality. Keco (2014) argues that in online environments issues such as slow internet speed, bad interface, and poor system's design are believed to ruin users' perceptions of service quality. Jun, Yang and Kim (2003) concur with this view and assert that design features, and the emotional experiences attached to accessing a site determine whether users will return to that website or not. Jun, Yang and Kim (2003), and Jun and Yang (2008) assert that ease-of-use is an essential feature in online service quality. They posit that the vital features of ease-of-use comprise the ease of finding web pages from search engines; navigating content from a website; remembering the website for future use; and understanding the structure of the site as well as linkages between pages.

Akter, D'Ambra and Ray (2011) aver that service quality is a critical component in electronic services including IRs. Consequently, if users do not trust the quality of the service provided, it negatively impacts on their intention to continue using the IR service. Similarly, Nielsen (2012) states that if an information system such as an IR is difficult to use (due to design issues), or fails to specify the services offered, users are more likely to reject it. It is therefore essential for IR administrators to ensure that IRs are easy to use and have good quality interfaces that are easily understood, and used by targeted audiences (Muhamad, 2009). IR users have nevertheless reported several challenges they encounter as they interact with IRs. These include difficulties in learning how to search and retrieve

documents; failure to locate links for opening and viewing documents especially in Eprint IRs; difficulties in understanding how search results are sorted, and poor software functionality which inhibits users from deleting or moving objects across categories (Kim, 2005; Davis & Connolly, 2007). These challenges result in some users having less inclination towards IRs.

Tibenderana (2010) pointed out that LIS studies have focused on evaluating the quality of services than evaluating why services are used or not utilised by targeted audiences. According to Nicholas et al. (2013), even though literature has widely covered institutional repositories, most of it focuses on the implementation of IRs, and fewer studies have dealt with the evaluation of IRs.

IR studies conducted from the Swazi context are limited and have focused on the implementation side. Thiyam and Dlamini (2013) examined policy decisions, user-needs assessments, and technical infrastructure plans for building IRs to meet data archiving needs across UNISWAs campuses. Yumba (2012) assessed the strategic benefits of IRs to institutions, academia, and the country at large. Thiyam and Dlamini (2013) pointed out that even though faculty claim to support the UNISWA IR, very few have voluntarily submitted their research. In the same vein, Dlamini (2016) pointed out that based on usage statistics and observations, the UNISWA IR is poorly used by faculty and post graduate students, and these users are less inclined to contribute their scholarly work to the institution's repository.

Unlike previous studies that mainly focused on the implementation of IRs, the current study evaluated the usage of the UNISWA IR by target audiences. The study specifically assessed service quality and technology acceptance factors influencing the usability of the institutional repository by faculty and postgraduate students at the University of Swaziland.

1.4 Statement of the Problem

UNISWA library has over the last decade faced several challenges in its attempts to meet the information needs of its users especially faculty and postgraduate students who are the main drivers of research in the university. High journal subscription rates particularly in the sciences have made it difficult for UNISWA to procure enough information resources as required by researchers (Ngcobo, 2007). Moreover, UNISWA library has experienced significant budget cuts while the exchange rate has escalated to more than double in the last decade, further weakening the local currency (the Swazi Lilangeni). This has negatively affected the purchasing power of the Swazi Lilangeni against the US dollar (University of

Swaziland, 2015). These challenges compelled UNISWA librarians to reduce journal subscriptions. For instance, from 1995 to 1999, journal subscriptions totalled 745; from 2000 to 2004, these were reduced to 309 (Ngcobo, 2007); from 2005 to 2009, subscriptions slightly increased to 323; and from 2010 to 2014, journal subscriptions remained at 323; from 2015 till present, subscriptions have remained at 323 (UNISWA library, 2016). This shows that UNISWA library has over the years reduced its journal subscriptions by more than half.

To address the above-mentioned challenges, UNISWA established an IR to preserve scholarly materials, increase the visibility of the institution internationally, and to make local research output available in Swaziland and beyond. Unfortunately, to date the IR has remained under-utilised by faculty and postgraduate students, majority of whom are involved in research (Dlamini, 2016). Furthermore, faculty and postgraduate students have also not been keen to deposit their published work in the IR. Dlamini (2016) further pointed out that faculty members from some departments often cite poor service quality, and fear of archiving their scholarly content especially grey literature (such as dissertations and unpublished papers) as reasons for their poor usage of the IR.

Given that universities around the world including those in Africa are increasingly establishing IRs in an attempt to promote access to published scholarly literature, the extent to which IRs are being utilised and accepted by users' needs to be well understood. This study therefore assessed service quality and technology acceptance factors influencing the acceptance or rejection of the University of Swaziland's institutional repository by faculty and postgraduate students. The study was expected to play a vital role in guiding IR administrators to identify service areas that need to be improved; informing library management on the extent to which IR users from various faculties across UNISWA are utilising the IR; and enabling IR administrators to recognise any barriers impeding users from effectively using the IR.

1.5 Research Objectives

The major research objective of the study was to investigate the effect of service quality and technology acceptance on the usability of the UNISWA's institutional repository. The specific objectives of the study were:

1. To determine faculty and postgraduate students' satisfaction with the quality of services provided by the UNISWA Institutional Repository.

2. To assess the usability of the Institutional Repository by faculty and postgraduate students at UNISWA.
3. To make recommendations to the library based on the findings of this study.

The study addressed the following broader issues: user satisfaction; human computer interactions, open access, user studies, and information behaviour.

1.6 Research Questions

The major research question that this study sought to address was, "How does service quality impact on the usability of the UNISWA institutional repository?" The following specific research questions were addressed:

1. What are the perceptions of faculty and postgraduate students towards service quality in the use of the UNISWA IR?
2. What quality factors influence the usability of UNISWA's institutional repository by faculty and postgraduate students at UNISWA?
3. What is the level of usage of UNISWA's institutional repository by faculty and postgraduate students?
4. What are the challenges of service quality facing faculty and postgraduate students in the use of UNISWA IR?
5. What is the role of librarians in promoting service quality of the UNISWA IR?
6. What recommendations can be delineated based on the findings of the study?

1.7 Study Assumptions

The study is based on the following assumptions:

1. Postgraduate students and faculty do not effectively use the institutional repository because they are not aware about the existence of the UNISWA IR, and those who are aware are not satisfied with services offered through IR.

2. Postgraduate students and faculty members do not seem to understand the value of IRs in enhancing scholarly communication through the free dissemination of research related information and therefore minimising information access constrains.

1.8 Significance of the Study

According to Creswell (2003) the significance of a study is determined by: how much value it adds to the scholarly research and literature in the field; and how it improves practice and policy in the area of study. This study is significant in terms of the following:

Practice: through exploring service quality and technology acceptance factors influencing the use of UNISWA's institutional repository by faculty and postgraduate students, this study is expected to contribute towards a better understanding of the field of Library and Information Science practice with regards to factors affecting the uptake, and effective use of institutional repositories by faculty and students.

Theory: the study contributes to the available body of theory through examining the effect of service quality and technology acceptance theories in a digital library context. Findings of the study further enable researchers to draw comparisons with other similar studies.

Policy: the findings of the study provide a foundation upon which relevant policies can be developed, re-evaluated, or refocused to guide the IRs robust content recruitment/management strategies, and the overall functioning of IRs.

1.9 Scope and Limitations of the Study

The study was conducted at UNISWA's three campuses on faculty and postgraduate students. Administrative staff and undergraduate students were not included in this study. One of the limitations the researcher had to contend with was a strike which led to the closure of the university for two weeks. This made it difficult to find majority of faculty who did not come to campus since lecturers were suspended. During this period, it was also difficult to find postgraduate students, as they were not allowed to access UNISWA premises until the university resumed its operation. Other limitations were that: some members of faculty stated that they were not aware of the IR and therefore refused to partake in the study; and others indicated that they had a busy schedule and thus no time for questionnaires. Moreover, some amongst faculty took a long time to complete questionnaires. This required the researcher to make numerous follow ups before these respondents could successfully complete the survey questionnaires.

The researcher distributed questionnaires for Masters and PhD students in lecture halls. This however, meant that those who were absent could not be reached. This limitation was addressed by further distributing the questionnaires in the library's postgraduate research commons in order to access even those students who were no longer doing course work. Collecting data from students took longer than expected because of the strike, and the fact that majority of Masters and PhD students were part time students and therefore only attended lectures once a week. Notwithstanding of these limitations, the study managed to

obtain satisfactory feedback with an overall response rate ranging from 50-100% from the different UNISWA faculties.

1.10 Structure of the Thesis

This thesis is organised into seven chapters as follows: Chapter one: Introduction, Chapter two: Theoretical framework, Chapter three: Literature review, Chapter four: Methodology, Chapter five: Data analysis and presentation of findings, Chapter six: Discussion of findings, and Chapter seven: Summary, conclusion and recommendations.

Chapter 1: Background to the Study

The chapter provides the background to the study, statement of the problem, research objectives, research questions, study assumptions, significance of the study, site of the study, scope and limitations.

Chapter 2: Theoretical Framework

This chapter presents the theoretical models that underpin the study such as SERVQUAL and UTAUT. Other relevant theories/models are discussed to deepen the understanding of the topic under study.

Chapter 3: Literature Review

Chapter three reviews and presents empirical, and theoretical literature in electronic and print formats, from books, journals, theses, conference proceedings, technical papers, and other sources. Gaps in literature are isolated and clarifications on how each gap is addressed by the study are provided.

Chapter 4: Research Methodology

This chapter describes the methodology used in this study. This includes the choice of research paradigm, research approaches, research design, study population, sampling techniques, validity and reliability, data collection strategies, data analysis, mapping of research questions to sources of data, and ethical considerations.

Chapter 5: Data Analysis and Presentation of Findings

This chapter presents the analysis of quantitative and qualitative data sourced from questionnaires and interview schedules, and presents the data using descriptive statistics and narrative discussions.

Chapter 6: Discussion of Findings

This chapter discusses the findings presented in chapter five. The discussion is supported by extant literature and the theories underpinning the study.

Chapter 7: Summary, Conclusion, and Recommendations

This chapter presents summary of findings, conclusions, and recommendations. The chapter also provides suggestions for future areas of study. The originality of the study and contributions of the study to policy, research, theory, and practice are presented.

1.11 Summary

Chapter one discussed the background to the study, study site and higher education in Swaziland, usability and service quality of IRs, statement of the problem, research objectives, research questions, and the significance of the study. The chapter also presented the scope and limitation of the study, structure and organisation of chapters, as well as the summary of the chapter.

CHAPTER TWO

THEORETICAL FRAMEWORK

2.1 Introduction

Grant and Osanloo (2014) define a theoretical framework as a structure defining how one will philosophically, methodologically, and analytically approach a research problem. They further assert that a theoretical framework consists of selected theories that inform one's thinking regarding how to understand and plan their research topics. Bwisa (2015) on his part posits that a theoretical framework explains the relationship between two or more variables, and guides research by determining what has to be measured as well as the statistical relationships to look for. According to Grant and Osanloo (2014) a research plan that contains a theoretical framework results in a dissertation that is strong and structured, with an organised flow of ideas. On the contrary, a research plan without a theoretical framework has an unclear structure and vision, just like a house that is constructed without a blueprint.

This study aims to assess the usability of the Institutional Repository (IR) by faculty and postgraduate students at the University of Swaziland. Quesenbery (2001) asserts that usability entails thinking about how and why people use particular products or technologies. Nielsen (2012) on his part defines usability as a quality attribute assessing how easy interfaces are to use. This author argues that usability is an essential component in information systems because if a system's interface is difficult to use or fails to state the services offered clearly, users will reject that system. Quesenbery (2001) asserts that usable technologies should be efficient, effective, engaging, easy to learn and error tolerant. Nielsen (2012) is of the view that usable technologies should be learnable, efficient, memorable, error tolerant and able to satisfy users' needs.

The study is underpinned by the Service Quality Model alongside the Unified Theory of Acceptance and Use of Technology. The former assesses faculty and Postgraduate student's perceptions of the quality of services offered by the UNISWA IR, while the latter examines technology acceptance factors influencing user's decisions to accept or reject the UNISWA IR. Other relevant service quality and technology acceptance models and theories including LIBQUAL, the Technology Acceptance Model, and Theory of Reasoned Action are also discussed in this chapter. A model is defined by Mooney and Swift (1999, p. 1) as the

purposeful representation of reality which contributes towards the understanding of specific phenomena, while a theory defined by Creswell (2003, p. 120) as “a set of interrelated constructs (variables), definitions, and propositions that presents a systematic view of phenomena by specifying relations among variables, with the purpose of explaining natural phenomena. A theory develops when researchers test a prediction many times”. The UTAUT theory and SERVQUAL model were both used as a framework for this study and as organising models for the research questions and data collection procedures. The theory and model were similarly applied depending on their relevance to the study’s research questions.

2.2 SERVQUAL Model

Gronroos (1990) defines a service as an activity or series of activities resulting in interactions between service users and service employees, and the physical resource or the system of the service provider. Customers evaluate a service received based on their emotional judgements of the service encounter compared with their initial expectations of how the service should have been delivered. According to Parasuraman, Zeithaml and Berry (1985), service quality is difficult to measure due to its intangible nature, which makes it difficult for service providers to understand how consumers perceive and evaluate service quality.

Parasuraman, Zeithaml and Berry (1985) identified four gaps from the service provider’s side that affect customer’s perceptions of service quality. These gaps result in a fifth gap, which is the difference between customer’s expectations and perceptions of the actual service received. The gap model is shown in figure 2.1.

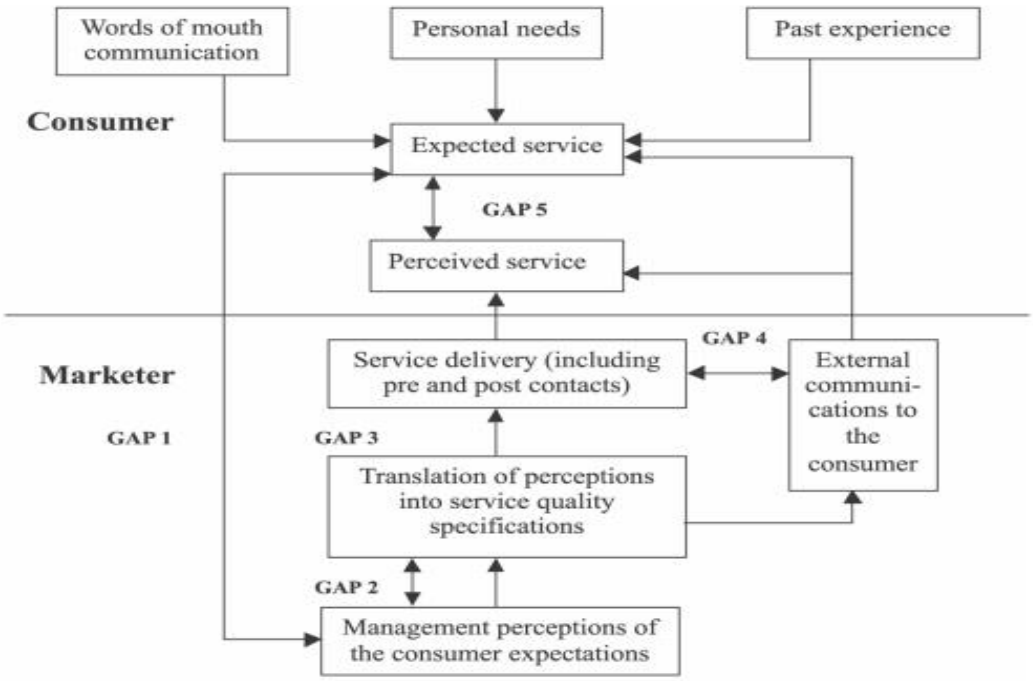

Figure 2.1: The Gap Model (Source: Parasuraman, Zeithaml & Berry, 1985).

Moola and Du Plessis (1997) expound the gaps model as follows:

> **Gap 1: Customer expectation – Management gap:** This gap addresses the difference between customer's perceptions and management's perceptions of customer's expectations.
>
> **Gap 2: Management perception – Service specification gap:** This gap addresses the difference between the company's quality specifications and management's perceptions of customer's expectations of the service received and its quality.
>
> **Gap 3: Service quality specifications – Service delivery gap:** This gap addresses the difference between the quality of service delivery and quality specifications.
>
> **Gap 4: Service delivery – External communications gap:** This gap addresses the difference between the quality of the service delivered and the quality promised when communicating the service.
>
> **Gap 5: Expected service – Perceived service gap:** This gap addresses the difference between the expected and perceived service quality.

SERVQUAL was proposed to measure the fifth gap (Gap 5), and is so far the most popular model used in the services marketing literature for service quality assessments (Kulasin & Fortuny-Santos, 2005). The model was developed by Parasuraman, Zeithaml and Berry in

1985, and later refined in 1988 and 1991. SERVQUAL was established to investigate the discrepancies between services expected by customers and the actual services received. The model enables comparisons to be made before and after any changes in service delivery, and the location of service quality related problems, which results in the establishment of clear service delivery standards (Dehghan, 2013).

Shahin and Samea (2010) posit that the model was originally composed of ten dimensions which include tangibles, reliability, responsiveness, courtesy, credibility, security, accessibility, communication, and understanding customers. When the model was enhanced these dimensions were simplified and collapsed into five. Figure 2.2 depicts the refined SERVQUAL model.

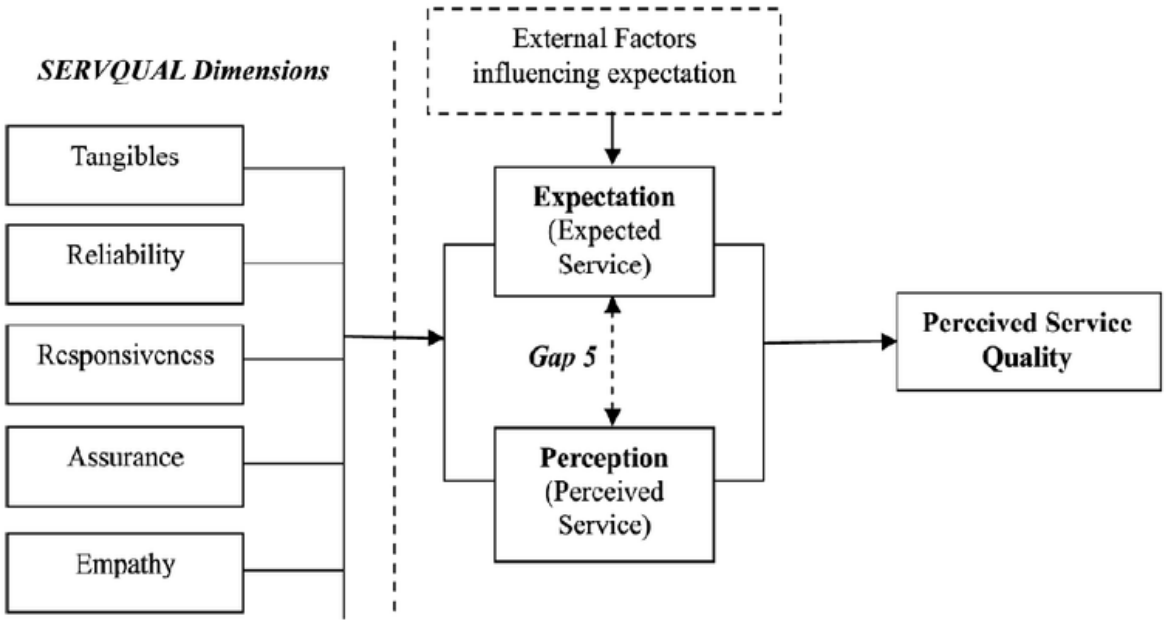

Figure 2.2: The SERVQUAL Model (Source: Kumar et al., 2009).

Hirmukhe (2012) expounds the SERVQUAL dimensions as follows:

Tangibles: the physical environment including facilities, equipment, communication materials, personnel, and their dress code.

Reliability: the ability to perform the service dependably and accurately as promised to customers.

Responsiveness: Performing the service promptly and quickly, helping customers and being available to fulfil their needs.

Assurance: A combination of competence (possession of the required skills and knowledge to perform the service); courtesy (politeness, respect, consideration and friendliness of

contact staff); credibility (trustworthiness, believability, and honesty of staff); and security (freedom from danger, risk and doubt).

Empathy: A combination of access (approachability and ease of contact); communication (keeping customers informed in a language they understand and listening to them); and understanding the customer (making an effort to know customers and their needs).

SERVQUAL evaluates service quality by calculating the gap between customers' perceptions (P) and expectations (E), where P-E = service quality. A negative value between P and E indicates that users are dissatisfied with that particular aspect of the service, whilst a positive answer indicates that users are satisfied with the quality of services (Shahin & Samea, 2010). The SERVQUAL model requires users to react to 22 statements which are based on the model's five dimensions, with four or five statements per dimension. These statements appear in two sets, with one designed to evaluate users' expectations before receiving the service and the other set, their perceptions after the actual service. User's responses to the SERVQUAL statements are based on a five-point Likert scale with intervals ranging from strongly agree to strongly disagree. A gap score is thereafter calculated for each statement from all dimensions. Dimensions with the biggest deviations provide guidelines for areas where service quality needs to be improved (Moola & Du Plessis, 1997). Table 2.1 below depicts "traditional" SERVQUAL statements and those customised for information systems settings such as institutional repositories.

Table 2.1: SERVQUAL Dimensions (Parasuraman, Zeithaml & Berry, 1985).

SERVQUAL dimensions	SERVQUAL dimensions (IR Settings)
Tangibles *****Modern looking equipment *Physical facilities visually appealing. *Employees neat in appearance. *Service pamphlets visually appealing.	**Tangibles** *****It is easy to navigate the IR. *Content in the IR page is well organised. *The IR page has a good appearance. *Documents in the IR are well organised.
Empathy *Individual attention to customers. *Operating hours convenient for all customers. *Customers given personal attention. *Company has customers' best interest at heart. *Customer's needs are understood and met.	**Empathy** *****IR accessed from anywhere and at any time. *IR provides quick and easy access to documents. *IR enables users to save search results. *Documents suggested to users based on their past searches. *Users notified of new documents.

Responsiveness *Customers told about services offered *Services are provided promptly. *Employees always willing to help. *Employees never busy to serve customers.	**Responsiveness** *IR responds well to user's needs. *Users can email complains to librarians. *User's issues addressed promptly. *User's issues addressed in a polite manner.
Assurance *Employees' behaviour instils confidence. *Customers feel safe in their transactions. *Employees are courteous with customers. *Employees have appropriate knowledge.	**Assurance** *IR effectively retrieves searched documents. *The system provides spelling suggestions. *IR has adequate security features. *Users trust the site.
Reliability *****Error free records. *Service provided as promised. *Service provided at the promised time. *Service provided right at the first attempt. *Problems addressed in an excellent manner.	**Reliability** *****IR provides error free records. *IR page is always visible. *IR is frequently updated. *IR contains relevant documents. *IR provides accurate resources.

2.2.1 Strengths and Weaknesses of the SERVQUAL Model

SERVQUAL has proven to be the most popular instrument for measuring service quality. Brysland and Curry (2001) assert that SERVQUAL is a tried and tested instrument that can be used comparatively for benchmarking purposes. Kulasin and Fortuny-Santos (2005) state that SERVQUAL is a concise multi-item scale with good reliability and validity; that can be used across a broad spectrum of services to understand the expectations and perceptions of service users. The model can be used with little caution in a variety of settings, with changes being made to it to suit any local settings or conditions including information systems settings such as institutional repositories (Manjunatha & Shivalingaiah, 2004). SERVQUAL has successfully been used to assess service quality in various service industries including healthcare, banking, fast food, libraries, telecommunications, information systems and web sites (Shahin & Samea, 2010). Rehman, Kyrillidou and Hameed (2014) praise the model's five dimensions for adequately describing the academic library context. Asubonteng, McCleary and Swan (1996) posit that until a better and simple model emerges, SERVQUAL will remain a predominant measure of service quality.

Besides its popularity and widespread usage in service quality assessments, SERVQUAL has been subjected to several criticisms. Cronin and Taylor (1992) criticised SERVQUAL for being pragmatically flawed due to its ill-judged adoption of a disconfirmation rather than an attitudinal model. Cronin and Taylor (1992) argue that perceived service quality is best conceptualised as an attitude, and criticise Parasuraman, Zeithaml and Berry for failing to

define perceived service quality in attitudinal terms, even though they had earlier claimed that service quality was in many ways similar to attitudes. Kulasin and Fortuny-Santos (2005) posit that even though SERVQUAL is based on the gap model, there is little theoretical and empirical evidence supporting the expectations-performance gap as a basis for assessing service quality. Buttle (1994) concurs with this view and states that SERVQUAL fails to draw from established Social Science theories including those from Economics, Statistics, and Psychology.

Buttle (1994) further criticises SERVQUAL for focusing on the process of service delivery than the outcomes of the service delivery encounter when this is also an essential feature in service quality. The model has also been criticised on theoretical grounds in terms of the dimensionality of its scale. Jones and Shandiz (2015) argue that the relative importance of the five SERVQUAL dimensions differ when the model is applied in various settings. Cultural differences have also been observed to influence the relative importance of the SERVQUAL dimensions, which results in these dimensions being interpreted differently. The SERVQUAL model has further been criticised on operational grounds for its boring and confusing two times administration of the expectations and perceptions sections. Such boredom and confusion has adverse effects on the quality of data received from respondents (Kulasin & Fortuny-Santos, 2005). These scholars also pointed out that when respondents are asked to indicate their desired levels of service (expectations) versus the actual service (perceptions), they often rate the former higher than the latter. Franceschini and Cignetti (1998) argue that the length and the total number of items included in a questionnaire are also crucial factors to consider when constructing questionnaires. Including more items is likely to stimulate idiosyncrasy and tiredness during the questionnaires' administration.

Kulasin and Fortuny-Santos (2005) also call into question the polarity of the 22 items of the SERVQUAL model. They point out that 13 statements were positively worded and nine statements from the responsiveness and empathy dimensions, negatively worded to reduce any biases caused by yes and no responses. Kulasin and Fortuny-Santos (2005) state that when factor analysis was conducted, the negatively worded items loaded heavily on one factor, while positively worded ones loaded on another. Buttle (1994) points out that this results in significant differences between average perceptions, expectations, and gap scores of the negatively and positively worded items. Buttle (1994) thus concluded that item wording creates data quality problems, which calls into question the validity of the SERVQUAL model. Parasuraman, Zeithaml and Berry (1991) responded to this criticism by

positively rewording all negatively worded items. Furthermore, some SERVQUAL items were criticised for not loading on the factors to which they were expected to belong. Only two thirds of the SERVQUAL items loaded in the same way on the expectations side as they did for perceptions. This indicates SERVQUAL's face and construct validity problems (Kulasin & Fortuny-Santos, 2005).

Despite these criticisms, SERVQUAL model is suited for this study and was used to assess UNISWA users' perspectives and expectations of the quality of services offered by the institutional repository. The model was selected for this study since it has been successfully used in various online/information system's settings to assess users' expectations and perceptions of service quality (Pitt, Watson & Kavan, 1995). The model has also demonstrated good reliability and validity when applied in various contexts (Kulasin & Fortuny-Santos, 2005). SERVQUAL is thus suitable to assess the quality of services offered by IRs as information systems. Any shortcomings from the SERVQUAL model are addressed by integrating this model with the Unified Theory of Acceptance and Use of Technology.

2.3 LIBQUAL +®

This model was established through collaboration between the Association of Research Libraries (ARL) and Texas A&M University libraries. LIBQUAL +® enables libraries to easily identify and measure library users' perspectives of the quality of services offered by their library (Rehman, Kyrillidou & Hameed, 2014). LIBQUAL +® was developed based on SERVQUAL since many academic libraries had used variations of SERVQUAL, and because LIBQUAL +® was building on earlier experiences that demonstrated the statistical integrity of its results in its application in Texas A&M university libraries (Cook & Heath, 2001). LIBQUAL +® thus aims to: foster a culture of excellence in providing library resources; help libraries better understand perceptions of library service quality; collect and interpret library users' feedback system overtime; provide libraries with comparable assessment information from peer institutions; identify areas of best practice in library services, and to enhance staff members' analytical skills for interpreting and acting on data (Association of Research Libraries, 2016).

More than 1.5 million library users from twelve hundred libraries across the world have participated in LIBQUAL +® surveys since its implementation in 2000 (Rehman, Kyrillidou & Hameed, 2014). Just like SERVQUAL, this model consists of 22 questions

and a free text comment box where open-ended comments with users' concerns and suggestions are captured. A set of demographic, satisfaction and outcome questions are also included. Respondents are expected to answer each of the 22 questions on a scale based on three perspectives including: the minimum level of service; the perceived (the actual service); and the desired level of service (Cook & Maciel, 2012). Gap scores are calculated between the minimum and perceived expectations, and desired and perceived expectations. The difference between the minimum and desired scores is called the zone of tolerance (Edgar, 2006). Figure 2.3 depicts the LIBQUAL +® model.

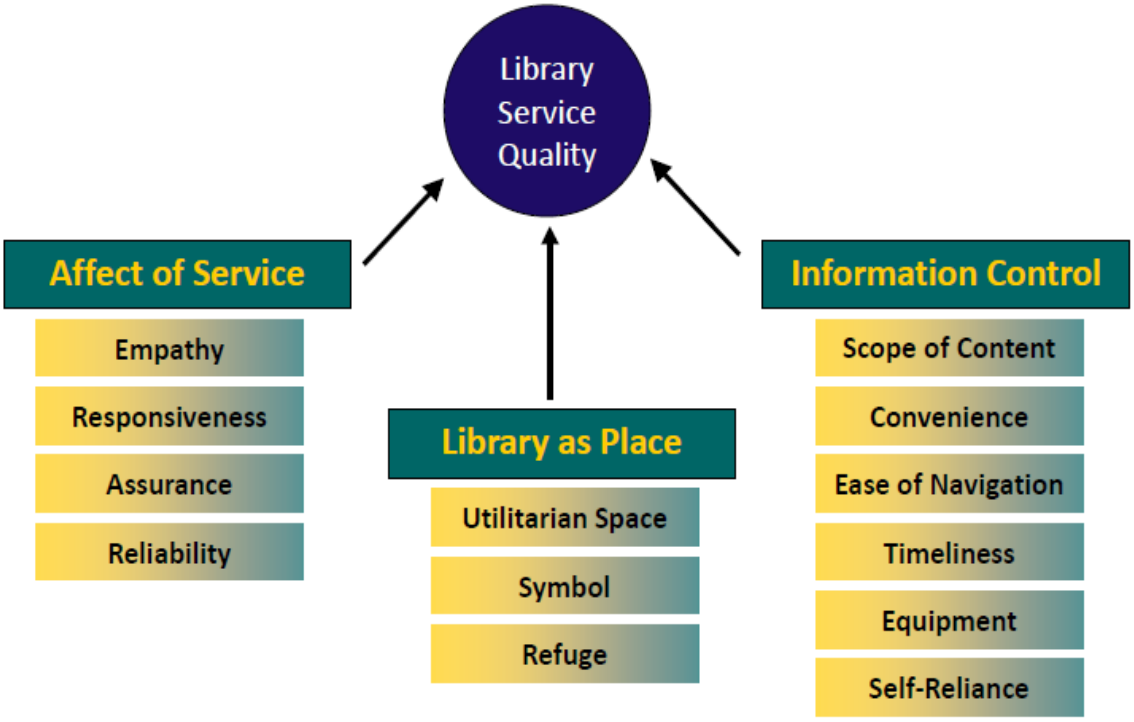

Figure 2.3: The LIBQUAL Model (Source: Association of Research Libraries, 2016).

The 22 LIBQUAL +® core items are classified based on three service quality dimensions which the Affect of Service (AS), Information Control (IC), and Library as a Place (LP) dimensions. Rehman, Kyrillidou and Hameed (2014) expound these as follows:

AS: consists of nine questions related to courtesy, knowledge, and the helpfulness of library staff in delivering user services.

IC: consists of eight dimensions related to the adequacy of print and electronic collections, the ease of using electronic tools, availability of modern equipment, utility of the library website, as well as self-reliance in information access.

LP: consists of five questions focusing on users' perceptions of quiet, comfortable, inviting and reflective study space that inspires study and learning.

LIBQUAL is a well-designed and robust model which has been rigorously tested since its inception (Russell, 2010). LIBQUAL has emerged as a mature and reliable model for evaluating library service quality (Kyrillidou, 2006). Various studies (Cook & Heath, 2001; Thompson, Cook & Heath, 2003; Thompson, Cook & Kyrillidou, 2005; Thompson, Cook & Kyrillidou, 2006; Thompson, Kyrillidou & Cook, 2008) have confirmed the psychometric integrity of the LIBQUAL model using different well known approaches such as structural equation modelling, reliability analysis, factor analysis, taxonometric analysis, and the latent trait item response theory (Rehman, Kyrillidou and Hameed, 2014). Moreover, LIBQUAL has steadily produced reliable results with a high Cronbach's alpha for all its three dimensions (Thompson, Kyrillidou & Cook, 2008).

Edgar (2006) critiques LIBQUAL for partially conceptualising library's operations through placing emphases on users' eventual outcomes such as improved grades, but failing to explicitly conceptualise users' more immediate needs for epistemological value in the form of information, education, or persuasion. Edgar (2006) further asserts that LIBQUAL correctly emphasises the role of user self-reliance and satisfaction, but unduly deemphasises users' need for professional assistance and their actual experience of quality library services. Mcknight (2010) further argues that the model's library as a place dimension is becoming increasingly irrelevant with the widespread use of the internet and other information communication technologies used to access information from libraries.

LIBQUAL is applicable in this study as the model has proven to be robust and reliable in the assessment of library service users' perceptions and expectations of service quality (Russell, 2010; Kyrillidou, 2006). LIBQUAL however, does not underpin this study because it partially addresses the issue of library service quality in digital library environments, since the model was initially developed to address service quality in traditional print based library environments (Kyrillidou, Cook & Lincoln, 2009).

2.4 Technology Acceptance Models/Theories

Dillion (2001) defines user acceptance as the demonstrable willingness of users to employ an information technology for the task it is designed to support. Samaradiwaka and Gunawardena (2014) view technology acceptance as a critical factor in determining the success or failure of any technology, and argue that a technology is of no value if it is not

accepted and used. Technology acceptance theories thus play a vital role in influencing the design and implementation of information systems in a manner that minimises the risks of rejection or resistance by users (Dillion, 2001). The technology acceptance theories/models relevant to this study are discussed below.

2.4.1 Theory of Reasoned Action (TRA)

The TRA was developed in 1967 and revised in the early 1970s by Ajzen and Fishbein. The theory posits that beliefs influence attitudes, which leads to intensions that guides or generates behaviours (Hu et al., 1999). A fundamental part of this theory is the assumption that human beings are rational. Before they act, they make systematic use of information available to them and evaluate consequences of their actions before deciding whether or not to engage in any social action (Ajzen & Fishbein, 1980). Figure 2.4 shows the TRA.

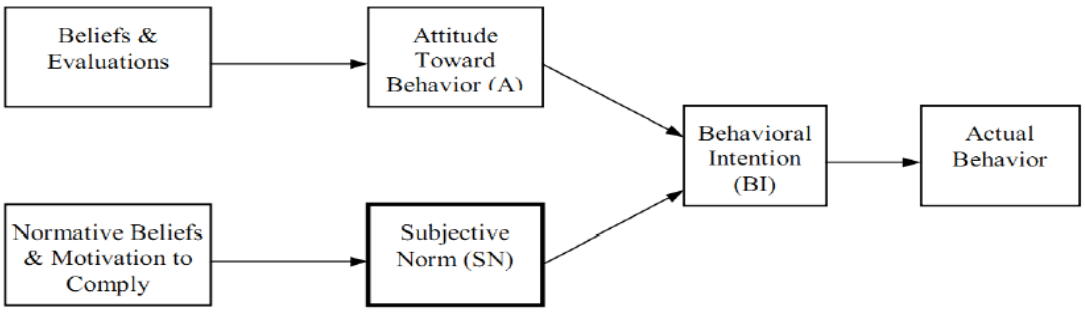

Figure 2.4: TRA (Source: Ajzen & Fishbein, 1975).

The major constructs of the TRA are as discussed below:

Behavioural Intension (BI): is a measure of the strength of one's intension to perform a particular behaviour (Ajzen & Fishbein, 1975). According to Montano and Kasprzyk (2015), BI is the strongest and most proximal predictor of volitional behaviour. The direct determinants of BI are individuals' attitudes towards performing the behaviour as well as the subjective norms associated with the behaviour in question.

Attitudes (A): Ajzen and Fishbein (1975) define A as individuals' positive or negative feelings towards performing a certain behaviour. Montano and Kasprzyk (2015) assert that A is determined by individuals' beliefs about the outcomes or attributes of performing a particular behaviour, and an evaluation of these outcomes. A person who holds strong beliefs that certain behaviour will yield positive outcomes is thus more likely to perform that behaviour.

Social/Subjective Norms (SN): Individuals' perceptions that people important to them or referents think they should or should not perform the behaviour in question. This is determined by individuals' normative beliefs (Ajzen & Fishbein, 1975). Montano and Kasprzyk (2015) posit that, a person who believes certain referents think he should perform certain behaviour, and is motivated to meet their expectations, is more likely to have a positive subjective norm.

The TRA is hailed for being a simple and very general theory, designed to explain virtually any human behaviour. TRA is also a widely used and well-researched intension model that has proven to be successful in predicting and explaining volitional behaviour in a variety of contexts (Ajzen & Fishbein, 1975). Sheppard, Hartwick and Warshaw (1988) concur with this view and stated that TRA has strong predictive utility even when applied to assess settings and activities that do not fall within boundary conditions originally specified for this theory. Hale et al. (2002) argue that besides its widespread usage, this theory has been criticised for focusing on volitional behaviours, while excluding a wide range of behaviours such as spontaneous, impulsive, and habitual behaviours. Hale et al. (2002) aver that individuals may be prevented from performing certain behaviours because they lack the required skills, and cooperation from others, and not necessarily due to a voluntary decision not to engage in that activity. Kippax and Crawford (1993) argue that when individuals' behaviours are not under their full volitional control, the constructs of the TRA might not be sufficient to predict behaviours.

According to Hale et al. (2002), the TRA posits that attitudes and subjective norms have empirically distinct influences from behavioural intensions. This contradicts findings by scholars (Bearden & Crockett, 1981; Greene, Hale & Rubin, 1997; Miniard & Cohen, 1981; Park, 2000) who indicated that attitudes and subjective norms are positively correlated and therefore should not be treated as distinct entities. Hale et al. (2002) suggested that it would be theoretically useful for Ajzen and Fishbein to specify the conditions under which attitudes and subjective norms would or would not affect behavioural intensions. Kippax and Crawford (1993) also criticised this theory for its failure to consider the role of environmental and structural issues. In response to these criticisms, Ajzen and Fishbein modified and extended the TRA to the theory of planned behaviour. They added the perceived behavioural control construct to accommodate environmental factors which are not under individual's volitional control but have a potential of influencing behaviour. The

TRA was not applied in this study because it has been enhanced in TAM, and is incorporated in the Unified Theory of Acceptance and Use of Technology.

2.4.2 Technology Acceptance Model (TAM)

TAM was proposed by Davis (1989) based on the Theory of Reasoned Action by Fishbein and Ajzen. While TRA posits that beliefs influence attitudes, which in turn lead to intentions that guide or generate behaviours, TAM adapts this belief-attitude-intention-behaviour relationship to an IT user acceptance model (Hu et al., 1999). The TAM model provides explanations for the determinants of computer acceptance and computer usage behaviour across a broad range of end user computing technologies. This model has two major variables: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). These are influenced by external variables including social, cultural and political factors (Surendran, 2012). The technology acceptance model is shown in Figure 2.5 below.

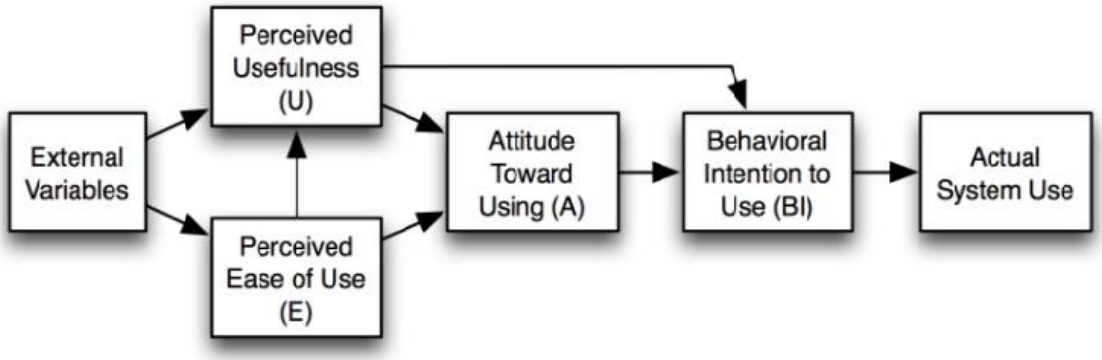

Figure 2.5: The TAM (Source: Davis, 1989).

TAM constructs are defined below by Davis (1989), Wu et al. (2011) and Surendran (2012):

Perceived Usefulness (PU): is defined as the degree to which one believes that using a particular system will enhance their job performance. This means that if one perceives a new technology to be useful, he or she is more likely to develop positive attitudes towards that technology.

Perceived Ease of Use (PEOU): refers to the degree to which a person believes that using a particular technology will be easy or free of effort. This means that the more people perceive a new technology as easy to use, the more likely they are to develop positive attitudes towards using it.

Attitudes towards use (A): is concerned with users' evaluation of the desirability of adopting a particular system or technology. Attitudes towards use are simultaneously

influenced by PU and PEOU, which means that higher perceptions of PU and PEOU of an information system result in positive attitudes towards using the system.

Behavioural Intension (BI): this refers to the likelihood that users may engage in a particular activity such as adopting an information system or technology.

External variables: As noted above these include social, cultural, and political variables. Social variables include language, skills, and facilitating conditions. Political factors are concerned with the impact of using technology in politics and political crisis.

According to Chuttur (2009) one's actual use of a technology/ system is influenced directly and indirectly by users' behavioural intension, attitudes, PU and the PEOU of that system. While PU has been identified as consistently important in attitude formation, this has not been the case for PEOU. Literature suggests that a plausible explanation for this difference is the fact that the importance of PEOU as a determinant of the intension to use a technology, is likely to become insignificant after user's prolonged exposure to the technology (Hu et al., 1999). TAM is a well-researched model whose overall explanatory power and measurement validity has been tested in various empirical settings characterised by different user groups, technology and organisational settings, which makes its use more operationally appealing (Hu et al., 1999). TAM is applauded for its ability to predict 40 to 50 percent of users' acceptance of technologies (Park, 2009).

Even though TAM is a popular technology acceptance model, it has been criticised for attracting quick and easy research, such that less attention has been given to the real problem of technology acceptance (Chuttur, 2009). The model is further critiqued for favouring simplicity, and thus overlooking essential determinants of decisions and actions (Bagozzi, 2007). This author argues that it is unreasonable to expect one simple model to explain decisions and behaviours across a wide range of technologies, adoption, and decision-making situations fully. TAM is further criticised by Malhotra and Galletta (1999) for excluding social influence when this is crucial in the adoption and utilisation of new information systems. Davis (1989) argues that even though subjective norm (a construct denoting social influence) has theoretical and psychometric problems (due to the difficulties in distinguishing if usage behaviour is caused by the influence of referents on ones' intention or by one's attitude) it is still important to include subjective norms in TAM.

Moreover, even though the models' empirical tests have demonstrated that it explains much of the variance in usage intension and self-reported usage, TAM however, has not been

tested with actual measures of usage. The model has relied on testing measures of usage intension or self-reported measures of usage which are often collected through examining beliefs, attitudes, and intensions (Taylor & Todd, 2001). These scholars further criticised TAM for failing to consider any barriers that would prevent individuals from adopting specific technologies.

Due to the model's weaknesses, Venkatesh and Davis (2000) extended the original TAM to TAM 2 to explain perceived usefulness and usage intensions through integrating social (subjective norm, voluntariness, and image), cognitive instrumental processes (job relevance, output quality and results demonstrability), and experience. TAM 2 has been tested in both voluntary and mandatory settings where the model explained about 60 percent of user's adoption of information technology (Park, 2009). Figure 2.6 below depicts TAM 2.

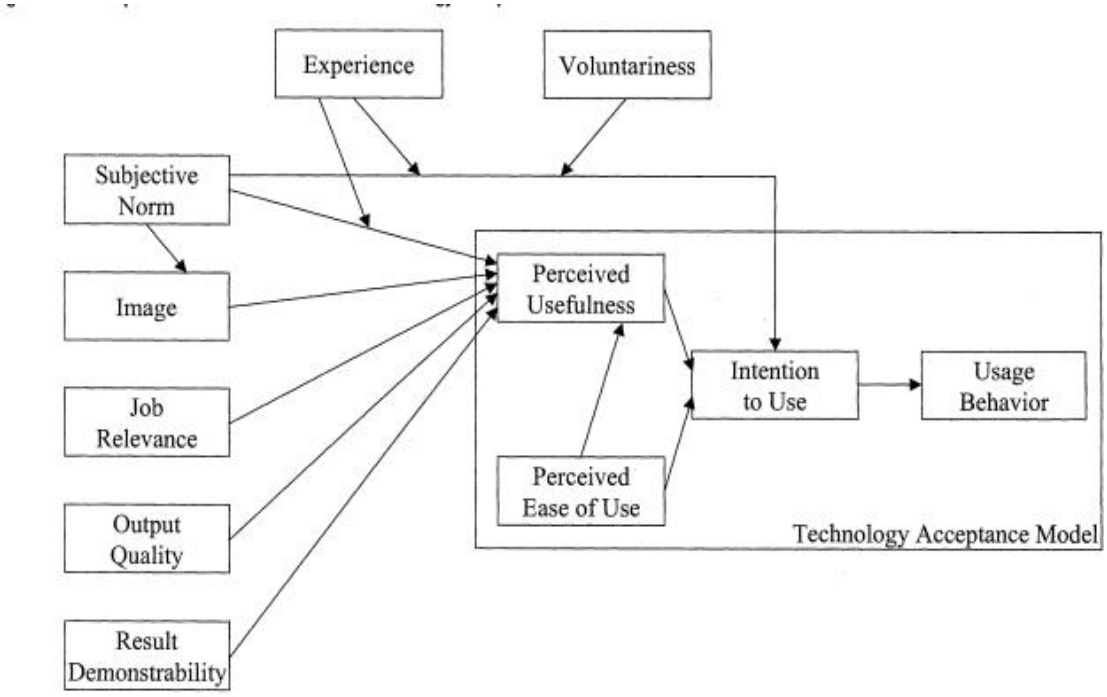

Figure 2.6: TAM 2 (Source: Venkatesh & Davis, 2000).

Wu et al. (2011) explains TAM 2 variables as follows:

Subjective norm: is defined as people's perceptions that those who are important to them think they should or should not perform the behaviour in question.

Voluntariness: the extent to which potential adopters perceive their adoption decision to be non-mandatory. When users perceive the usage of a system as mandated by their organisation, usage intensions may vary as some users may be unwilling to comply with the mandates.

Image: the belief of a group important to an individual that certain behaviour should be implemented, and that implementing such behaviours can persistently enhance the quality of internal works within organisations.

Job relevance: an individual's perception regarding the degree to which an information system is applicable to his or her job.

Output quality: the degree to which individuals judge the effect of a new system. In other words, the degree to which one thinks the new information system is able to perform the required tasks.

Results demonstrability: the tangibility of the results of using a particular innovation which directly impacts on PU. This means that users are more likely to develop positive attitudes towards new technologies if the results of using such are discernible.

Experience: refers to the fact that users' acceptance of a new technology is likely to vary or improve as their experience with using the technology increases.

Besides the modifications by Venkatesh and Davis (2000)**,** TAM has been enhanced in various technology acceptance studies, where researchers have added new variables to the model. Agarwal and Prasad (1998) modified TAM by adding the compatibility construct; Chau (1996) divided perceived usefulness according to near term and long term usefulness, while van der Heijden (2000) upon analysing the acceptance and usage of websites, added the perceived entertainment value and perceived presentation attractiveness variables (Surendran, 2012). The extension of TAM's constructs/variables has been criticised by Bagozzi (2007) who pointed out that most researchers focused on enhancing the model through introducing additional predictors of either PU or intensions; almost no research has deepened TAM in the sense of explaining PU and PEOU, or reconceptualising the existing variables in the model. Bagozzi (2007, p. 224) argues that the broadening of TAM's constructs is "unwieldy and conceptually impoverished as there is little theoretical insight provided for the mechanisms behind the proposed interaction effects, and the potential infinite list of existing moderators".

Even though, TAM and TAM 2 are relevant for this study since they assess user's decisions to accept or reject information systems, and could be used to examine faculty and postgraduate student's likelihood of accepting or rejecting the UNISWA IR, they however, do not underpin this study as they have been enhanced and integrated in UTAUT.

2.4.3 UTAUT

This theory was developed in 2003 by Venkatesh, Morris, Davis, and Davis. Like earlier acceptance theories, UTAUT assesses users' interaction with information technologies, and predicts the subsequent usage of new technologies. UTAUT was established based on 32 variables from eight competing technology acceptance theories and models. Venkatesh et al. (2003) synthesised various models/theories in attempt to gain a comprehensive understanding of technology acceptance, which could not be provided by any single model. UTAUT is composed of the Theory of Reasoned Action, Theory of Planned Behaviour, Technology Acceptance Models, Motivational Model, Diffusion of Technology Innovation Theory, Model of PC Utilisation, Social Cognitive Theory, and the Combined Theory of Planned Behaviour and Technology Acceptance Model (Kiwanuka, 2015). These are discussed below:

2.4.3.1 Theory of Reasoned Action (see section 2.4.1)

This theory was developed by Fishbein and Ajzen in 1975 to assess factors determining people's behaviours. Under this theory behaviour is best predicted through behavioural intension, which in turn is determined by individuals' attitudes and subjective norms or social influence (Alzahrani & Goodwin, 2012). According to Ajzen and Fishbein (1975), behavioural intensions refers to the strength of a person's intension to adopt a certain behaviour. Subjective norms on the other hand, are about what others think about a specific behaviour.

2.4.3.2 Technology Acceptance Model (see section 2.4.2)

This theory of planned behaviour was developed by Fred D. Davis in 1989. The model includes two concepts: the PEOU and PU, which are used to predict the extent of adoption of new technologies. Venkatesh and Davis modified this theory in year 2000, and incorporated new concepts including Social influence (subjective norm, voluntariness and image) and cognitive instrumental processes (such as job relevance, output quality, results demonstrability and PEOU) (Sharma & Mishra, 2014).

2.4.3.3 Theory of Planned Behaviour (TPB)

The TPB was developed by Icek Ajzen in 1991. TPB is an extension of the TRA with Perceived Behavioural Control (PBC) as a new construct. This is defined as the perception

of ease or difficulty of performing a behaviour of interest (Sedana & Wijaya, 2010). In the TPB explanations for people's behaviours lies in behavioural intension, which is influenced by perceived behavioural control, attitudes, and subjective norms. Perceived behavioural control describes individuals' perceptions regarding the presence or absence of resources required to perform specific behaviours. Attitudes on the other hand, are defined as the negative or positive ways in which individuals evaluate the performance effect of specific behaviours. Subjective norms refer to individuals' perceptions of how others view their performance of a given behaviour (Alzahrani & Goodwin, 2012). The TPB has two major strengths which include the fact that it is parsimonious in the sense that it requires/uses a small number of variables to achieve the exact prediction of behaviour. The theory also provides clear procedures on how to measure cognitions specified by the model in order to ensure predictive precision (Ajzen & Fishbein, 1980). Figure 2.7 below shows the TBP.

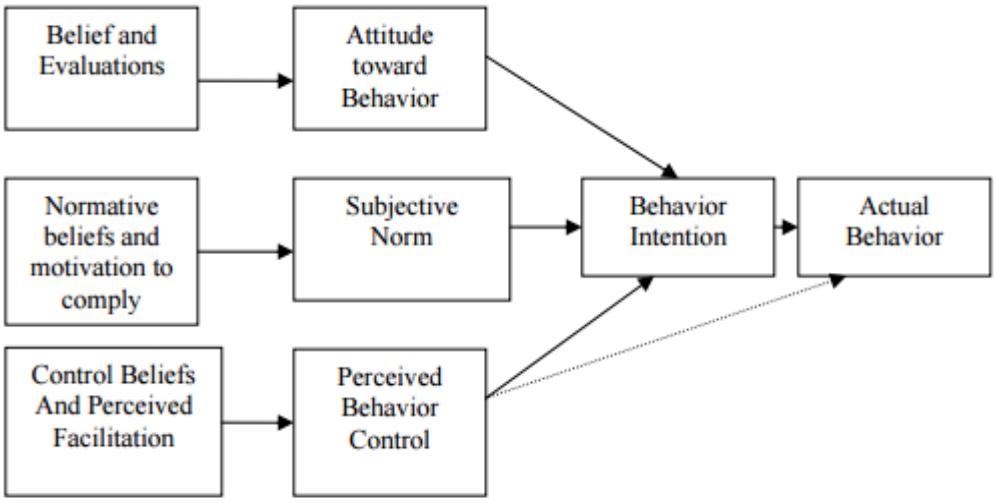

Figure 2.7: TPB (Source: Ajzen, 1991)

2.4.3.4 Motivational Model (MM):

The MM was established by Davis, Bagozzi and Warshaw in 1992. The model posits that individuals' behaviours are shaped by extrinsic and intrinsic motivation. The former is defined by Davis, Bagozzi and Warshaw (1992) as performing an activity because it is perceived to be instrumental in achieving valued outcomes, which are distinct from the activity itself, such as job performance, pay or promotion. According to Sharma and Mishra (2014), examples of extrinsic motivation include, perceived usefulness, perceived ease of use and subjective norms. Intrinsic motivation on the other hand is defined as the satisfaction and pleasure individuals receive after performing a specific task. Examples of

such motivation include computer playfulness and the enjoyment derived from using that technology. The MM has been criticised by Venkatesh, Brown and Bala (2013), and Vallerand (2001) for being complicated and dependent on many influences. These scholars pointed out that the MM is difficult, fails to offer a simple predictive application in organisational settings, and is too individualistic and constricted. Figure 2.8 depicts the MM.

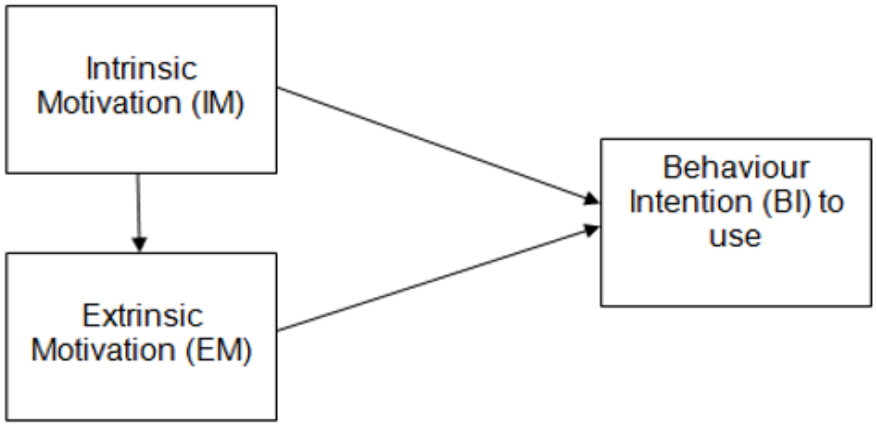

Figure 2.8: Motivational Model (Source: Cocosila, Archer & Yuan, 2009:344)

2.4.3.5 Diffusion of Innovation Theory (DOI)

The DOI theory was developed by Rogers in 1995. This theory explains how an innovation is communicated through various channels at a particular time amongst members of a social system (Rogers, 2003). Diffusion is defined as "the process in which an innovation is communicated through certain channels over time amongst members of a social system" (Rogers, 2003, p. 5). The diffusion process consists of five stages including knowledge, persuasion, decision, implementation, and confirmation. These stages are defined by Rogers (1995) as follows:

Knowledge: This is when an individual is first exposed to an innovation but lacks information about it. At this point the individual has not been inspired to find more information about the innovation.

Persuasion: This is when the individual becomes interested in the innovations, and starts seeking information about it.

Decision: The individual takes the concept of the change, weighs the advantages and disadvantages of using the innovation, and decides whether to adopt or reject it.

Implementation: Individual starts using the innovation, and seeks more information about it.

Confirmation: Individuals evaluate an innovation and decide if they will continue using it.

The DOI theory has four constructs that influence the spread of new ideas. These include: innovation, communication channel, time, and the social system (Sharma & Mishra, 2014). An innovation is an idea, object, or practice that is perceived as new by individuals (Alotaibi & Wald, 2013). Communication is the process where individuals share information with each other with the intent of reaching a mutual understanding. Channel on the other hand, refers to the movement of a message from the source to the receiver (Rogers, 2003). Social system is "a set of interrelated units engaged in joint problem solving to achieve a common goal" (Roger, 2003, p. 23). Rogers identified five attributes of an innovation that influence its adoption and acceptance. These are relative advantage, complexity, compatibility, trialability, and observation. LaMorte (2016) expounds these as follows:

Relative advantage: The degree to which an innovation is seen as better than the idea, program, or product it is replacing.

Compatibility: The consistency of an innovation with the values, experiences, and needs of its potential adopters.

Complexity: This entails how difficult it is to understand and use the innovation.

Trialability: The extent to which the innovation can be tested or experimented with before committing to adopt it.

Observability: Is the extent to which an innovation demonstrates tangible results.

This theory identifies six categories of users namely: innovators, early adopters, early majority, late majority, and laggards. Innovators are those who want to be the first ones to try an innovation, and they are willing to take risks. Early adopters are those who enjoy leadership roles and are comfortable with adopting innovations. Early majority often need to see evidence of the success of an innovation before adopting it. Late majority are those who are sceptical about change and will only adopt an innovation after it has been tested by others. Laggards are a very conservative group that is sceptical of any change (LaMorte, 2016). Even though this theory has been successfully applied in many fields including communication, agriculture, public health, criminal justice, social work, and marketing, it also has some short comings. This is in the sense that the DOI does not take into account the influence of people's resources or social support in their adoption of innovation. The theory also works better with adoption behaviours and fails to incorporate the prevention of certain behaviours (LaMorte, 2016).

2.4.3.6 Model of PC Utilisation (MPCU)

The MPCU is based on the theory of human behaviour by Triandid, 1977, which differentiates cognitive and affective components of attitudes. This theory posits that behaviour is determined by what people would like to do (attitudes), what they think should be done (social norms), what they usually do (habits), as well as the expected consequences of their behaviours (Sharma & Mishra, 2014). Thompson, Higgins and Howell (1991) refined this theory to predict PC utilisation behaviour. Li (2010) outlines and describes major constructs of the PC utilisation model as follows:

Job fit: Is the extent to which individuals believe that using a particular technology will enhance their job performance.

Complexity: The degree to which an innovation is viewed as relatively difficult or easy to understand, and use.

Long term consequences: Outcomes with payoffs in the future.

Affect towards use: Feelings of joy, elation, pleasure, depression, disgust or hate that individuals associate with specific acts.

Social factors: Individuals' internalisation of the reference groups' subjective culture and interpersonal agreements individuals make in specific social situations.

Facilitating conditions: Are the provision of technical support or infrastructure for users to facilitate their use of technologies, for instance, the provision of PCs for users. Figure 2.9 below shows the Model of PC utilisation.

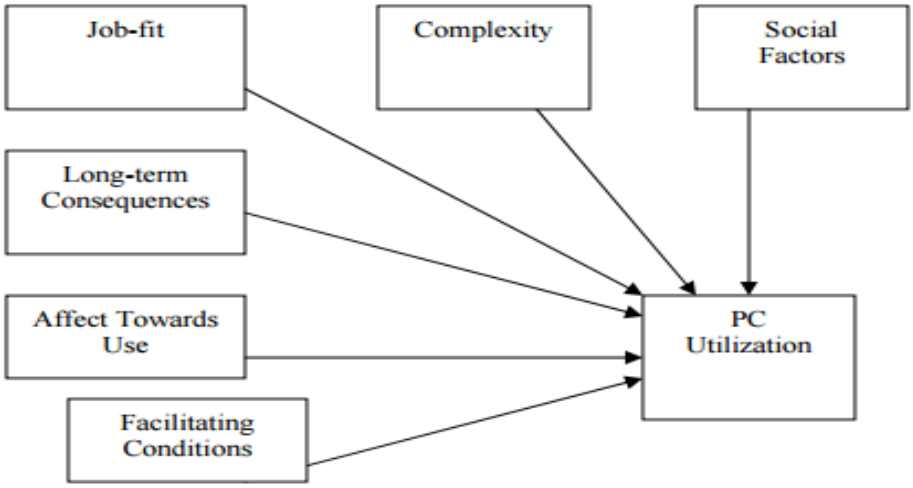

Figure 2.9: The MPCU (Source: Thompson, Higgins & Howell, 1991)

2.4.3.7 Social Cognitive Theory (SCT)

The SCT is a psychological model of behaviour that was developed by Albert Bandura. This theory was formerly known as the social learning theory in the 1960s (Bandura, 1986). Bandura (1989) opines that human behaviour has often been explained in terms of a one-sided determinism where behaviour is depicted as being shaped by either environmental factors or internal dispositions. The SCT adopts a model of causation involving triadic reciprocal determinism where Cognitive/Personal (C/P), Environmental (E), and Behavioural (B) factors are interacting determinants of human behaviour. "Reciprocal causation does not mean that the different sources of influence are of equal strength. Some may be stronger than others. Nor do the reciprocal influences all occur simultaneously" (Bandura, 1989, p. 2-3). Figure 2.10 below depicts the SCT.

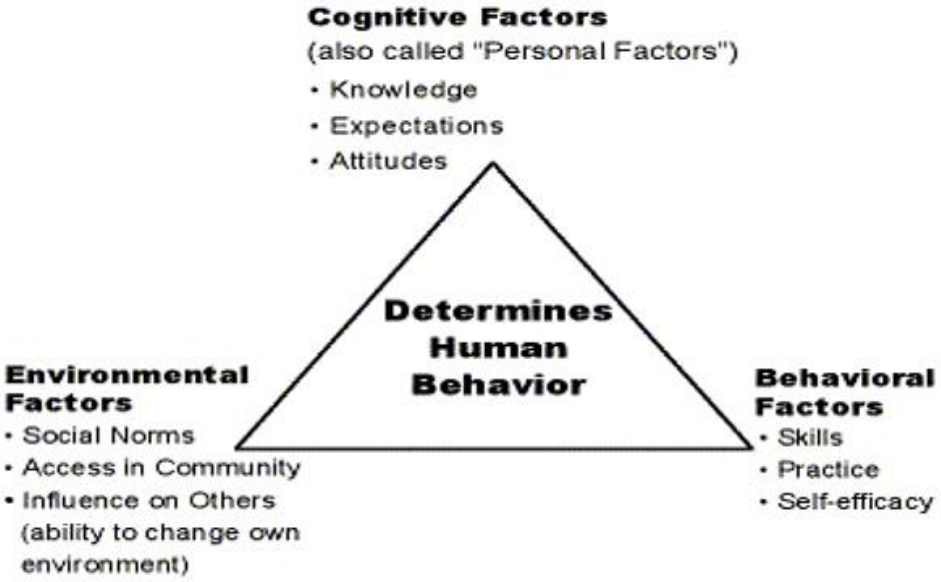

Figure 2.10: Social Cognitive Theory (Source: Bandura, 1986)

The P-B reciprocal causation relationship depicts that, "the interaction between thought, affect, and action, expectations, beliefs, self-perceptions, goals and intensions give shape and direction to behaviour" (Bandura, 1989, p. 3). This means that peoples' behaviours are influenced by what they think, believe, and feel. The E-P segment of reciprocal causation is concerned about the interactive relationship between environmental and personal factors. The B-E segment of the triadic system on the other hand, represents the dual influence between behaviour and environmental influences. This is based on the premise that

behaviour alters environmental conditions, and is in turn transformed by the very conditions it creates (Bandura, 1989).

This theory gives prominence to the concept of self-efficacy, the judgement of one's ability to use a technology to complete a specific task. SCT postulates that users' behaviours are influenced by their expectations of outcomes related to personal (such as individuals' self-esteem and a sense of accomplishment), and performance related gains (such as job-related outcomes (Sharma & Mishra, 2014). Self-efficacy influences both personal and performance related outcome expectations. SCT incorporates two factors including affect and anxiety. The former is defined as individuals' sense of liking a particular behaviour, while the latter is defined as individuals' anxious or emotional reaction when performing a specific task (Li, 2010).

2.4.3.8 Combined TPB and TAM (CTPB-TAM)

The CTPB-TAM was established by Taylor and Todd (1995) by combining the predictors in TPB with the PU and PEOU from the TAM. This is also called the decomposed theory of planned behaviour. Attitudes are decomposed to include PU, PEOU, and compatibility. Normative belief includes peer and superior influence. Perceived behaviour control on the other hand includes self-efficacy, resource facilitation, and technology facilitating conditions. Figure 2.11 below shows the C-TPB-TAM.

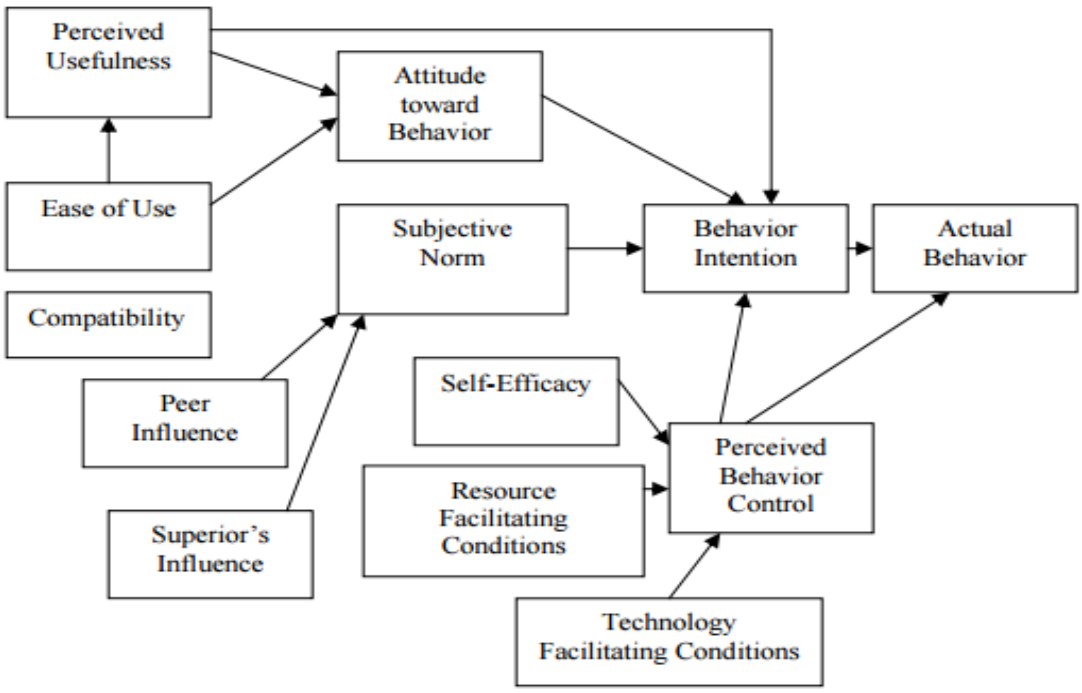

Figure 2.11: The C-TPB-TAM (Source: Taylor & Todd, 1995)

A summary of the eight UTAUT theories/models is provided in Table 2.2.

Table 2.2: Summary UTAUT Theories (Source: Sharma & Mishra, 2014)

Theory/Model	Developed By	Constructs
TRA	Ajzen and Fishbein	Behavioural intension, Attitude, and Subjective norm.
TPB	Ajzen	Behavioural intension, Attitude, Subjective norm and Perceived behavioural control.
TAM TAM 2	Davis Venkatesh and Davis	Perceived usefulness and Perceived ease of use. Social influence process (subjective norm, voluntariness and image), and Cognitive instrumental processes (job relevance, Output quality, Result demonstrability and Perceived ease of use.
MM	Davis et al.	Extrinsic motivation (such as perceived usefulness, Perceived ease of use, and subjective norms), and Intrinsic motivation (perceptions of pleasure and Satisfaction).
IDT	Roger	Relative advantage, Ease of use, Image, Visibility, Compatibility, Results demonstrability, and Voluntariness of use.
MPCU	Thompson et al.	Job fit, Complexity, Long term consequences, Affect towards use, Social factors and Facilitating conditions.
SCT	Bandura	Affect and Anxiety.
C-TPB-TAM	Taylor and Todd	Perceived ease of use, Perceived usefulness, Attitude, Behavioural intension, Subjective norm and Perceived behavioural control.

According to Venkatesh et al. (2003), UTAUT is composed of four key constructs which are direct predictors of usage intension and behaviour. These include performance expectancy, effort expectancy, social influence, and facilitating conditions. Gender, age, experience, and voluntariness of use are posited to mediate the impact of the four key constructs on usage behaviour and behavioural intension. UTAUT theory and the root sources for UTAUT's constructs are depicted in Figure 2.12 and Table 2.3.

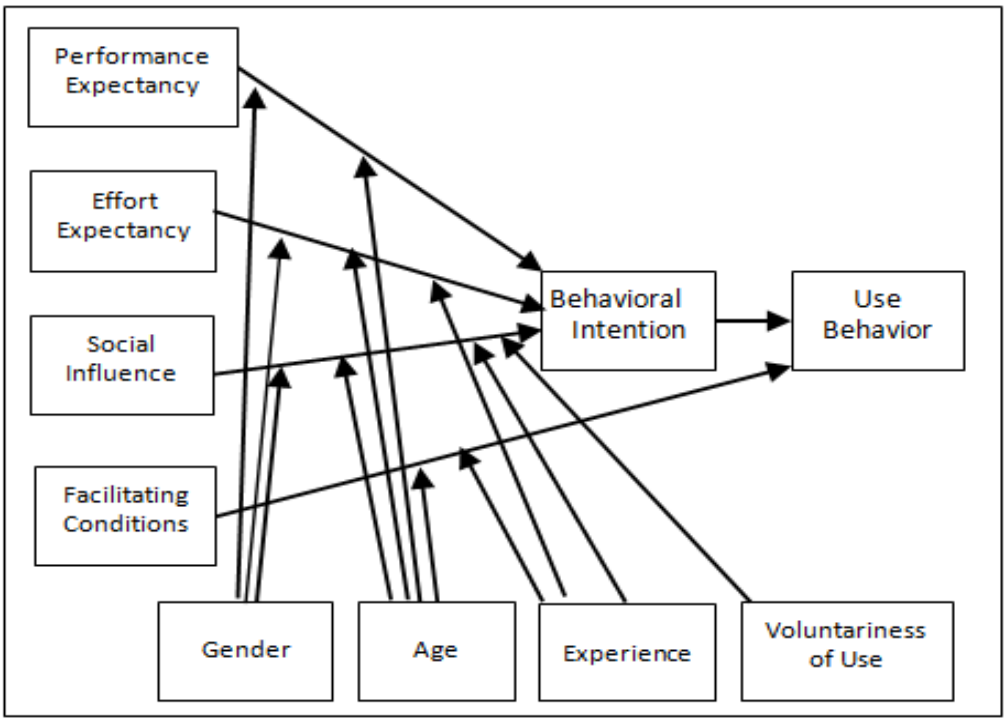

Figure 2.12: The UTAUT (Source: Venkatesh et al., 2003)

Table 2.3: UTAUT Root Constructs (Source: Venkatesh et al., 2003 and Oye, 2012)

Construct	Definition	Construct Root Source	Moderators
Performance expectancy	The degree to which an individual believes that using the system will help him or her attain gains in performance.	*Perceived Usefulness: from TAM and C-TAM-TPB. *Extrinsic motivation: from MM. *Job fit: from MPCU *Relative advantage: from IDT./ DOI *Outcome expectations: from SCT.	*Age *Gender
Effort expectancy	The degree of ease associated with the use of the system.	*Perceived ease of use: From TAM. *Ease of use: from IDT *Complexity: from MPCU.	*Gender *Age *Experience
Social Influence	The degree to which an individual perceives that important others believe that he or she should use a new system.	*Subjective norm: from TRA, TAM 2, TPB, and C-TAM-TPB. *Social factors: from MPCU *Image: from IDT.	*Gender *Voluntariness *Experience
Facilitating Conditions	The degree to which an individual believes than an organizational and technical infrastructure exists to support the use of a system.	*Perceived behavioural control: from TPB, C-TAM-TPB. *Facilitating conditions: from MPCU. *Compatibility: From IDT.	*Age *Experience

2.4.3.9 Strengths and Weaknesses of UTAUT

Venkatesh et al. (2003) posit that performance expectancy has proven to be the strongest predictor of behaviour. Khechine, Pascot and Bytha (2014) pointed out that in earlier stages of technology adoption, users may experience some obstacles with using a new technology/system; however, once they become accustomed to the technology, effort expectancy or the perceived ease of use becomes stronger. According to Alwahaishi and Snasel (2013) users tend to comply with their peers and important referees' opinions, and recommendations to adopt specific technologies. They therefore need to be equipped with the necessary tools and knowledge to enable them to continue using the technologies.

UTAUT has been praised for its ability to inform the understanding of various factors influencing the acceptance and rejection of new technologies. Although this is the newest technology acceptance model, its growth and popularity is increasingly high compared to previous technology acceptance models. UTAUT's stability, validity and viability in technology acceptance studies within various contexts has been established and practically confirmed (Waehama et al., 2014). The theory has proven to be flexible with its ability to adapt to a variety of studies and still demonstrate meaningful results (Saravani & Haddow, 2011). Due to its integration of various models and theories, UTAUT is therefore comprehensive and robust than any other technology acceptance model in evaluating and predicting technology acceptance (Venkatesh, 2003). Waehama et al. (2014) posits that through combining constructs and moderating factors from the eight technology acceptance theories and models, UTAUT's predictive efficiency is increased to 70 %, which is a major improvement from each of the previous models and their extensions. Oye, Iahad and Nor (2012) aver that TAM only predicts 30 %, and TAM 2 predicts 40 % of technology acceptance. Waehama et al. (2014) hail UTAUT for its ability to counter the deficiencies of prior technology acceptance models and theories through combining them for a common good.

Although UTAUT is seen as the best practice for measuring user's acceptance or rejection of information systems, the theory also has some limitations. Kiwanuka (2015) argues that UTAUT limits mediating factors of technology acceptance to only four factors: age, gender, experience, and voluntariness of use; and overlooks attitudes when this is an essential component in technology acceptance. Venkatesh et al. (2003) argue that attitudes are omitted because their effect on behavioural intension is spurious and only emerge when

performance expectancy and effort expectancy are omitted from the model. Venkatesh et al. (2003) argue that attitudes towards the use of technologies, thus fails to provide new information beyond what is already provided jointly by PE and EE.

Waehama et al. (2014) argue that although UTAUT integrates several technology acceptance theories and models with a premise that each of these utilises several terminologies within their phraseology of technology acceptance, these aspects are often similar in nature. Moreover, since each of the models incorporated in UTAUT have their own limitations, this is bound to affect viability of the whole theory. Thomas, Singh and Gaffer (2013) argue that even though UTAUT is hailed for explaining 70% variance in behavioral intension, the theory has in some cases revealed low explanatory powers. Thomas, Singh and Gaffer (2013) further opine that although UTAUT's reliability and validity is generally confirmed, the consensus on the nature of relationships among factors is not always achieved. The results for these relationships have shown many inconsistencies in the sense that, whilst some scholars have found a positive effect of performance expectancy on behavioral intension, others discovered no effects at all.

Besides these limitations, UTAUT's benefits are far more significant than its shortcomings (Waehama et al., 2014). This theory is suitable for this study because of its comprehensiveness, high predictive validity, reliability, and the fact that it is robust compared to the other technology acceptance models and theories. Considering this theory's strengths, this study thus adopted UTAUT together with the SERVQUAL model.

2.5 Summary

This chapter reviewed service quality (SERVQUAL and LIBQUAL), and technology acceptance (TRA, TAM and UTAUT) theories/models. The SERVQUAL model and UTAUT were selected for this study. The former assessed the perceptions and expectations of faculty and postgraduate students about the quality of services offered by the UNISWA IR. SERVQUAL was selected because it has been successfully used in various information systems services. UTAUT was applied to understand what happens as faculty and postgraduate students interact with information systems including IRs, especially factors influencing their decisions to accept or reject information technologies. UTAUT was selected because it is comprehensive and robust compared to other technology acceptance models. Integrating SERVQUAL and UTAUT is expected to neutralise biases from either model.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

Kemoni (2008) states that literature review entails summarising the broad content of the research under study, and clearly indicating linkages with other studies in the field. Coughlan, Cronin and Ryan (2007) assert that literature review seeks to: develop research questions (while also identifying an appropriate data collection method); identify any gaps in literature relating to the problem at hand, and to suggest how the gaps might be filled. Okoli and Schabram (2010) on their part argue that literature reviews are conducted for a variety of reasons including: providing a theoretical background for subsequent research, learning the breadth of research on a topic of interest, and answering practical questions by understanding existing research in that area. Kemoni (2008, p. 105) opines that a good literature review should assess the strengths and weaknesses of previous work, including omissions or biases, taking into account central arguments, and justifying these by referring to previous research. Stillwell (2000) posits that good literature review should indicate different views, agreements, and trends of thought on a researched topic.

This study sought to investigate service quality and technology acceptance factors affecting the usability of the University of Swaziland's institutional repository by faculty and postgraduate students. The study's objectives were to (1) determine faculty and postgraduate student's satisfaction with the quality of services provided by the UNISWA institutional repository; and to (2) assess the usability of the institutional repository by faculty and postgraduate students from UNISWA. The following research questions were addressed: (1) what are the perceptions of faculty and postgraduate students towards service quality in the use of the UNISWA IR?; (2) what quality factors influence the usability of UNISWA's institutional repository by faculty and postgraduate students at UNISWA?; (3) what is the level of usage of UNISWA's institutional repository by faculty and postgraduate students?; (4) What are the challenges of service quality facing faculty and postgraduate students in the use of the UNISWA IR?; (5) what is the role of librarians in promoting service quality of the UNISWA IR?; and (6) What recommendations can be delineated based on the findings of the study?

The empirical and theoretical literature reviewed in this chapter is from print and electronic sources such as journal articles, theses, conference proceedings, books, and more. The chapter is organised based on the themes of the research questions, key variables underlying the study, and broader issues on the research problem. Thematic areas of the research include the user's perceptions and expectations of service quality; usability of information systems including IRs; usage of IRs; challenges faced by IR users and how these can be ameliorated; as well as the roles of librarians in promoting IRs. Broader issues around the research problem of this study include user satisfaction, information behaviour, user studies, human computer interactions, and OA.

3.2 Perceptions and Expectations of Service Quality

The literature reviewed in this section covers the first research question/theme which examines the perceptions and expectations of faculty and postgraduate students towards service quality in the use of the UNISWA IR. This research question is discussed based on the SERVQUAL model's dimensions of service quality (see chapter 2) which include reliability (services delivered as promised and error free site), assurance (trust for service/site and retrieved documents), tangibles (appearance of physical facilities such as the page layout), empathy (individualised customer care), and responsiveness (prompt responses to user's requests).

Martin (2003), and Nitecki and Hernon (2000) conducted SERVQUAL studies respectively in ten UK health libraries, and Yale University libraries in the US to assess the quality of library services. Respondents were required to rate their perceptions and expectations of service quality on a five-point Likert scale using a series of statements representing the SERVQUAL dimensions. In the UK study, questionnaires were issued to those who visited the library during the period of the survey. The study focused on access to electronic library resources, IT equipment, comprehensiveness of library catalogue, and adequacy of working spaces. In the US study, questionnaires were emailed to users who had borrowed books from the library within the past year. The focus of the study was on the comprehensiveness of collections, library hours, and returns of books, fine policy, and the ease of finding required resources. Results from the UK study showed that libraries provided accurate and prompt services, and that users were satisfied with the professional services, and individualised attention they received from librarians. Similarly, the US study indicated reliability and empathy as the highest and lowest dimensions, which means that users were

satisfied with the accuracy and dependability of services received, as well as the caring and individualised attention they received from library staff. On the contrary, a study conducted by Paul (2014) from Poland's multi-media libraries with questionnaires distributed to younger users (from 13 to 21 years), with a focus on library staff, resources and interior spaces, revealed that library users were satisfied with resources provided, and the attention they received from library staff but not at all satisfied with the quality and accuracy of services provided. The diverse findings revealed in these studies possibly imply the influence of geographical contexts in SERVQUAL studies.

Tan and Foo (1999) in a study conducted from a special library, the statutory board library in Singapore, examined users' expectations and perceptions of service quality along the five SERVQUAL dimensions, with data gathered from a sample of library users during a 15-day data collection period. Tan and Foo (1999) benchmarked their findings with those obtained from similar studies conducted from different library settings in Singapore. These included studies conducted from the Hon Sui Sen University libraries by Mah (1994), and the National library of Singapore by Chia (1997) to assess the quality of services provided by these libraries. Tan and Foo (1999) observed that at Singapore statutory board library, reliability and empathy were the most and least important dimensions respectively. In the National library of Singapore, the most and least important dimensions were tangibles and empathy respectively. Similarly, in the Hon Sui Sen library, findings indicated that reliability and empathy were the most and least important dimensions respectively. The results revealed that while the most and least favoured dimensions were similar in special and university libraries, these findings were slightly different in national library settings. These results perhaps demonstrate the influence of the context factor in SERVQUAL studies.

Kitana and Saydam (2014), and Wang and Shreh (2007) examined service quality levels respectively from the Girne American University library in Cyprus, and the Chang Jung Christian University (CJCU) libraries in Taiwan. In both settings, data was collected from library users using SERVQUAL questionnaires. The results of the Cyprus study revealed the overall service quality to be good and satisfying users' perceptions and expectations. Similarly, the CJCU study revealed a significant positive relationship between overall service quality and user satisfaction. A similar study was conducted by Van Rooijen (1998) from Canadian libraries to assess the quality of their library services, with data collected

based on 54 interlibrary loan transactions initiated by 15 academic libraries across Canada. The findings nonetheless, revealed that users' expectations were higher than their perceptions, which mean that the interlibrary loan service did not satisfy users' needs.

SERVQUAL studies have also been conducted from developing country contexts to assess library users' perceptions of service quality, by scholars such as Iberahim and Nadzar (2011) from the University of Putra Malaysia (UPM); Kiran (2010) from university of Malaysia libraries; Kumar (2012) from four Universities in Kerala, India; Shoeb and Ahmed (2009) from Dhaka University libraries in Bangladesh; Muyengwa and Marowa (2014) from University of Johannesburg; Kanguru (2014) from Kenya's Aga Khan University (AKU); and Ahmed, Soroya and, & Malik (2015) from the medical colleges of Lahore in Bangladesh. These studies revealed mixed findings. Iberahim and Nadzar (2011) and Kiran (2010) respectively indicated that UPM users were satisfied with services offered by UPM libraries, particularly the readers' advisory desk, and that academic staff perceives Malaysian libraries' services to be above average, and satisfactory. Academic staff also considered library staff as helpful, and able to instil confidence in library patrons. Kumar (2012) on the other hand, discovered that service quality in the University of Kerala's libraries was moderately good, and that users were particularly satisfied with physical facilities, collection sizes and staff behaviour. On the contrary, Ahmed and Schoeb (2009); Muyengwa and Marowa (2014); kanguru (2014); and Ahmed et al. (2015) observed that overall, library services lagged behind users' expectations.

Another SERVQUAL study was conducted by Musyoka (2013) in Kenyan universities to investigate whether there is a relationship between service quality and users' satisfaction with services received. The results revealed that the provision of accurate and dependable services highly contributes towards users' satisfaction, whilst customer care contributes the least. Musyoka (2013) argues that libraries cannot afford to ignore either of the service quality assessment dimensions since they all impact on user satisfaction, even though this is at varying degrees. Iberahim and Nadzar (2011) in the same manner assessed the relationship between the quality of the reader's advisory desk service and user's satisfaction with library services. Kiran (2010) in a similar study, examined the perceptions of academic staff about the quality of library services, and their levels of satisfactions towards the services provided. Both of these studies conducted from the Malaysian context revealed a significant positive relationship between overall service quality and user satisfaction.

Asogwa et al. (2014) did a bibliometric survey of library SERVQUAL studies (from 1994 to 2013) in developed and developing countries such as Texas, United States, Northumbria, England, Nigeria, Bangladesh, and Iran. The results showed that scholars from developing countries reported tangibility as the highest dimension, and empathy as the lowest dimension of service quality, while scholars from developed countries reported reliability as the highest, and tangibility as the lowest/least favoured dimension. Asogwa et al. (2014) opined that while it is easy to determine the lowest and highest service quality dimensions from studies conducted in developed countries, this is not the case with developing countries, as studies from the latter tend to show inconsistent findings. Rehman (2012) in a related study conducted from Pakistan University libraries to assess the quality of services cited tangibility as the highest dimension and reliability as the lowest service quality dimension. Different results were revealed in a study by Bagherzadeh and Bagherzadeh (2010) which was conducted from the Islamic Azad University in Iran to assess student's perceptions of service quality. It was revealed that empathy was the highest while assurance was the lowest service quality dimension. In contrast, scholars from the developed world including Nitecki and Hernon (2000), and Coleman et al. (1997) reported reliability as the highest and empathy as the lowest dimensions; whereas Edwards and Mairead (1995), and Hebert (1994) cited reliability as the highest and tangibility as the lowest dimension.

Asogwa et al. (2014) in their SERVQUAL study conducted from developing countries including Nigeria, Bangladesh, and Iran further found a significant difference between library users' perceptions and expectations of service quality, and that all the evaluated service categories had negative gaps between perceptions and expectations categories. This means that the libraries failed to meet users' desired service quality expectations. A similar study conducted by Naidu (2009) from the Mangosuthu University of Technology library in Durban, South Africa, revealed that in all service quality categories users' perceptions exceeded their expectations for the disagree response category, which resulted in negative scores. This means that library users' service quality needs were not met. Yet another SERVQUAL study by Mahmoodi, Salarzadeh and Paslari (2015) from Iran's Islamic Azad University branch of Abbas libraries found a significant difference between student's expectations and perceptions in all service quality dimensions. These results glaringly demonstrate that in all contexts users' expectations were higher than their perceptions. This implies that the study's context does not influence users' service quality expectations and perceptions.

The studies carried out in both developed and developing countries assessed service quality based on user's expectations and perceptions of service quality. The focus of these studies was on face to face services than those conducted from online settings. The current study therefore extended service quality to cover online library services such as IRs.

3.3 Service Quality Factors in the IRs Usability

This section examines quality factors influencing the usability of IRs by faculty and students. This part was addressed based on the UTAUT theory with main constructs including Effort Expectancy (EE), Performance Expectancy (PE), Social Influence (SI), and Facilitating Conditions (FC). Venkatesh et al. (2003) defined EE as the degree of ease associated with using an information system; PE as the degree to which individuals believe that using a particular system will improve job performance; SI as the degree to which individuals perceive that those important to them believe they should use a specific information system, and FC as the degree to which individuals believe that organisational and technical infrastructures exist to support their use of information technologies. Due to its effectiveness, the UTAUT theory has been applied to examine users' acceptance and use of various information technologies in diverse settings, and academic disciplines including the LIS field. This section presents some of the technology acceptance studies that adopted the UTAUT theory as their theoretical framework.

A UTAUT study was conducted by Chang (2013) to investigate undergraduate and postgraduate students' intensions to adopt library mobile applications. Data was gathered through online self-administered questionnaires from Taiwan's University libraries. The findings revealed that EE, PE, SI, and FC influenced students' decisions to adopt mobile library applications. It was further established that a moderating variable, task -technology fit, significantly influenced the usage of library mobile applications. In the same vein, Santos-Feliscuzoa and Himang (2011) in a study conducted from the Philippines' Cebu Institute of technology's main library, assessed undergraduate and postgraduate student's intensions to accept the library's periodical indexing software, with data gathered through a survey from students. Santos-Feliscuzoa and Himang (2011) similarly, discovered that EE, PE, SI, and FC had a significant impact on users' behavioural intension to use the indexing software. In another UTAUT study, Adeleke (2017) examined factors influencing the adoption of automated systems by library patrons from South West Nigeria. Survey questionnaires and focus group discussions were used to gather data from respondents. In

the same vein, it was revealed that EE, PE, SI, and FC determined user's acceptance, and use of automated library systems. Based on these results one could conclude that diverse geographical contexts did not affect user's intensions to adopt information technologies. The similarities in these results could be attributed to the adoption of standardised UTAUT survey questionnaires.

Slightly different findings were obtained by Rahman (2012) in a study conducted from Malaysia to investigate factors influencing postgraduate student's willingness to use digital libraries. It was revealed that performance expectancy, effort expectancy, and information quality were positively related to the continued usage of digital libraries. Awwad and Al-Majal (2015) in a study conducted from Public Universities in Jordan, examined factors influencing the usage of electronic libraries, with data collected through questionnaires from students, revealing that students' intensions to use electronic library services were dependent on performance expectancy, effort expectancy, and social influence, while their use behaviour was dependent on facilitating conditions, and intention to use. Yet another study by Ammarukleart (2017) which examined the acceptance of Thailand's institutional repository by faculty, with data gathered through survey questionnaires and interviews, revealed that performance expectancy, social influence, and resistance to change directly determined faculty's intensions to use the IR, while behavioural intensions and altruism were major determinants of actual usage behaviour. The inconsistencies observed from these studies are in-line with an assertion by Taiwo and Downe (2013) which indicates that although UTAUT has been widely used, tested and validated, outcomes from UTAUT's empirical studies have been inclusive regarding the magnitude, direction, and significance of the relationships amongst the model. Taiwo and Downe (2013) opined that even though mixed outcomes are common in UTAUT studies, this nevertheless, does not undermine the accuracy of the model.

Inconsistent UTAUT findings were further observed in a study by Rempel and Mellinger (2015) conducted from Oregon State University in the U.S, to explore library users' adoption of bibliographic management tools. Data was gathered through interviews and journal reflections from researchers who actively used bibliographic management tools. The findings revealed that researchers chose bibliographic tools because they expected them to enhance their research productivity and continued using them, as they were easy to use. Social influence and facilitating conditions nevertheless, had less influence on researcher's intensions to use bibliographic management tools. Boakye (2015) conducted a similar study

from Balme university library to assess the use of library computerised information system by students, with data gathered through questionnaires. The findings showed that students judged their abilities to use the system as poor due to non-familiarity with the system, and they doubted the system's ability to provide adequate responses. This could be attributed to users' misconceptions from previous experiences or misinformation from peers. Contrary to these findings, Singeh, Abrizah and Karim (2013) in a study conducted from five research intensive universities in Malaysia, evaluated authors' readiness to self-archive in open access and discovered that performance expectancy, effort expectancy, social influence, and facilitating condition did not influence authors' behavioural intention to self-archive in the repository.

Oye et al. (2012) investigated the acceptance and usage of ICT by academic staff from the University of Port Harcourt, Nigeria. The study was underpinned by the UTAUT model and other TAM constructs, with data gathered from respondents through survey questionnaires. It was revealed that EE, and attitudes were the most influential constructs regarding the use of technology. In the same manner, Dulle, Minish-Majanja and Cloete (2010) modified the UTAUT model by adding attitudes towards OA and internet self-efficacy to the main constructs, and awareness as moderators. Dulle, Minish-Majanja and Cloete (2010) examined the extent to which researchers from six public universities in Tanzanian Universities believed that OA enhanced the accessibility and dissemination of scholarly content. Data was gathered from respondents using survey questionnaires; it was revealed that effort expectancy, performance expectancy, attitudes, and awareness were key determinants and predictors of Tanzanian researchers' behavioural intension to use OA IRs. They further discovered that social influence and facilitating conditions were significant predictors, and had direct effects on the actual usage of open access facilities by researchers. The findings from these studies by Oye et al. (2012) and Dulle, Minish-Majanja and Cloete (2010) contradict Venkatesh et al. (2003) theory which postulated that attitudes would not have a significant effect on BI.

Orji, Ozkan and Yasemin (2010) extended the UTAUT model in a multicultural context by incorporating nationality as a moderating variable in the assessment of factors influencing the acceptance of Electronic Library Systems (ELS) by national and international graduate students from the Middle East Technical University in Turkey. The findings revealed that FC, EE, PE, and SI (listed in decreasing order of relevance), are the critical components affecting students' acceptance and use of electronic library systems. These factors

nevertheless, had varying effects on the students. Facilitating condition and effort expectancy were the most critical factors influencing the acceptance of ELS by both international and national graduate students, while performance expectancy and social influences were insignificant for national graduate students. It is thus evident from this study that users of diverse technologies have varying usage behaviours, and that the different UTAUT constructs have varying effects on users.

Dulle, Minish-Majanja and Cloete (2010) in their study titled "The suitability of the Unified Theory of Acceptance and Use of Technology (UTAUT) model in open access adoption studies", further tested the direct effects of moderators including gender, awareness, experience, and position (rank) in OA studies. They discovered that participants' awareness was the only factor that had a direct effect on BI. This means that researchers who were not aware of OA were less likely to utilise this mode of scholarly communication. In the same vein, a study by Rahman, Jamaludin and Mahmud (2011) conducted from the public university of Malaysia's digital library to assess factors affecting postgraduate student's intension to adopt the digital library, revealed that age and gender did not affect user's intensions to adopt digital libraries. Service quality, experience and information quality however, influenced user's intentions to adopt the digital library at the University of Malaysia. Contradictory findings were observed in a study by Goswami and Dutta (2016) which was conducted from India based on literature review to assess the impact of gender in the adoption of ICTs across various sectors. It was revealed that gender is an influencing factor in the use of technologies such as computers, email services, and electronic data management, since men tend to be more technologically skilled than women.

3.4 Levels of Usage of IRs by Faculty and Post-Graduate Students

IRs have many benefits including increasing an institution's visibility, status, and reputation, providing scholars with a wider public access, and visibility. This increases the chances of scholar's work being cited; and the long-term preservation of their research (Ngure & Gatiti, 2015). This section examines the levels of usage of institutional repositories by faculty and students, and highlights factors inhibiting users from utilising IRs.

3.4.1 Usage of IRs Across the World

A search was conducted in OpenDoar (an authoritative directory of academic open access repositories) in November 2016, to assess the distribution of IRs across the world. The results revealed that there were 3240 repositories across the world with the highest number

of IRs from Europe with 45.6 % (1,479) of global repositories; Asia with 19.7 % (639), North America with 18.8 % (598); and South America with 8.6 % (278) IRs. Besides, there were 143 IRs in Africa constituting 4.4 % of the 3240 IRs available the world over. The highest number of IRs in Africa were from South Africa with 22.4% (32); Kenya with 16.1 % (23); Nigeria with 13.3% (19); and Algeria with 9% (13) institutional repositories (OpenDoar, 2014). A bibliometric analysis performed by Bhardwaj (2014) based on LIS abstracts databases further revealed that most IR studies are from the US and UK, followed by India, Australia and Spain. Bhardwaj (2014) also pointed out that developing countries lagged far behind not only in establishing IRs but also in publishing research about them. Ammarukleart (2017) asserts that even though statistics from OpenDoar show a continuous growth of IRs around the world since 2005, this is not a true reflection of global IRs since some are excluded especially those that do not embrace OA to full text resources.

The most popular OA repository software used by institutions the world over is Dspace with 44% (1,438) usage; followed by E-prints with 13.7% (444) usage; and Digital commons at 4.7% (153). In Africa, Dspace is used by 74.8% (107) of the 142 repositories in the continent; followed by E-Prints with 8.4% (12); and Greenstone with 2.8% (4) users in the African continent (OpenDoar, 2014). Ali, Jan and Amin, (2010) in their study titled "the status of OA institutional repositories: a global perspective" similarly observed that based on the 2168 IRs, which were registered in Open-Doar as on the 10th of February 2012, Dspace topped the list with 843 (38.88%) of IRs; followed by E-Prints with 332 (15.31%); Digital commons with 92 (4.24%); DLibra with 57 (2.63%); and Opus with 56 (2.5%) of IRs. Like most African countries, UNISWA also adopted the Dspace software. Ali, Jan and Amin (2010) further observed that between years 2008 and 2012, IRs using the Dspace software showed a maximum growth rate of 144.35% in usage preferences by institutions across the world; followed by E-prints (38.91%), and OPUS (9.80%). Declines were nonetheless, observed in the usage of some software including Bepress, Wildfire, ETD-db, and HTML. Dspace is preferred by most institutions because it is easy to configure, and preserves all types of digital content including PDF, word, JPEG, and MPEG files (Top Reasons to use DSpace, 2013).

According to OpenDoar (2014) the most popular archived content types in the 3240 IRs across the world including Africa are journal articles, theses and dissertations, book chapters, conference and workshop papers, and unpublished reports and working papers.

Ali, Jan and Amin, (2010) in the same vein, revealed that a search on Open-Doar conducted on the 10th of February 2012 revealed that majority of content archived in institutional repositories across the world is in the form of journals with 1447 (21.73%) out of the 2168 total content; followed by theses and dissertations with 1142 (17.15%); and unpublished reports and working papers with 803 (12.06%). On the other hand, the least preferred types of contents include patents with 61 (0.92%), and software with 34 (0.51%). According to Thiyam and Dlamini (2013) the UNISWA IR mostly contains undergraduate and postgraduate students' thesis and dissertations, and faculty's publications including journal articles, community/ consultancy services articles, and a few electronic books. Hertenstein (2014) in a study which assessed the current trends in the representation of students' work in IRs, similarly observed that electronic theses and dissertations were the most common forms of student scholarship in IRs, followed by honours projects, peer reviewed journal articles, conference papers, and students' research papers.

The search from OpenDoar further indicated that the most popular subject areas archived in repositories across the world are multidisciplinary, Health and Medicine, History and Archaeology, and Business and Economics. In Africa, multidisciplinary, and Health and Medicine were also amongst the most popular archived subject areas. The least archived subject areas in IRs across the world are Civil engineering, Electrical and Electronic Engineering, and Architecture. Both Electrical and Electronic Engineering, and Architecture were also the least archived subject areas in African repositories. Ali, Jan and Amin, (2010) in the same vein, pointed out that the maximum number of IRs worldwide archived content under the multidisciplinary heading due to the fact that these areas comprise a combination of subject areas. Ali, Jan and Amin, (2010) further stated that other predominant subject areas included Health and Medicine; followed by History and Archaeology; while the least popular subject areas included Social Sciences general, and Geography and Regional Studies. Dubinsky (2014) in a study which assessed the growth and breadth of IR content as it reflects faculty participation also uncovered that out of the 63, 706 items counted in January 2014, from 214 US academic institutions that used the Digital Commons IR software, 13, 558 were from Humanities, 11, 232 were from Social Sciences, and majority, 38, 916 of the content was from the Sciences.

Although many academic libraries across the world have successfully implemented IRs, several studies including those by Davis and Connolly (2007); Foster and Gibbons (2005); and Cullen and Chawner (2011) indicate scholar's reluctance to archive their work in IRs. In

fact, the current IR deposition estimates indicate that only 15 to 30% of eligible scholars and researchers deposit their work in institutional repositories (Cullen & Chawner, 2011). Several reasons have been cited for the poor usage of IRs. Jantz and Wilson (2008) pointed out that faculty does use repositories because they don't perceive the significant value of repositories to their scholarly endeavours. This could be attributed to the immaturity of IRs (in terms of infrastructure and content), and the absence of a coherent articulation of how the IR will advance scholarship. Other reasons for the poor uptake include the fact that most authors are not familiar with OA, and lack awareness about the existence of IRs (Foster & Gibbons, 2005). Ferreira et al. (2008) pointed out that at the University of Minho in Portugal the uptake of the IR was low due to fears that self-archiving could mean more work for faculty, doubts about copyright issues, and lack of knowledge about the advantages of OA. Bamigbola (2014) stated that the poor uptake of IRs at the Federal University of Technology, Nigeria was due to lack of awareness, epileptic power supply, fear of plagiarism, copyright violations, and not being able to publish works submitted in IRs.

3.5 Service Quality Challenges in the Usage of IRs

This section addresses the study's fourth research question by examining the challenges that could inhibit faculty and postgraduate students from using IRs.

According to Covey (2011) one of the barriers to self-archiving in IRs by faculty is the time and effort required. The greater the time and effort required, the less likely they are to self-archive, and less technical skills means more time and effort is required from IR users. Quinn (2010) asserts that besides not having time, some scholars are also reluctant to learn and relearn a technology they don't even use. Davis and Connolly (2007) in the same manner reported that there is a learning curve required for using new technologies including IRs, and faculty does not see the need for learning and mastering a new system they do not perceive to add value to their work. Some scholars rather prefer personal web pages and departmental websites which are seen as sufficient for their professional recognition and development. Carr and Harnad (2005) argue that even though some studies dismiss the "lack of time" concern as unfounded anxiety since self-archiving is supposedly quick and easy; this is not true considering that even an average ten minutes per article can be cumbersome for busy faculty members with a backlog of materials to deposit. Quinn (2010) recommends the need for librarians to understand the factors behind such psychological resistance as this

will put them in a better position to develop effective strategies for encouraging faculty and students to archive in IRs.

Christian (2008) argues that lack of awareness is a major impediment to the usage of IRs. Casey (2012) opines that the lack of awareness about the strategic importance of IRs threatens their long-term sustainability, and unless such ignorance is tackled, there will be no meaningful IR developments (Christian, 2008). Despite lecturers' low IR awareness levels, majority of them are interested in contributing their research output in IRs (Swan & Brown, 2005). On the contrary, Bamigbola (2014) pointed out that even though IR awareness levels amongst faculty members from the school of Agriculture and Agricultural Technology in Nigeria were high, very few, 4 (7.8%) of faculty submitted their research in the institution's repository. Pelizzari (2003) in the same vein, reported that even though 44% of academics from the faculty of Social Science at Bressica University in Italy, were aware of OA initiatives, only a few (4%) actually contributed their research output in the IR. Swan and Brown (2004) indicated that 67 % of journal authors from the US and several European countries who had never published in OA journals were in fact aware of the OA concept. The same observation was voiced by Dlamini (2016) who pointed out that even though the UNISWA community indicated the need for an IR, their rate of document archival is low. Christian (2008) avers that the low IR awareness levels could be ameliorated through providing adequate advocacy for OA.

Moreover, Christian (2008) argues that the development of OA IRs requires the deployment of adequate ICTs, and access to adequate and reliable internet connections. According to Chisenga (2006), even though internet access is widely available in the African continent, it's speed and reliability is a major constraint to most academic institutions, local NGOs, and public research institutions who find it difficult to afford adequate internet bandwidth to host their IRs. Christian (2008) indicates that, even though the internet connectivity issue is not unique to Africa, it is most extreme in developing countries in sub-Saharan Africa. Alongside this issue is that of the shortage of computers for students, researchers, and staff. Christian (2008) asserts that in Nigerian universities the major point of internet access for students and staff is through private and university internet cafes. The university café however, is sometimes rejected since users are not allowed to download materials into their external drives. Academic staff further access internet through the University's Local Area Network (LAN), which they usually reject since it is often plagued with technical issues.

ICT issues make it difficult for users to access IR content and any information resources. Jensen (2006) emphasises the need for donor agencies and international organisations to intervene through subsidising the costs of bandwidth in the Sub-Saharan region.

Another recurrent issue associated with the self-archiving lethargy amongst faculty is the absence of professional incentives for IR submissions, and fears that having their work broadly available electronically before it appears in print, will result in the plagiarism of their work. Some scholars often argue that releasing their results before their articles are formally published is equated to giving away the competitive advantage over their discoveries (Davis & Connolly, 2007). Another related barrier is the fear of infringing copyright requirements. This is because document authors are usually not clear regarding their rights once copyright agreements are signed with publishers (Creaser, 2010). Scholars also have a restrictive view of copyright permissions, and fear that depositing their work in IRs would be a violation of publishers' copyright policies (Chisenga, 2006). Scholars are also not aware that a number of publishers support open access and allow the deposition of research output in IRs. They further lack clarity on the SHERPA/ROMEO service which offers information on various publisher's self-archiving policies, and the rights they give authors to disseminate their work in IRs (Creaser, 2010). Some scholars word over fear that placing their work in IRs precludes its later publication especially if authors want to publish in journals that prevent the submission of previously published works (Davis & Connolly, 2007). This issue could be counteracted through providing user guides to clarify the kind of content users can safely archive in IRs without infringing copyright stipulations (Ferreira et al., 2008).

The issue of copyright fears is due to the fact that some publishers see IRs as a potential obstacle to their business model, and often have policies that tend to obfuscate if not antagonise IRs. Such policies result in researchers being apprehensive towards archiving work in IRs (Jain, 2011). This issue is exacerbated by the fact that prior to depositing any article in IRs, users are expected to request for permission from publishers. During this process they often encounter some challenges in disentangling copyright permissions. These are caused by inconsistencies in publishers' permission requirements (for instance, while some publishers allow the deposit of pre-prints only, others allow post-print, and others do not allow any deposits). Furthermore, some publishers demand exorbitant fees in exchange for granting permission for archival in IRs, some require an embargo period, and in some

cases, scholars discover that some publishers have ceased operating, which makes the copyright clearance procedure even more challenging and confusing for users (Ngure & Gatiti, 2015). Faculty members also cite some difficulties in locating some publishers' copyright policies from publisher databases such as SHERPA ROMEO due to their uneven and poor coverage of independent, and small society journals by these databases. These challenges make the permission management routine a frustrating, and time-consuming process for faculty (Salo, 2007).

Another barrier which inhibits faculty from participating in IRs is the reluctance to archive their work where good quality "peer reviewed" work is mixed with work of questionable quality. They therefore prefer archiving their work in reputable journals. Scholars often argue that archiving non-peer reviewed work could result in erroneous information being propagated which leads to negative implications to scholars' professional reputations (Davis & Connolly, 2007). Dulle and Minishi-Majanja (2009) on their part, posit that IR users fear that the dissemination of grey literature (such as dissertations and unpublished papers) in IRs might compromise the quality and status of IRs. Dulle and Minishi-Majanja (2009) suggested that such content be reviewed within academic units or departments before archival in IRs.

On the contrary scholars such as Chisenga (2006), and Osayande and Ukpebor (2012) support the inclusion of grey literature in IRs. Osayande and Ukpebor (2012) aver that grey literature provides scholars with research summaries, facts, statistics, and other data that offers a more comprehensive view of the topics of interest. Lecturers, researchers, and students rely on such literature for first-hand information on topics under study. Chisenga (2006) asserts that grey literature from Africa is produced in limited amounts, and has limited circulation even in institutions where it is produced. Even worse, grey literature from Africa is inadequately documented, and there are inadequate national or regional databases where the grey literature can be accessed. In cases where such databases exist, it is difficult to access the actual document, unless one gets it from institutes where it was produced.

Another potential barrier to the usage of IRs is the failure to create an appropriate metadata record. Giesecke (2011) argues that although most archiving systems specify instructions on how to create basic metadata records, faculty fails to provide accurate metadata. McCarthy (2014), Thomas and Griffin (1999), and Beall (2005) aver that metadata errors and poor

quality metadata can block access to digital collections thus resulting in detrimental effects on research commercialisation, publication and customer services. Kurtz (2010) examined the quality of metadata records from three institutions (University of New Mexico, University of Washington, and Ohio State University) in the US that use the Dspace software. It was revealed that some metadata such as subject headings, description, or abstract, publisher information was either missing or inaccurate. McCarthy (2014) opines that other common metadata errors include the incorrect use of keywords, duplication of records, and incorrect formatting dates. Kurtz (2010) and Lynch (2003) emphasised the need for librarians to review the metadata creation process in order to ensure accuracy in the metadata creation process. Greenberg et al. (2001) on the other hand, argue that resource authors such as faculty and students are good candidates for metadata creation in organisational settings. This is because they want their work to be discovered, and they are more likely to describe their resources for their target audiences clearly and appropriately.

Despite the barriers which are likely to inhibit users from accessing IRs, the use of researcher personal pages in IRs could play an essential role in attracting users to IRs. Researcher pages provide comprehensive information about researchers including their research interests, membership in professional associations and community services, contact information, networks of collaboration, publications, achievements, research supervision, and grants data (Confederation of Open Access Repositories, 2013). Researcher pages however, if poorly managed could discourage the use of IRs. This is in the sense that since these pages can be fully edited by page owners (faculty and students), they can add anything they want, including inappropriate photos, or even content that does not reflect well on their departments. To remedy such situations library staff members should be granted full administrative rights to remove any improper content from the author's pages (Rozum & Thoms, 2016).

Users also encounter several technical challenges as they interact with institutional repositories. According to Muhammad (2009) these include navigation, learnability and interface related issues. Wilson and Jantz (2011) posit that while the most common navigation path to IRs is through the library homepage, there are cases where there is lack of uniform navigational paths from the library's homepage to IRs, which makes it difficult for users to find them. Furthermore, Jenkins, Breakstone and Hixson (2005) assert that too many libraries display a wildering collection of separate links to the catalogue, article databases and other locally developed resources, instead of creating a single access point

that searches and retrieves information from the different resources seamlessly. Jenkins, Breakstone and Hixson (2005) suggest the inclusion of IR content in library catalogues and cross-database searches increase the likelihood of IRs being utilised by target audiences.

Muhammad (2009) defines learnability as understanding the digital platform, and argues that digital libraries with complicated interfaces are often difficult to understand, which results in their resources not being fully utilised by users. According to Jenkins, Breakstone and Hixson (2005), it is unfortunate that submission fields in the current Dspace IR software includes library terminology which cannot be modified without rewriting the underlying computer code. This makes it difficult for faculty and non-library staff to fill the Dspace submission form accurately, and consequently, faculty not fully embracing the self-submission process. Crow (2002) further points out that self-archiving in E-prints repository systems requires several steps that may dissuade new and recurrent contributors from depositing their work. Given the significant disparity in their technical proficiencies, faculty, and other potential contributors might therefore not have the expertise or inclination to deposit resources themselves. Jenkins, Breakstone and Hixson (2005) assert that self-archiving in IRs thus requires willingness to learn new terminologies, as well as familiarity with copyright issues. Research has nonetheless, shown that faculty members' interests in information issues is often episodic and quixotic. Vishala and Bhandi (2007) concur with this view and assert that most faculty members often state that they do not have time to stay abreast of changes in information technologies, and consider self-archiving as extra administrative work.

Muhammad (2009) further states that a search interface is an essential part in every system since this is where users directly interact with the system and utilise services offered by the system. According to Kim (2005) search interface issues include amongst others failure to present links for opening and viewing digital documents, and failure to list search results in a useful way for users. E-prints IR users in particular have reported that this system sorts the title of search results by first words including articles, (such as "a" and "the") which are usually excluded when sorting. This sorting system is seen as confusing by IR users.

Kim (2005) and Jenkins, Breakstone and Hixson (2005) suggested minimising the technical challenges faced by IR users through providing user guides with examples of how the system works, using simple IR designs, providing adequate training for IR users, assisting

the non-technically savvy users with any new technology, clearly presenting links to digital documents, and listing search results in a useful way which makes sense for users.

3.6 Role of Librarians in Promoting IRs

Even though IRs have been hailed by authors including Lynch (2003), Ammarukleart (2017), and Jain (2011**)** as essential infrastructures for archiving and preserving institutional research, most institutional repository marketing efforts have only targeted faculty as potential contributors, and failed to promote repository collections to other groups of scholars across the world when IR promotion efforts should focus on increasing new, and returning contributors, as well as raising the visibility of IR services, and their host institutions. This section thereby examines the roles of librarians in promoting service quality in IRs.

Advocacy is one of the popular IR promotion strategies. Cullen and Chawner (2008) define advocacy as marketing a repository to its academic community. This is essential in gaining acceptance of the IR concept, buy-ins from potential depositors as well as a successful rate of IR contributions from targeted audiences. Librarians can request well regarded individuals who are early adopters of IRs in their institutions to "champion" the IR promotion project, and further recruit other scholars to archive their work in repositories (Jones & MacColl, 2006). Another valuable stakeholder group in IR advocacy campaigns are students. Students can be trained by librarians to promote IR deposits amongst scholars, and be assigned to visit different departments to demonstrate the benefits using IRs. This approach was successfully applied at Jomo Kenyatta University of Agriculture and Technology in Kenya by a group of ten students who promoted their IR to deans, chairmen of departments, and faculty members (Confederation of Open Access Repositories, 2013). Jenkins, Breakston and Hixson (2005) see reference/ subject librarians as ideal candidates for marketing IRs through their individual face to face meetings with department representatives. Due to their ongoing campus relationships, these librarians are in a better position to recognise possible barriers to the IRs success, and assist IR administrators in identifying departments that might be potential IR communities. They can also facilitate the spread of faculty's interests in IRs within their subject areas through sharing the positive experiences of other departments (Cullen & Chawner, 2008).

Popular traditional IR promotion strategies include advertising the IR in campus newspapers or newsletters, and conducting seminars and departmental meetings (Mark & Shearer,

2006). Such meetings should be tailored to meet the needs of individual departments, and be presented by library staff members who are personable, user-centred, technically savvy, and conversant with recent scholarly communication issues (Mark & Shearer, 2006; Jenkins, 2005). Other IR promotion tools include brief audience specific handouts focusing on the benefit of IRs to specific departments, and brief demonstrations of the IRs features, file types, and information retrieval strategies, with presenters emphasising the strengths and weaknesses of the IR software (Jenkins, Breakston, and Hixson, 2005). Libraries can also link the IR to the university's website, create brochures, and issue press releases about the repository (Primary Research Group, 2011). Providing incentives such as the awarding of prizes to top depositors and publicly celebrating a specific number of deposits (e.g. 1000 documents) have also been discovered to be effective in the promotion of IRs (Cullen & Chawner, 2008).

According to Kesselman and Watstein (2009) the dramatic increase in technological advancements has forced librarians to shift from their traditional IR promoting strategies. Novel IR promotion strategies according to Bedenbaugh and Mercer (2012), include promoting IRs by using social media to: recruit content; introduce user communities to repositories; and to strengthen a sense of community amongst current and prospective IR users. Pinfield (2005) asserts that institutions should also set up internal procedures to support the deposition of IR content, for instance use blogs, mailing lists, and wikis to provide instructions guiding users through the document submission process.

Furthermore, to be in a better position to promote IRs, librarians need to be well versed about their principles, benefits and operational processes (Ashworth, 2006). They also need to use scholarly communication terminology that is readily understood by faculty when naming IRs, and avoid library jargon words such as "institutional repository" but rather opt for terms such as "long-term electronic archives" (Foster & Gibbons, 2005, p. 5). The term institutional repository could be misunderstood by some scholars for a system that is designed to support or meet the needs and goals of host institutions, when the primary focus of IRs is on individual scholars/researchers (Foster & Gibbons, 2005; Gandel, Katz, & Metros, 2004).

OA mandates have also been introduced by various universities to ensure that faculty, staff, researchers, and students archive their full text articles and bibliographic metadata in IRs immediately upon acceptance for publication, as well as their accepted drafts, provided

these are not publisher's final PDF versions (Swan & Brown, 2005; Harnad, 2006). In some institutions researchers have to deposit their articles in IRs as a condition to having their work considered for performance reviews. The mandate in this case is implemented in such a way that it is not taken as one of the usual university policies which may or may not be adhered to. It is rather communicated to academic colleagues with robust mechanisms in place to ensure that document deposits take place (Steward, 2013).

Mandates are implemented through top-down and bottom up approaches. The former is when these are initiated by an institution's administration, and the latter is when mandates are democratically established for instance developed, voted on, and passed by faculty governing boards (Confederation of Open Access Repositories, 2013). The top-down approach has been applied by universities across Europe including University of Liege in Belgium, and Minho University in Portugal. The bottom up approach on the other hand has been applied in universities including Duke, Massachusetts Institute of Technology and Stanford universities in the United States (Confederation of Open Access Repositories, 2013). Other universities that have successfully adopted mandates include Oregon State, Harvard, and the University of California from the United States (Zhang, Boock & Wirth, 2015). African universities that have adopted mandates include the University of Pretoria, University of Cape Town, and Stellenbosch University (Czerniewicz & Goodier, 2014).

Making it mandatory for authors to self-archive or self-deposit their works in IRs plays a vital role in accelerating change and making the benefits of using IRs more apparent across subject disciplines. A mandate is also believed to quickly overcome the cultural and managerial barriers that currently exist in academia (Pinfield, 2005). Gargouri et al. (2012), Pinfield (2004), and Xia et al. (2012) argue that strengthening open access mandates/policies would positively influence the number and rate of IR deposits, and that the best way to achieve major short term and long term improvements in scholarly communication, is through making it mandatory for scholars to deposit their research papers in open access repositories. Harnad (2006) argues that even though a number of innovations have made constructing IRs an easier job, until mandates are put in place, institutional repositories will never succeed. Harnad (2006) asserts that 95% of document authors are likely to comply with self-archiving mandates. While 81% of these are likely to do so willingly, 14% of document authors will most likely do it reluctantly. Institutions including CERN in Switzerland, Queensland University of Technology in Australia, Minho University

in Portugal, and Southampton University have each reported that their institutional self-archiving rates increased towards 100%, whereas without the implementation of mandates, document deposits were at 15 % (Harnad, 2006).

Even though a number of authors including amongst others Pinfield (2005), Xia (2012), Sale (2006), Harnand (2006), and Thomas and McDonald (2007) support the use of mandates to boost IR content, this strategy has been widely critiqued. Jantz and Wilson (2008) argue that the implementation of mandates should be treated with caution since this strategy contradicts the independence of faculty research. Wesolek and Royster (2015) in the same vein, argue that the mandatory policy approach is not merely unhelpful in populating an IR, but also positively harmful to its growth, acceptance and functioning. In fact, mandates spoil the atmosphere of mutual cooperation and respect that is established between IR administrators and users in voluntary IR document deposit settings. Xia (2012) asserts that merely employing mandatory policies is not enough to change users' attitudes towards archiving their work in IRs. To effectively utilise mandates, Linde (2010) suggests the need to supplement OA policies with descriptive and constructive user guides, clarifying the roles to be undertaken by specific individuals in order to fulfil the different OA speculations. Harnad (2006) further asserts that for institutional mandates to be successful, there should be no penalties or sanctions, and the mandates should be formally adopted with the support of departments, the library, and computing services.

The use of metrics or usage statistics is another strategy used by librarians as an incentive to encourage researchers to contribute their work in IRs. Typical repository metrics include page views of abstracts, and article downloads. Besides these features metrics can also be integrated into institutional repository software platforms to provide more detailed information about how papers are being utilised; for instance, repository managers can track an articles' usage patterns as well as its exposure in various channels and social networks (Confederation of Open Access Repositories, 2013). Metrics play a vital role in helping IR administrators prove if IRs are valuable and worth the financial and staff resources allocated to them. They are also essential in demonstrating to research units and faculty authors the value of IRs, particularly if IRs are worth the time and effort needed to collect and submit articles. Understanding the value of IRs through metrics requires the understanding of stakeholders, and their reasons for using the IR, in order to ascertain if the IR is meeting their objectives (Bruns & Harrison, 2016). Metrics are also believed to alter the direction of

research in the sense that based on relatively low download statistics for a particular strand of research, authors could decide to pursue a more popular strand, as shown to them by higher download rates (Organ, 2006).

Another strategy used by IR administrators to promote IRs is through providing research/ faculty profile page. These are integrated within the repository system in order to link faculty's citations with their full text articles. Researchers or faculty's research interests, courses they teach, a biography of their research publications, and grants received are highlighted in their profiles. Profile owners are given privileges including page editing rights, user work space, and portfolio pages (Confederation of Open Access Repositories, 2013). Ngure and Gatiti (2015) assert that the use of faculty profile pages in Aga Khan University campuses in the United Kingdom, Pakistan, Kenya, Uganda, and Tanzania played a vital role in ensuring that: the library had an updated list of faculty and their publications; the library had no need to seek permission clearance from faculty since they had already shown their willingness to archive their work in the IRs; and lastly faculty profiles act as marketing tools because authors who view publications from profile pages are more likely to also refer their peers to other articles archived in the IR. Jain (2011) further posits that faculty profiles are essential as they typically emphasise document authors' personal accomplishments than viewing their work as activities of their academic departments and institutions.

Equipping librarians with necessary skills is also crucial in enhancing the quality of services offered by IRs. According Ngure and Gatiti (2015), the Aga Khan University carries out extensive skills training to staff members involved in the implementation of IRs to ensure that skills are at the same level across all Aga Khan University campuses so that IR users can equally benefit from this resource. IR modules are also being designed for inclusion in information literacy courses to train users how to navigate IRs. Users are further trained on plagiarism, publishing, and copyright policies to help them understand the implications of any agreements they sign with publishers. Besides training IR stakeholders, Grundmann (2009) also suggests using outreach efforts to address any concerns users might have regarding IRs. Zhang, Boock and Wirth (2015) argue that outreach to specific colleges and departments have positive effects on rate of deposits to IRs by scholars. The outreach programs should clarify that self-archiving in IRs is a supplement to, and not a replacement for traditional publishing mechanisms (Grundman, 2009).

According to Bedenbaugh and Mecer (2012), and Grundmann (2009) in order to effectively promote the quality of IRs, and implement relevant strategies for engaging IR users, it is essential for IR administrators to be clear who their users are, and to know their individual needs. Quinn (2010) argues that it is also essential for IR implementers to examine factors resulting in the psychological resistance of digital platforms, especially because literature on user behaviour and digital repositories shows that faculty do not see the value of depositing their articles in IRs. Harnad (2006) suggests the need to understand faculty's work culture in order to determine how support can be offered to facilitate the deposition of their work in IRs. Jantz and Wilson (2008) state that it is also essential to understand the culture of scholarship from various disciplines since literature has shown that the deposition of IR content by disciplines is highly skewed.

Mackie (2004) states that IR administrators should also consider searching newly developed university wide annual database reports, subject repositories, and publisher websites for faculty publications, and posting their full text articles in IRs. Where possible this should be done without having to contact each author individually. Darby et al. (2008) on their part assert that for repositories to survive and become more than just holding places for institutional research, there is need to develop systems that will link or network individual repositories, exchanging information between institutional, subject and funder repositories. This can lead to a systematic view of an integrated network of research. According to Organ (2006), when Oregon State University linked their IR with web of Science to identify new articles written by Oregon State's scholars, the rate of IR article deposits increased from 12 to 45%. Foster and Gibbons (2005) argue that it is however, unfortunate that most academic institutions have mapped their IR communities to their academic departments than to communities of scholars from other institutions who are engaged in interrelated research projects. In the absence of such connections naturally bring scholars' work together, there is no compelling reason for authors to submit their work in IRs. COAR (2013) and Jantz and Wilson (2008) also recommend the adoption of direct deposit services where articles are transferred from the publisher and commercial vendors into IRs without the need for any input from faculty members. Implementing this workflow of automated deposits is a very successful way of populating IRs, and plays a vital role in reducing librarian's workload, and providing accurate metadata.

Cassella and Morando (2012) argue that it has become clear that traditional library skills are no longer effective in running successful IRs. Specialised skills including management and communication skills, technical skills, digital content preservation, copyright, collection development, metadata, and project management are now required. Allard, Mack and Feltner-Reichert (2005) assert that IR administrators should also understand the IR software and workflow, metadata standards, quality control of content, and be able to train repository users.

3.6.1 When to Promote IRs

As much as it is essential to develop powerful and easy to use interfaces, aggregators, and other IR access tools, this is futile if faculty, students, researchers, and all potential IR stakeholders are not aware of the existence of IRs. Librarians should therefore rigorously promote IRs to ensure that they are known, and effectively utilised by target audiences (Jenkins, 2005).

There are however, mixed feelings regarding when IRs should be promoted to users. Kocken and Wical (2013) argue that IR promotion should be done as soon as possible, and before content becomes a focal point of any marketing strategy. Madsen and Oleen (2013), and Leary, Lundstrom, and Martin (2012) on the other hand, support the continued marketing of IRs since this contributes to the continued growth of the IRs content. On the same note, Christian (2008) argues that librarians should constantly demonstrate the importance of IRs to stakeholders in order to promote the visibility of scholarly productivity of faculty, students, staff, administration, alumnae, and other interest groups. Jenkins (2005) also supports the continual promotion of IRs, and asserts that IR implementation work requires tenaciousness, and the ability to weave discussions of scholarly publishing alternatives into many interactions over time with faculty and students. Jenkins (2005) opines that the continual promotion of IRs is essential because academic culture cannot change in a space of one conversation, and in some disciplines, it may not change at all. On the contrary, Lynch (2003) argues that an effective approach is to first populate the IR, and promote it at a later stage when satisfied with its content. Although this sounds convincing, one would argue that if users are IR stakeholders, then they should be involved from the planning than only the implementation phase. Jones and MacColl (2006) on their part argued that there is no need to promote IRs. If IRs have quality content, users will automatically find them through search engines. Chan and Costa (2005) in the same vein

stated that once faculty realise the benefits of archiving their work in IRs, they will be motivated to play an active role in their implementation.

3.7 Broader Issues

The Broader issues around this study's research questions including: user satisfaction, information behaviour, human computer interaction, and open access are discussed below in attempt to highlight external factors hindering the effective use of institutional repositories by faculty and post-graduate students.

3.7.1 User Satisfaction

Zeithaml and Bitner (2000) define satisfaction as customer's evaluation of a product or service in terms of whether these meet their needs and expectations. Failure to meet customers' needs and expectations is assumed to result in dissatisfaction with the product or services received. Motiang, Wallis and Karodia (2014) assert that humans always communicate their experiences whether good or bad. This means that if satisfied with that service they may continue using it and, even recommend it to their peers. Similarly, if they receive a bad service they may also tell their peers about their experiences. Hansemark and Albinson (2004) on their part, define satisfaction as the overall attitude towards a service provider, or an emotional reaction to the difference between what customers anticipate and what customers receive, to fulfil their needs, goals, or desires. According to Mabilikoane and Khaola (2015), satisfaction is often used interchangeably with service quality when these are completely different; while satisfaction is defined as a post consumption evaluation or experience of a product or service. Service quality on the other hand is defined as the comparison between customer's expectations and their perceptions of the service received.

In today's competitive environment companies have realised the importance of delivering and managing quality services, which results in customer satisfaction. Satisfied customers are a foundation of any successful business since satisfaction results in recurrent purchases, brand loyalty and positive word of mouth (Angelova & Zekiri, 2011). In computer systems and related fields, an individual's perceptions of the system predict its success. User satisfaction in this setting is the affective attitude towards the activities surrounding end-user's interaction with the computer based information system (Melone, 1990). Benedict et al. (1997) argue that novice users are more likely to perform poorly in information system

settings, which often results in their dissatisfaction with complex task environments. A lengthy system's response in information systems environments may cause lower satisfaction and result in poor productivity amongst users. Lowered user satisfaction is also likely to result in the discontinued use of the system, or even force users to find alternative sources of information (Shneiderman, 1998; Kuhmann, 1989). Improving user's performance, and indirectly their levels of satisfaction thus leads to a more efficient use of information systems (Benedict et al., 1997).

User satisfaction is a reliable and critical element in determining a library's effectiveness (Motiang et al., 2014). Factors contributing to library users' satisfaction with library services include the: availability of up-to-date information; organised facilities that are visible to all users; easily accessible library services and resources; courteous and friendly library staff in their engagement with users; attractive library especially its facilities, collection, staff and services, and a user friendly and comfortable library environment (Thakuria, 2007). Other factors influencing user satisfaction include friendly, courteous, and knowledgeable employees, accuracy of billing, competitive pricing, service quality, good value, and a quick service (Angelova & Zeriki, 2011).

Al-Maskari and Sanderson (2010) assert that in information systems factors influencing user satisfaction include: a systems effectiveness (how well the system achieves its objectives in terms of the fraction of relevant documents retrieved by the system after a search query and the fraction of the relevant documents presented in the database that are retrieved by the IR system); User effectiveness (the accuracy and completeness with which users achieve specific goals in terms of the number of tasks successfully completed, the number of documents obtained and the amount of time it took users to accomplish the task); User effort (users' search behaviour when interacting with the information retrieval system. This is measured by the number of clicks, queries, and query reformulations); and lastly user characteristics (factors for understanding users' search behaviours such as user's familiarity with the search topic (domain expertise), motivation, and experience in various aspects such as computing, librarianship, and skills in searching for information). Soergel (1976) discards user satisfaction as a measure of information retrieval, and argues that users may be satisfied with an IR even after retrieving irrelevant documents, which is why focus should be on helping users to complete their tasks successfully than seeking their satisfaction.

3.7.2 Information Behaviour

One of the major concerns in Information Sciences is the information behaviour of different individuals and target groups because an effective information service largely depends on understanding users' information behaviour (Wilson, 2000; Hepworth, 2007; Wilson, 2006; Bitso, 2012). Information behaviour is defined as human behaviour dealing with the generation, communication, and the use of information and other information related activities such as information seeking behaviour and interactive information retrieval (Ingwersen & Järvelin, 2005, p. 21). Information behaviour focuses on people's information needs especially how they seek, manage, give and use information, purposefully and passively (Fisher & Julien, 2009, p. 317). Information behaviour is an umbrella term for every human's interaction with information. This means that information behaviour can mean the way people avoid information, manage their emails, how students seek information for their assignments, and how people encounter or practically use information (Greinfeneder, 2010). The term information behaviour can however be misleading, as it implies the behaviour of information rather than that of people, and should therefore be used with caution (Mutshewa, 2007).

According to Bates (2010), interest in this area grew out of several streams. Librarians wanted to understand library users better; government agencies wanted to understand how scientists and engineers use technical information to promote the rapid uptake of new research results; and social scientists were concerned with the social use of information in a variety of ways. Understanding student's information behaviour is essential in the information service delivery of any academic library because when the library is aware of, and understands the information behaviour of students, it becomes easy to redesign services to match the needs of various students (Unuoha & Awuniyi, 2013). According to Rowley (2013), in web based environments the reasons for examining user information behaviour are to: understand key parameters that define appropriate and useful profiles; enhance service delivery; assess performance management in pursuit of understanding whether the tools available for learning are fit for the purpose they were intended for; monitor trends and changes to justify the need for adding or discontinuing certain resources such as technology and training; and to inform the design of electronic information environments in relation to usability and web design.

Fidzani (1998) asserts that a lot of research has been conducted on the information behaviour of various library user groups. Information behaviour of students in higher education across the world usually involves searching for information in order to complete assignments, prepare for class discussions, seminars, workshops, and research projects. All these include information seeking practices (Baro, Onyenania, & Osaheni, 2010). The process of student's information searching and retrieval behaviour is summarised into three unique groups which include: experienced critiques (students are aware of the need to evaluate and judge information used), technology admirers (those who consider themselves as great internet users but do not possess strong information literacy skills), and lastly extrinsic motivators (who are only concerned with completing their assignments, not the learning process, and do not know how to access the best information sources) (Denison & Montgomery, 2012).

For a long time, researchers have approached information behaviour entirely based on users' needs, a situation which has resulted in a knowledge gap. The situation has however changed with researchers now accepting that information behaviour research needs to consider the context (Greinfeneder, 2010). This is in line with Pettigrew, Fidel and Bruce (2002, p. 45) who defined information behaviour as the study of how people need, seek, give, and use information in different contexts. Researchers now acknowledge that earlier models of information behaviour did not appropriately reflect the issue at hand (Greinfeneder, 2010). The recent model by Robson and Robinson (2013) is a good illustration of the complexity of studying information behaviour, especially the importance of knowing about user's context and incorporating such contexts in information behaviour studies.

Vilar (2014) opines that in recent years there have been changes in scientific information behaviour due to the effects of information and communication technologies, which in turn also affects the provision of scientific resources. Contemporary types of information behaviour now include chaining, skimming, navigation, power browsing, squirreling, cross checking and others. Hemminger et al. (2007) assert that researchers have strong preferences for obtaining information in the most convenient possible ways, for free and via electronic access. The new ICT calls for the re-examination, evaluation and benchmarking of library skills and the current library and information services in order to meet users' needs (Garoufallou et al., 2008).

3.7.3 User Studies

This entails those who use one or more of the library's services at least once a year. Users come to the library with information needs, minimum possible time to process their needs, and at times they fail to express clearly their needs due to various complex psychological issues. In all cases librarians need to ascertain users' information needs, even though this is a difficult task considering that users' needs are ever changing and complex. User studies are thus conducted to identify what exactly is required by users (Murugan, 2011). Furthermore, user studies aim to gather information that is useful for design and evaluation of specific information products, or services with the intent of meeting users' specific needs. Such studies are essential in bridging the gap between the kind of information needed and the kind of services of available services (Prabha, 2013).

Even though conducting user studies is difficult since the related theories, models and methodologies have not been fully perfected, user studies are important for the design and operation of effective and efficient information systems, services, and products. Products and services that are developed based on user studies have higher chances of being well designed than those based on intuition, anecdotal evidence, or committee deliberations (Prabha, 2013). Sridhar (1995) asserts user studies also reveal anticipated data about dynamic users; check whether intended goals are served by the library system; and if not met alter the program and resources to ensure the judicious allocation of library resources; identify if there are any departures from the norms in specific services; and help in improving public relations of libraries with its users.

The steps involved when conducting library user studies include: the selection of a problem and formulating objectives; assessing the information use pattern in the library; assessing reasons for regularly using one or more information sources; appointing experienced staff members to conduct user studies; preparing a time table for the study; executing sample design; designing data collection instruments; developing suitable procedures for editing, coding, and analysing collected data; report writing, and the publication of results (Murugan, 2011). Karunanayake (2007) points out various methods of conducting user studies in libraries including observation, records of service use, focus groups, and questionnaires. User surveys provide detailed information about user's opinions of the service; help to clarify the librarian's concept of service and their assumptions about users' needs; indicate problems; and suggest solutions. Information generated from surveys

enables librarians to identify service issues and opportunities; identify unmet needs; effectively utilise limited resources; obtain input to strategic planning, and market services.

3.7.4 Human Computer Interactions (HCI)

Dix et al. (1992) define Human Computer Interaction as a discipline concerned with the design, evaluation, and implementation of interactive computing systems for human use as well as the study of major phenomena surrounding them. Kim (2005) defines HCI as a cross disciplinary area dealing with the theory, design, implementation, and the evaluation of the ways that humans use and interact with computer devices. Calp and Akcayol (2015) on their part define HCI as a field that examines the interaction of users and technology interfaces. The early focus of HCI has been on how to design interaction, and implement highly usable interfaces, which are easy to use, efficient for the task, ensure safety, and result in the correct implementation of the required tasks. Usable and efficient interaction with computing devices in turn, translates to higher productivity (Kim, 2005).

Over the years, researchers and developers in the HCI field such as Kim (2005), Shneiderman (1998), Skaalid (1999), and Hearst (1999) established basic principles for good HCI design. These according to Kim (2005) include: **Knowing the user** (implying that the interaction should cater for the needs and capabilities of the target user in the system's design); **Understanding the task** (which is closely related to interaction modelling and user analysis, and deals with identifying the sequence and structure of subtasks at an abstract level appropriate for typical users within larger application levels); **Reduce memory load** (designs requiring less memory load are important with regard to the interface's role as a quick and easy guidance for users to complete specific tasks); **Strive for consistency** (in the long term, one way to unburden the memory load is to keep consistency within and across applications as well as in the interaction model and interface implementation); **Remind users and refresh their memory** (employing interfaces that give continuous reminders of important information and refresh user's memories); **Prevent errors/reversal action** (the interaction and the interface should be designed such that it avoids confusion, errors, and mental overload); and **Naturalness** (HCI should favour natural interaction and interfaces meaning that it should reflect the various operations of everyday life).

Shneiderman (1998) states that the eight Golden rules for good HCI design include: **Striving for consistency** (consistent sequence of actions required in all situations, identical terminologies used in prompts, menus and help screen, as well as consistent colour, layout,

capitalisation, and fonts); **Enable frequent users to use shortcuts** (to increase the pace of interaction, abbreviations, special keys, hidden commands, and activating macros); **Offer informative feedback** (for every user action, the system should give feedback); **Design dialog to yield closure** (sequence of actions should be organised into groups, and informative feedback should be given upon completion of a group of actions to show users that their activity has been successfully completed); **Offer error prevention and simple error handling** (designing the system such that errors are less likely to happen. The design screen should be distinctive to make it difficult for users to commit irreversible errors); **Prevent easy reversal of action**; **Support internal locus of control** (avoid surprising system actions, tedious data entries, inability/difficulty in obtaining the required information, and inability to produce the desired action since these lead to anxiety and dissatisfaction with the system.); and **Reduce short term memory load** (through designing screens where browsing and navigation options are clear).

Skaalied (1999) on the other hand, posits that the recommendations from HCI design research can be applied in web design through: **Recognising diversity** (making navigation areas fast loading for repeat users, providing detailed explanations for topics, symbols and navigation options, provide text index for quick and easy access to all pages, and ensuring that the web pages are readable in all formats for all kind of users); **Striving for consistency** (with regard to menus, help screens, colour, layout, capitalisation, fonts and sequences of actions); Offer informative feedback; Build in error prevention in online forms; Give users as much control as possible; Reduce short term memory load; Make use of web conventions such as underlined links and colour changes for previously visited pages; and provide a conceptual model of your site using a site map or index.

Based on the above recommended principles of good HCI and web designs, it is noted that these HCI scholars stressed the importance of having users in mind when designing systems, as well as ensuring that users receive a fulfilling and enjoyable computer interaction experience. Hearst (1999) concurs with these scholars, and states that well-designed systems generate positive feelings of success, competence, mastery, and clarity amongst user communities. Hearst (199) further states that when an interactive system is properly designed, interface problems disappear, which enables users to concentrate on their work, exploration, or pleasure.

3.7.5 Open Access

Martell (2003) argues that during the 1970s libraries were faced with two major challenges that triggered the open access movement. These include the deterioration of funding, and the never-ending increase in the prices of library periodicals and other materials. This situation worsened such that by the 1990s many academic libraries were getting as little as 3% of their university's budget instead of the 6% they used to be allocated. These budget cuts coupled with the annual cost-price increase for library periodicals resulted in libraries losing their buying power, and the annual cancellations of journals (Hoskins, 2009). Moreover, several commercial publishers began bundling their electronic journals into a single package often referred to by librarians as the 'big deal' (Hoskins & Stillwell, 2010). Unfortunately, some of the bundled journals were not required by libraries. By agreeing to the bundle deal, libraries lost the freedom to drop individual journal subscriptions for a specific period of time (generally three years), and thus obligating themselves to a fixed inflation rate (Edwards & Shulenburger, 2003).

In response to the above-mentioned challenges, three initiatives towards open access were then established. These include the BOAI in 2001, Bethesda Statement in 2003, and the Berlin declaration in 2003. The BOAI resulted in the establishment of two open access strategies; the green (self- archiving) and the gold roads (open access publishing) (Jain, 2011). The former refers to when authors make their journal articles available to the public through the internet without any financial, legal, or technical barriers (Christian, 2008). The latter on the other hand "is where journals provide OA to their articles (either by charging the author-institution for refereeing/publishing outgoing articles instead of charging the user-institution for accessing incoming articles, or by simply making their online edition free for all" (Jain, 2011). The other open access initiative, Bethesda statement on open access publishing was a declaration by stakeholders within the biomedical research community setting out procedures to be followed by stakeholders in order to promote the gradual transition to open access publishing (Christian, 2008). The Berlin declaration emphasised open access knowledge and states that knowledge dissemination is not complete, if the information is not made widely and readily available to society (Jain, 2011).

According to the Budapest Open Access Initiative (2002), OA literature is "freely available on the public internet, permitting users to read, download, distribute, print, search or link to the full text of these articles, crawl them for indexing, pass them as data to software, or use

them for any other lawful purpose, without financial, legal, or technical barriers imposed other than those inseparable from gaining access to the internet itself". The Bethesda Statement (2003) on the other hand, defines open access as an instance where "the author(s) and copyright holder(s) grant all users free, irrevocable, perpetual rights of access, and a license to copy, use, distribute, transmit and display the work publicly, and to make and distribute derivative works, in any medium for any responsible purpose, subject to proper attribution of authorship as well as the right to make small numbers of printed copies for their personal use".

Harnand (2008) stated that open access aims to: maximise the uptake, usage, applications and impact of research output of an institution or university; to measure and reward the uptake, usage, and to collect, manage and showcase a permanent record of research output and image of universities. The characteristics of open access include: free availability of scholarly publications, free of copyright and licensing restrictions; materials available online in full text; and materials that can be accessed by anybody from anywhere without any discrimination (Jain, 2011). OA contents are not restricted only to peer-reviewed research articles but manifest in various formats including texts, data software, music, audio, video, novels, and multi-media (Suber, 2010).

3.8 Summary of Literature Review

This section assessed service quality and technology acceptance factors affecting the usability of institutional repositories. The study's research questions were to assess the: perceptions of faculty and post-graduate students towards service quality in the use of the UNISWA IR; quality factors influencing the usability of the UNISWA institutional repository by faculty and post graduate students at UNISWA; levels of usage of UNISWA's institutional repository by faculty and postgraduate students; challenges of service quality facing faculty and postgraduate students in the use of the UNISWA IR; roles of librarians in promoting service quality of the UNISWA IR.; What recommendations can be delineated based on the findings of the study?

Literature was obtained from print and electronic resources including journal articles, theses, conference proceedings, and books. Key themes discussed include: user's perceptions and expectations of service quality; usability of information systems including IRs; levels of usage of IRs; challenges faced by IR users and how these can be ameliorated;

and the roles of librarians in promoting IRs. Broader issues around the research problem were discussed. These included user satisfaction, information behaviour, user studies, human computer interactions, and open access.

The first section examined the study's first research question/theme which examines faculty and post-graduate students' perceptions and expectations of service quality in the use of IRs. This section discussed service quality based on the SERVQUAL model with quality dimensions including reliability, assurance, tangibles, empathy, and responsiveness. Most of the reviewed library service quality studies assessed quality from face to face than online settings. This is regardless of the fact that similar studies have been successfully conducted in online information systems settings. A search from Library and Information Science databases such as Springer, JSTOR, and Emerald also failed to uncover content on service quality studies conducted on Swaziland. The current study therefore extends service quality to online settings whose context is the UNISWA IR. Such studies are essential since library resources are largely provided electronically. Literature also revealed some inconsistencies regarding the highest and lowest quality dimensions when these were ranked according to users' perceptions and expectations of service quality. This trend was worse in developing countries. Conducting similar research in the UNISWA IR setting will thus enable UNISWA librarians to benchmark their findings with those from other developing countries.

The literature review also assessed technology acceptance factors influencing the usability of information systems/ services including IRs. This section discussed factors such as the ease of using the available services, performance gains from using the service, the use of information services by peers and colleagues, and the availability of infrastructure to support the usage of the service/ product.

The literature review also examined the levels of usage of IRs by faculty and students. A search from OpenDoar indicated that most IRs are from developed countries. A bibliometric analysis of IRs from Library and Information Science abstract databases revealed that most IR studies are from the US, UK, India, Australia and Spain. This shows that African countries do not just lag behind in developing and implementing the IR infrastructure, but also in the production of IR literature. Literature also revealed that the most popular IR software is Dspace, followed by E-prints and digital commons. Although IR infrastructure has been successfully established in most countries worldwide, scholars across are reluctant to archive their work in IRs due to reasons including the fear of infringing copyright

requirements, fear of their work being plagiarised, no time to learn new technologies, inadequate IR advocacy, poor access to ICT infrastructure, and the lack of incentives for IR submissions.

Librarians therefore need to promote the use of their institutional repositories especially since it has been proven that having the IR infrastructure is not enough to make scholars archive their work in IRs. Popular IR promotion strategies include amongst others marketing the IR in various university departments using students, subject librarians, and IRs early adopters from various departments. Other strategies include using mandates to make it compulsory for scholars to archive their work in IRs, using metrics or usage statistics, using newspapers/newsletters, blogs, social media, seminars, and department meetings. The meetings should be led by librarians who are user centred, technically savvy, and knowledgeable about current scholarly communication issues.

Literature also indicated a number of service quality challenges encountered by faculty and students as they interact with IRs. These include technical issues associated with navigating the IR, learnability and interface related issues. Other challenges encountered by IR users include the cumbersome permission management process faced by scholars when they request from publishers' permission to archive their works in IRs; and the availability of non-reviewed works and poor-quality metadata in IRs, which in turn compromises the quality and reputation of IRs, further making it difficult for users to retrieve information from IRs.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

The term research methodology assumes various meanings in research discourse. Jonker and Pennink (2010) define research methodology as the way researchers conduct research; choose to deal with particular questions (which may result in the definition of a research problem); deal with people or organisations; and establish overall research approaches. Henning, Van Ransburg and Smit (2004) on their part define research methodology as a cohesive group of methods that complement one another and have the ability to fit and deliver data, and findings that reflect a study's research questions, and suit the research purpose. Kothari (2004) defines research methodology as a systematic and scientific way of approaching a research problem. O'Leary (2004) defines research methodology as the framework associated with specific pragmatic assumptions that are used to conduct research, such as scientific method, ethnography and action research.

Silverman (2005) avers that research methodology enables researchers to make choices about cases to study, methods of data collection, forms of data analysis, as well as the planning and execution of a research study. Silverman (2005) further opines that research methodology provides one with a general approach or guide on how to study specific topics. Kothari (2004) asserts that research methodology enables researchers to study the various steps that are generally adopted when studying a research problem along with the logic behind them. Research methodology further enables researchers to understand: why a research study has been undertaken; how the research problem has been defined; how the hypothesis was formulated; why certain techniques are adopted or rejected thus enabling researchers to evaluate any adopted research method; what data is collected; which data collection methods are adopted; and what data analysis methods are used (Kothari, 2004). In a nutshell, research methodology equips researchers with a well-defined plan on how to conduct research, and clearly points out what should be done at various research phases.

The aim of this study was to investigate service quality and technology acceptance factors affecting the usability of the University of Swaziland's institutional repository by faculty and postgraduate students. The study addressed two broad objectives:

1) Determine faculty and postgraduate student's satisfaction with the quality of services provided by the UNISWA institutional repository.
2) Assess the usability of the institutional repository by faculty and postgraduate students at UNISWA.

Based on the two-research objectives, five research questions were investigated:

1) What are the perceptions of faculty and postgraduate students towards service quality in the use of the UNISWA IR?

2) What quality factors influence the usability of UNISWA's institutional repository by faculty and postgraduate students at UNISWA?

3) What is the level of usage of UNISWA's institutional repository by faculty and postgraduate students?

4) What are the challenges of service quality facing faculty and postgraduate students in the use of the UNISWA IR?

5) What is the role of librarians in promoting service quality of the UNISWA IR?

6) What recommendations can be delineated based on the findings of the study?

This chapter is organised into nine thematic sections including: research paradigms, research methods, research design, population of study, sampling procedures, data collection procedures, data analysis strategies, validity and reliability of data collection instruments, ethical considerations, and summary.

4.2 Research Paradigms

The term paradigm originated from a "Greek word paradeigma which means pattern, and was first introduced by Kuhn to denote a conceptual framework shared by a community of scientists, which provided them with a convenient model for examining problems and finding solutions" (Antwi & Hamza, 2015, p. 218). According to Kuhn (1977) a research paradigm is a research culture with a set of beliefs, values, and assumptions shared by a community of researchers regarding the nature and conduct of research. Patton (1990) defines a paradigm as a worldview, a general perspective, and a new way of breaking down the complexities of the real world. A paradigm implies a pattern, structure, framework or

system of scientific and academic ideas, values and assumptions (Olsen, Lodwick & Dunlap, 1992).

Antwi and Hamza (2015) posit that research paradigms are characterised by three major dimensions including ontology, epistemology, and methodology. They assert that any research enquiry should be based on the way the investigator defines the truth and reality (ontology); the process in which the investigator comes to know the truth and reality (epistemology); and the method used to conduct the research/investigation (methodology). Scotland (2012) describes ontology as assumptions concerned with what constitutes reality, and argues that researchers need to take a position regarding how things really are and how they really work. Scotland (2012) defines epistemology as the nature and forms of knowledge, particularly, how such knowledge can be created, acquired, and communicated. Guba and Lincoln (1994, p. 108) posit that epistemology asks questions concerning the nature of the relationship between the would-be knower and what can be known. Scotland (2012) describes methodology as a plan of action which lies behind the choice of specific methods. It is concerned with why, what, where, when and how data is collected and analysed. Answers to questions on ontology, epistemology and methodology provide an interpretative framework that guides the entire research process including research strategies, methods, and data analysis (Antwi & Hamza, 2015). Figure 4.1 below shows the link between ontology, epistemology, and methodology.

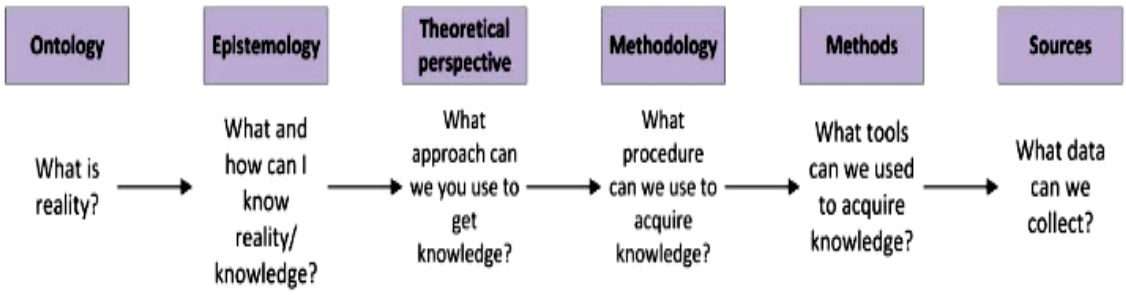

Figure 4.1: Ontology, Epistemology and Methodology (Source: Hay 2002 and Crotty, 1998)

Grix (2004) argues that it is impossible to engage in any form of research without committing to ontological and epistemological positions, and that researchers' varying ontological and epistemological positions often lead to different approaches of dealing with the same phenomena. Scotland (2012) states that different paradigms inherently contain different ontological and epistemological views, and therefore have different assumptions of

reality and knowledge underpinning their research approach. Crotty (1998) argues that ontological and epistemological issues often emerge together, and this makes it difficult for researchers to separate them conceptually. In fact, realism (an ontological notion asserting that realities exist outside the mind) is often taken to imply objectivism (an epistemological notion which asserts that meaning exists independent of any consciousness), and in some cases realism coexists with objectivism.

The three mostly used paradigms/worldviews are post-positivism, interpretivism, and pragmatism. Post-positivism is considered a contemporary paradigm that was developed because of the criticism of positivism. This world view represents the thinking after positivism, challenging the notion of the absolute truth of knowledge (Phillips & Burbules, 2000). Post positivists acknowledge that we cannot be positive about our claims to knowledge when studying human behaviours and actions. This paradigm is often called post-posivist research, empirical science, or post-positivism. The post positivist tradition comes from 19th century writers including Comte, Mill, Durkheim, Newton, Locke, and Phillips and Burbules (Creswell, 2014).

Like positivists, post-positivists believe in the existence of a single reality. They acknowledge that reality can never be fully known, and that efforts to understand reality are limited due to humans' sensory and intellectual limitations. Like positivists, post-positivists also strive to be objective, neutral and ensure that research findings fit within the existing knowledge base. Post-positivists acknowledge any predispositions that may affect objectivity (UK essays, 2015). Post-positivism holds a deterministic philosophy whereby causes determine outcomes. The paradigm is also reductionist in nature with the intent to reduce ideas into small discreet sets, such as variables that comprise research questions and hypothesis (Creswell, 2014).

Knowledge developed through this paradigm is based on observations and measurement of the objective reality that exists in the world. Developing numeric measures of observations and studying the behaviour of individuals, and testing or verifying laws that govern the world are essential in post-positivism. Post-positivists begin their research with theory, collect data that either supports or rejects theory, and then make necessary revisions, and conduct more tests (Creswell, 2014). Just like positivists, post positivist's research is most commonly aligned with quantitative methods of data collection and analysis, and the data collected tends to be measurable or numeric in nature (Mackenzie & Knipe, 2006).

The interpretive paradigm/constructivism on the other hand involves research carried out in a subjective manner where results can be influenced by researchers' opinions (Essays, 2016). Interpretive methodology aims to understand phenomena from an individuals' perspective, investigating interactions amongst individuals, and the historical and cultural contexts they inhabit. Interpretivists believe that the world does not exist without peoples' knowledge about it. They do not question ideologies but accept them due to the understanding that people can construct meanings differently (Scotland, 2012). Interpretivists often use a small number of participants since they don't intend to generalise but to explore meanings placed by participants on social situations. In the process of research, participants often create new meanings and make connections for different ideas. Constructivists do not generally begin with a theory, they rather generate or inductively develop a theory or a pattern of meanings throughout the research process (Creswell, 2003).

Interpretive methodologies include case studies, phenomenology, and ethnography. Research strategies used by interpretivists include open-ended interviews, focus groups, open ended questionnaires, and think aloud protocols (Scotland, 2012). Even though the data collected through these strategies is rich and mostly qualitative, quantitative data can also be obtained by interpretivists (UK Essays, 2016). The quantitative data may be utilised such that it expands and effectively deepens qualitative data (Mackenzie & Knipe, 2006).

This world view/paradigm is praised for yielding insight and the understanding of behaviours, explaining actions from participant's perspectives, and not dominating participants (Scotland, 2012). Although the interpretive paradigm is hailed for being "sensitive to individual meanings that can often become buried within broader generalisations" (Samdahl, 1999, p. 119), Scotland (2012) nonetheless, critiqued this paradigm for giving participants limited control, and making them vulnerable to researchers who impose their own subjective interpretations on research participants. This raises questions of who owns that data, how it will be used, and how much control participants have over research findings, because even if they have a voice, it is usually the researcher who decides the direction of the research, and the final interpretations of the data (Scotland, 2012). Furthermore, Howe and Moses (1999) argue that participant's autonomy and privacy can be compromised since interpretive methods are more intimate and open ended than scientific research, which might result in the unintended discovery of secrets, lies and oppressive relationships.

The pragmatic paradigm emphasises the research problem and applies various methods, techniques and procedures associated with both qualitative and quantitative methods (mixed methods) to better understand the problem. With the research problem and research questions as the central focus, the selected data collection and analysis methods are those likely to provide insights to the research questions, with no philosophical loyalty to any alternative paradigm (Mackenzie & Knipe, 2006). Pragmatists do not see the world as an absolute unity, which is why they utilise various data collection and analysis approaches rather subscribing to only one way (such as qualitative or quantitative). Individual researchers therefore have the freedom to choose the methods, techniques, and research procedures that best meet their needs and purposes. Truth for pragmatist researchers is what works at that time, it is not based in the duality between reality independent of the mind or within the mind (Creswell, 2014).

Being a pragmatist researcher offers many benefits which include enabling researchers to be flexible in their investigative techniques as they attempt to address any arising research questions. Pragmatism is more likely to promote collaboration amongst researchers regardless of their philosophical orientation (Onwuegbuzie & Leech, 2005). According to Lincoln and Guba (1985) pragmatic researchers are more likely to view the world as a holistic endeavour that requires prolonged engagement, persistent observation and triangulation. By favouring both techniques, pragmatic researchers are in a better position to use qualitative research to inform the quantitative portion of research studies and vice versa. The inclusion of the quantitative approach compensates for qualitative data that cannot be generalised. Similarly, the inclusion of qualitative data helps in explaining relationships discovered by quantitative data (Onwuegbuzie & Leech, 2005). Pragmatic researchers are thus able to combine empirical with descriptive precision (Onwuegbuzie, 2003).

Furthermore, pragmatists are armed with a bi-focal lens (both quantitative and qualitative), which enables them to zoom into microscopic detail or to zoom out to indefinite scope (Willems & Raush, 1969). Combining qualitative and quantitative research techniques enables pragmatists to develop a conceptual framework for validating quantitative findings by referring to information extracted from qualitative data, and constructing indices from qualitative data which can be used to analyse quantitative data. Since quantitative data is typically motivated by researchers' concerns, and qualitative data by the desire to capture participants' voices, pragmatic researchers are in a better position to merge qualitative and quantitative approaches within a single investigation (Madey, 1982).

This study was underpinned by the pragmatism paradigm. This world view is suited for this study since both qualitative and quantitative (mixed) methods procedures were applied to understand the research problem better, and to gain a deeper understanding of service quality and technology acceptance issues affecting the usability of UNISWA's IR.

4.3 Research Approaches

The three commonly used research approaches are qualitative, quantitative, and mixed methods. The qualitative approach aims to explore and understand the meanings ascribed by individuals or groups to social or human problems (Creswell, 2014). Qualitative research is usually associated with the social constructivist paradigm which emphasises the socially constructed nature of reality (Alzeimer Europe, 2009). Qualitative research involves emerging questions and procedures, data collected from participants' settings, data analysis and the researcher's interpretation of the meaning of the data obtained (Creswell, 2014). Qualitative researchers attempt to discover deeper meanings of human behaviours and beliefs, gaining a rich, in-depth, and complex understanding of people's experiences, and are not interested in obtaining information which can be generalised to other larger groups (Creswell, 2014; and Alzeimer Europe, 2009). Since qualitative research does not require many participants for purposes of statistical analysis or to generalise results, this approach often involves a small number of participants (Alzeimer Europe, 2009).

The research approach adopted by qualitative researchers is often inductive, meaning that they develop a theory or look for a pattern of meanings from data they have collected. Most qualitative research projects also involve a certain degree of deductive reasoning (Alzeimer Europe, 2009). Qualitative researchers also do not base their research on a pre-determined hypothesis since they intend to learn what constitutes important questions from respondents. Even though they may have a clearly defined research problem to be explored, and might be guided by a theoretical lens which provides a framework for their investigation, this often changes once qualitative researchers get to the field and discover more intriguing questions about their study (Gretchen, Rallis & Rallis, 2012; Alzeimer Europe, 2009).

Qualitative researchers assume that a detailed understanding of human experiences is gained through conducting research in their varying contexts. This enables qualitative researchers to look at social worlds holistically as interactive complex systems than regarding them as discreet variables to be measured or statistically manipulated. Qualitative researchers further seek to understand people through multiple humanistic and interactive methods (Gretchen,

Rallis & Rallis, 2012). Data collection and analysis in this approach is methodical, with data collected in textual forms using participant observations, in-depth interviews and focus groups (Alzeimer Europe, 2009). Qualitative research also takes the form of naturalistic observations such as ethnography where researchers observe and document behaviours, opinions, patterns, needs, and any other information even before fully understanding which data might be meaningful (Madrigal & McClain, 2012). They also use data collection strategies such as open-ended questions, interviews, observation, document and audio-visual data, text and image analysis, and themes/patterns interpretation. The qualitative data obtained is not converted into numerical form nor statistically analysed but described and interpreted by qualitative researchers (Gretchen, Rallis & Rallis, 2012).

Moreover, qualitative researchers have the flexibility to carry out the research in several stages or at once; adapt the data collection process (by deciding to address additional issues or dropping questions they discover as not appropriate); use more open ended, less narrow and explanatory methods (particularly when very little is known about the research subject); respond to users' data as it emerges during a session (and even ask additional questions to clarify some points); interview or observe a set number of people; and continue with data collection until they reach saturation (when no new issues emerge) (Alzeimer Europe, 2009; Madrigal & McClain, 2012).

The quantitative research approach on the other hand, involves the collection and conversion of data into numerical form so that statistical calculations can be made, and conclusions be drawn (Alzeimer Europe, 2009). On the same note, Creswell (2014) asserts that quantitative research tests objective theories by examining the relationship among variables. These are further measured, typically on instruments, so that they can generate numeric data that can be analysed using statistical procedures (Creswell, 2014). Such procedures include descriptive statistics such as the mean, median, standard deviation, and inferential statistics such as t-tests, anovas, or multiple regression correlations. Statistical analysis is essential as it enables researchers to derive important facts from research data, including preference trends, differences between groups, and demographics (Madrigal & McClain, 2012). Statistical analysis also enables researchers to determine the extent of the relationship between two or more variables (Alzeimer Europe, 2009). Almost all quantitative researchers follow the positivist/post-positivist research approach (Neuman, 2007; Alzeimer Europe, 2009).

Quantitative researchers employ strategies of enquiry such as surveys and experiments, and collect data on predetermined instruments (Creswell, 2003). Surveys provide quantitative or numeric descriptions of trends, attitudes, or opinions of respondents through studying a sample of a certain population. Surveys include the use of cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection with the intent of generalising the results of the sample to a population. Experiments on the other hand, determine if a specific treatment influences an outcome. This is done through providing a specific treatment to one group and withholding it from another, and then assessing how both groups scored on an outcome (Creswell, 2014). Objectivity is essential in quantitative research since it ensures that results are not affected by the researcher's presence, behaviours, and attitudes (Alzeimer Europe, 2009). Payne and Payne (2004) buttressed this view by stating that objectivism in social research is a principle drawn from positivism which asserts that researchers should be distanced from their research to ensure that findings are not affected by their personalities, beliefs, and values, but dependent on the nature of phenomena under study. Quantitative researchers also critically examine their research methods and conclusions for any possible biases (Alzeimer Europe, 2009).

Although qualitative and quantitative data differ in many ways, they complement each other. All social researchers collect and analyse empirical data and carefully examine patterns in the data to understand and explain social life, even though the nature of data collected differs. For instance, soft data in the form of impressions, words, sentences, photographs, and symbols dictates different data collection strategies and techniques than data in numeric form (Neuman, 2007). Moreover, qualitative and quantitative researchers often have different views and objectives about social life which results in the tools used in one strategy being inappropriate or irrelevant for the other strategies. To appreciate the strengths of each approach, it is important to understand the distinct orientations of both qualitative and quantitative approaches (Neuman, 2007).

The mixed methods approach entails combining quantitative and qualitative methods in different ways with each approach contributing to the understanding of the research problem (Ary, Jacobs & Sorensen, 2010). This involves integrating two forms of data using distinct designs which may involve philosophical assumptions and theoretical frameworks. This approach assumes that the combination of both qualitative and quantitative approaches provides a comprehensive understanding of a research problem than when either approach is used alone (Creswell, 2014). According to Ary, Jacobs and Sorensen (2010) if mixing methods offers a better understanding of research problems than a single method design,

then it is worth exploring. Alzeimer Europe (2009) opines that researchers should recognise that every method has its limitations, and that different approaches can complement each other. The mixed methods approach has become popular amongst practitioners, evaluators, policymakers, and funding agencies who believe that combining multiple forms of data within a single study is not only legitimate but also preferable at times.

Mixed methods researchers may use different research strategies at the same time or one after the other. For instance, they may start with face to face interviews or have focus groups, and later use the research findings to develop questionnaires for assessing respondents' attitudes in a large-scale sample with the intent to conduct statistical analysis (Alzeimer Europe, 2012). Creswell (2014) discusses three primary mixed methods research designs which include convergent parallel mixed methods, explanatory sequential mixed methods and exploratory sequential mixed methods. In convergent parallel methods researchers merge quantitative and qualitative data to provide a comprehensive analysis of a problem. The researcher collects both forms of data at the same time and merges them when interpreting results. Contradicting findings are explained in this design. In explanatory sequential designs, researchers first conduct quantitative research, analyse results, and then build on results to explain them in more detail with qualitative research. Exploratory sequential research on its part is when the researcher begins with qualitative research to assess the views of participants, thereafter analyses data, and uses the information obtained to build into a second quantitative phase (Creswell, 2014).

Greene, Caracelli and Graham (1989) posit that there are five general purposes of using the mixed methods approach. They expound these as follows:

Triangulation: seeks to examine consistent findings from different methods that study the same phenomenon, or to corroborate findings from one method through assessing the findings using different methods.

Complementarity: involves seeking elaboration, illustration, enhancement, or clarification of findings from one method using results obtained from the other.

Development: uses results from one approach to develop or inform the other approach. The study may begin with qualitative data analysed in the first phase to establish constructs to be measured quantitatively in the second phase. Quantitative survey results may also be utilised for the selection of participants for the second qualitative phase.

Initiation: aims to discover contradicting findings that might lead to reframing a theory. This approach adds breadth and depth to the research enquiry.

Expansion: focuses on expanding the breadth and range of the enquiry using various research methods in the different sections of the study.

Johnson & Onwuegbuzie (2004) pointed out strengths of the mixed methods approach which include the use of words, narratives, and images to add meanings to numbers, as well as using numbers to add precision to qualitative data. Ary, Jacobs and Sorensen (2010) argue that mixed methods research can take advantage of the combined strengths of qualitative and quantitative approaches and then use the strength of each method to overcome any weaknesses from the other. Other strengths include the fact that: mixed methods enable the examining of a broad range of questions since researchers are not confined to a single method; mixed methods research can provide stronger evidence through the corroboration of findings; and provides researchers with insights that could be missed when a single method is used. Besides these strengths, Ary, Jacobs and Sorensen (2010) criticised the mixed methods approach on grounds that it is difficult for a single researcher to carry out both quantitative and qualitative research. Conducting mixed methods research is also more likely to be expensive than using a single approach. Ary, Jacobs and Sorensen (2010) further point out that researchers must be able to understand the complexities of both approaches (qualitative and quantitative) in order to make wise decisions regarding how to combine these methods appropriately.

This study adopted the mixed methods approach where both qualitative and quantitative approaches were applied. Even though both approaches were applied at the same time, the quantitative approach was the most dominant since it has been effectively used in other service quality and usability studies by scholars such as Asogwa et al. (2014), Musyoka (2013), and Ahmad (2015). These scholars used the quantitative approach to obtain numeric data which can be statistically analysed, and because this approach permits the objective measurement of variables of interest, which in this case are those derived from SERVQUAL and UTAUT. The qualitative approach on the other hand was applied to obtain textual data to enable the researcher to gain a deeper understanding of users' views, opinions and attitudes (Creswell, 2014).

4.4 Research Design

Research designs are the types of inquiry associated with qualitative, quantitative, and mixed methods approaches that guide/channel research on the direction to be taken by their research study (Creswell, 2014). A research design is defined by Kothari (2004) as a conceptual structure or guideline to be followed when measuring and analysing data with the intent to address a research problem. Reis and Judd (2000) define a research design as the systematic planning of research to permit valid conclusions. Polit, Hungler and Beck (2001) define a research design as the overall plan for collecting and analysing data including specifications for enhancing the internal and external validity of the study. Burns and Grove (2009) define a research design as a blueprint for conducting a study within maximum control over factors which may interfere with the validity of research findings. Creswell (2014) asserts that research designs have grown over the years since computer technology has advanced researcher's ability to articulate new procedures for conducting research, and to analyse complex models effectively. This study adopted a survey design within a case study to gain an in-depth understanding of usability issues in the use of the UNISWA IR. Gable (1994) opines that the value of combining research methods in information systems research has received significant attention over the years. Kraemer (1991) avers that survey research becomes more effective when used in conjunction with other qualitative research methods.

The case study and survey methods have been extensively applied in information systems. Yin (1984) defined the case study approach as a group of methods emphasising qualitative analysis. Data in this approach is collected from a small number of organisations through participants' observation, in-depth interviews, or longitudinal studies. The case study approach seeks to understand the research problem, and provides researchers with the opportunity to ask penetrating questions, and capture the richness of organisational behaviour. The conclusions drawn from this method are specific to the organisation under study, and not generalisable (Gable, 1994). The survey on the other hand, refers to a group of methods that emphasise quantitative analysis where data for a large number of organisations is collected through methods including mail questionnaires, telephone interviews and published statistics, and statistically analysed. The survey approach seeks to discover common relationships across organisations, and provides generalisable statements about the object of study (Gable, 1994).

Attewell and Rule (1991, p. 314) pointed out the "complementarity between survey and fieldwork (case study) approaches to studying information technology", stating that "each is incomplete without the other" Danziger and Kraemer (1993, p. 367) stated that survey research and fieldwork have always been alternative than competing sources of evidence and ideas. According to Attewell and Rule (1991) conventional survey methods such as mail questionnaires and telephone interviews are not appropriate for addressing many information systems issues, and that the multimethod approach is more effective for information systems projects. Kaplan and Duchon (1988, p. 571) in the same note pointed out that "no one approach to information systems research can provide the richness that, information systems as a discipline, needs for further advancement".

4.5 Population of Study

The BMJ Publishing Group (2016), and Polit and Hungler (1999) define a population of a study as an aggregate or totality of all creatures, objects, cases, subjects or members that conform to a set of specifications. Leedy and Ormrod (2005, p. 184), on their part define a research population as a homogenous group of individual units which the researcher intends to use for generalising research findings. The population of the study was selected based on the study's main objectives, which were to determine faculty and postgraduate student's satisfaction with the quality of services offered by the UNISWA institutional repository and to assess the usability of the institutional repository by faculty and postgraduate students at the University of Swaziland.

The sampling frame for postgraduate students was obtained from the University of Swaziland's students' records office. A list of Faculty and librarians was also gathered from the UNISWA's vice chancellors' report, 2015 edition, which is an authentic document with records of faculty, and staff from various departments across the University of Swaziland.

The population of this study was 760 respondents comprising:

- 450 Masters students
- 17 PhD students
- 287 Faculty
- 6 Librarians

Postgraduate students in the context of this study are those enrolled for Masters and PhD programs at the University of Swaziland. These groups are selected because of their active

involvement in research. Masters and PhD students use the IR mostly to access thesis and dissertations in their fields of study and cognate fields over the years. They also use the IR to access research articles and publications recommended by their colleagues and supervisors. Troman, Jacobs and Copeland (2007) aver that IRs allow original research conducted by emerging scholars to be visible and accessible to research communities around the world.

Faculty members include lecturers, senior lecturers, associate professors, and professors. These were selected for the study because of their active involvement in research. They were also selected because of the key roles they play in the generation of quality research. They further play a vital role of supervising students' theses/dissertations, and guiding them in selecting appropriate research methodologies. Faculty also teach, and in some cases, prepare teaching materials to be archived in IRs, and refer their students to research archived in IRs.

Librarians including cataloguers, IR administrators, reference, and acquisition/collection development librarians were also included in the study. The involvement of librarians was considered essential since they are custodians of the UNISWA IR. They also "understand student's information needs and would therefore provide important information on collection, policy, capacity building, budget, and training needs of both staff and students" (Hamutumwa, 2014, p. 73). Cataloguing librarians and IR administrators were selected because of their involvement in the creation of the IRs metadata records, and monitoring the IRs page design, which are essential features in the assessments of IRs usability. Reference librarians were selected because of their constant interaction with library users, and ability to market library programs to library users. Cassella (2012) points out collection development expertise and metadata curation as strategic roles in managing IR workflow designs.

4.6 Sampling Procedures

Kadam and Bhalera (2010) define sampling as selecting participants or individuals from a population which is less in number (size) but adequately represents the population from which it is drawn, so that true inferences about the population can be made from the results obtained. Cornish (2006) asserts that if a sample is too small, it will not detect some results, even when these are important. On the other hand, if a sample is very large, even tiny deviations from the null hypothesis will be statistically significant, when these are in fact

not important. Saunders, Lewis and Thornhill (2012) on the other hand posit that larger sample sizes, reduce chances of any errors occurring when generalising the results of the sample to the population.

Cornish (2006) argues that factors including time, costs, and the number of available respondents should be considered when designing a study, even though these should not dictate the sample size. Cornish further pointed out that there is no point in carrying out a study that has a very small sample size because researchers will end up with inconclusive results, and be forced to conduct other studies to confirm or refute the study's initial claims. Israel (1992) highlighted three criteria to be considered in order to obtain an appropriate sample size. These are the level of precision, level of confidence or risk, and the degree of variability in the attributes being measured.

Leedy and Ormrod (2005, p. 207) provided the following guidelines for selecting a sample size:

- For a small population (with less than 100 respondents), there is no point of sampling. The whole population should be taken.
- If the population's size is 500, then 50% of the population should be sampled.
- If the population is around 1,500, then 20% of the respondents should be sampled.
- Beyond a certain point (about 5,000 units or more), the population size is almost irrelevant, and a sample of 400 should be adequate.

Israel (1992) on the other hand, points out that there are several strategies for determining a sample size which include, conducting a census for small populations; imitating a sample size of similar sizes; using published tables; and applying formulas to calculate a sample size. Israel (1992) argues that the entire population/census should be used as a sample for small populations (for example if there are 200 or less respondents). A census is essential since it eliminates sampling errors and provides data on all individuals in the population.

This study's respondents are divided into Masters, PhD students, faculty, and librarians. A census was used for PhD students, librarians, and faculty since these are less than 100 or 200 (see Table 4.11 below for the population of study). As noted above by Leedy and Ormrod (2005) and Israel (1992), a census is conducted for respondents who are less than 100 or 200. The Krejie and Morgan table (see Figure 2.2 below) was then used to determine the sample size for the 450 Masters students. These respondents were then proportionately

divided into strata according to their academic programs using the formula (nh=(Nh/N) * n), where: nh is the sample size for the stratum; Nh is the population size for the stratum; N is the total population size and n is the total sample size.

Convenience sampling was used to select Masters Students who were easily accessible to the researcher. Convenience sampling is beneficial for the researcher since students are often scattered throughout the campuses making it difficult to access them easily. Selecting Masters Students from their lecture halls, research commons, and libraries therefore makes the sampling process easier for the researcher. The relative sample sizes for populations are reflected in Tables 4.1, 4.2, 4.3, and Figure 4.2 respectively.

Table 4.1: Populations of Study (Source: UNISWA, 2015: UNISWA Records Office, 2016)

	Total Number (N)
Post Graduate Students:	
Masters	450
PhD	17
Faculty:	
Agriculture & consumer Science	68
Commerce	16
Education	36
Health Science	37
Humanities	30
Science & Engineering	56
Social Science	34
Institute of Distance Education	10
Librarians:	
Cataloguers and IR Administrator	6
Total Population of Study	**760**

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Figure 4.2: Krejcie and Morgan Tables of Selecting Sample Sizes (Source: Krejcie and Morgan, 1970)

Note: N =450 Masters Students and S =210, where N=Population size and S=sample size **(see figure 4.2)**

Table 4.2: Sample Sizes for Masters Students per Academic Program (Source: UNISWA Report of the Vice chancellor, 2015)

Academic Programs	**Total Number (N)**	**Sample Size (nh)**
Masters Students		
Humanities:		
M.A History	13	6
Education:		
M.Ed. Adult Education	11	5
M.Ed. Curriculum and Teaching	79	37
M.Ed. Education Foundation	143	67
Agriculture & Consumer Science:		
M.Sc. Agricultural Education	42	20
M.Sc. Agricultural Extension	2	1
M.Sc. Agriculture & Applied Economics	49	23
M.Sc. Consumer Science Education	9	4

Academic Programs	Total Number (N)	Sample Size (nh)
M.Sc. Crop science	11	5
M.Sc. Animal Science	13	6
M.Sc. Horticulture	5	2
Science & Engineering:		
M.Sc. Environmental Resource Management	61	28
M.Sc. Chemistry	12	6
Number of Masters and PhD Students	**450**	**210**

Table 4.3: Summary of Sample Sizes and Population of Study

Respondents	Sample sizes/populations of study.
Masters	210
PhD	17
Faculty	287
Librarians	6
Total	**520**

4.7 Data Collection

This section discusses the data collection methods, instruments and procedures adopted for this study.

4.7.1 Data Collection Methods

This study adopted the convergent mixed methods approach where the researcher collected both quantitative and qualitative data, analysed them separately, and then compared the results to assess whether the findings confirmed or disconfirmed each other. The key assumption of this approach is that both quantitative and qualitative data provide different types of data, with detailed views from participants obtained qualitatively, and scores on instruments obtained quantitatively (Creswell, 2014).

4.7.2 Data Collection Instruments

Two instruments: the survey questionnaire and interviews were used to collect data for this study. Table 4.4 reflects the mapping of research questions to the sources of data.

Table 4.4: Mapping of Research Questions to Sources of Data

Research Question	Sources of Data
1) What are the perceptions of faculty and postgraduate students towards service quality in the use of the UNISWA IR?	* Survey Questionnaire for faculty and postgraduate students (Numeric data) *Interview schedule for librarians (Textual data such as perspectives, opinions and attitudes)
2) What quality factors influence the usability of UNISWA's institutional repository by faculty and postgraduate students at UNISWA?	* Survey Questionnaire (Numeric data) *Interview schedule (Textual data. e.g. perspectives, opinions and attitudes)
3) What is the level of usage of UNISWA's institutional repository by faculty and postgraduate students?	* Survey Questionnaire (Numeric data) * Interview (Textual data)
4) What are the challenges of service quality facing faculty and postgraduate students in the use of UNISWA IR?	* Survey Questionnaire (Numeric data) * Interview schedule (Textual data)
5) What is the role of librarians in promoting service quality of the UNISWA IR?	*Survey Questionnaire (Numeric data) *Interview schedule (Textual data)

Survey questionnaires (see appendix 2) consisted of sections which were designed in line with the study's research questions. These include (1) demographic information; (2) respondent's perceptions of service quality; (3) quality factors in the usability of IRs; (4) levels of usage of the IR; (5) the IRs service quality challenges; and (6) the role of librarians in promoting the IR. Each of these sections had sub questions made up of scaled open ended, closed ended and dichotomous (yes or no) questions.

The survey questionnaires were designed based on variables defined in the SERVQUAL model and the UTAUT theory. These include: (1) Reliability, (2) Assurance, (3) Tangibles, (4) Empathy, and (5) Tangibles from SERVQUAL; as well as (1) Effort Expectancy, (2) Performance expectancy, (3) Social influence, and (4) Facilitating conditions from UTAUT. Respondents were asked to rate their responses to questions constructed from these variables based on a Likert scale, with anchors from "strongly agree" to "strongly disagree". Some of these questions were adapted from previous SERVQUAL and UTAUT studies, with the

wordings changed to tailor them for the UNISWA IRs context. This was done to enhance reliability and validity of this data collection tool. Interview questions were also designed according to different categories with the intent to provide answers to the study's research questions. A semi-structured interview guide was prepared prior to data collection. According to Cohen and Crabtree (2006) an interview guide contains a list of topics or questions to be covered during an interview, usually in a particular order. Even though interviewers follow a guide, researchers can divert during the interview to probe respondents whenever clarifications are required.

4.7.3 Data Collection Procedure

The data collection phase took approximately two months. Respondents were requested to sign consent forms (which were attached to interview and questionnaire schedules) prior to data collection. According to the Office for the Protection of Research Subjects (2013) informed consent is a voluntary agreement to participate in research. It involves informing respondents about their rights, purpose of the study, procedures to be followed, and the potential risks, and benefits of partaking in the research. OPRS (2013) further points out that the voluntary consent of human subjects is essential not just to the safety, protection, and respect of study participants, but also for the integrity of researchers. Letters with permission to conduct the study were attached to data collection tools. Guthrie (2010) posits that approval to conduct research ensures that the research is legitimate, ethical, has appropriate credentials, is consistent with departmental policies, potentially useful to the education system, and will not be disruptive.

Prior arrangements and appointments to conduct interviews were done with the UNISWA librarians. Data was collected from librarians, who are stationed at Kwaluseni and Luyengo campuses, through one-on-one, open-ended interview questions. This approach enabled the researcher to probe respondents to clarify some answers, and gain a deeper understanding of the respondents' opinions, experiences and feelings. The interviews were held in librarians' offices at times convenient to them. Interview sessions began with brief formal introductions. The interview sessions were recorded, with permission obtained from respondents. Slater (1990) recommends the use of recorders if one wants to capture data in its original form in order to clearly understand issues that are raised. Cohen and Crabtree (2006) argue that while it is possible to take notes during interviews, it may be difficult for researchers to focus on conducting interviews while jotting notes. This is discouraged as it

often results in poor notes, and detracts the development of rapport between the interviewer and interviewees, when this is essential during semi-structured interviews.

Faculty were informed of the study in advance through their heads of departments. Self-administered questionnaires were distributed/hand delivered to all faculty members in their respective offices at UNISWA's three campuses (Kwaluseni, Mbabane, and Luyengo respectively). Abankwah (2011, p. 44) states that personally delivering questionnaires adds a "personal touch, and presents an opportunity for researchers to respond to initial questions relating to the purpose of the survey". Steel et al. (2001, p. 242) on their part, assert that direct contact with respondents increases response rates, and enables researchers to "tailor introductions based on perceptions of respondents' situations and time constraints, which is an advantage not offered by either telephone or mail methods".

Electronic copies were emailed to respondents (faculty) who were not found in their offices. This approach saves time and costs, and makes it easy to access respondents. Emailing questionnaires however, has drawbacks including the lack of flexibility, low response rates, and the return of many unanswered questions (Bailey, 1982). For questionnaires that were not returned in time (for example after 5 days), the researcher followed up with visits to faculty's offices, and through telephone enquiries. During follow ups, more questionnaires were hand delivered to respondents who had previously received electronic copies, in case they had difficulties in accessing the electronic questionnaire. Crawford, Couper and Lamias (2001) argue that respondents' perceptions of the efforts required to complete a survey impacts on their response rates. In fact, those who are told the survey will take less time, and those who receive frequent reminders (especially for email questionnaires) are more likely to accept an invitation to partake in the research, but not necessarily more likely to complete the survey.

Students on the other hand, were informed about the study in advance through their heads of departments and lecturers. Self-administered questionnaires were distributed to the 227 postgraduate (Masters and PhD) students from UNISWA's campuses. Students were reached in library research commons. Some questionnaires were distributed to students in their respective classes and collected at the end of the lectures. Arrangements were also made with librarians to distribute questionnaires to students during the library's electronic resource training sessions which are usually conducted for post-graduate students.

4.8 Data Analysis

Data analysis enables researchers to "arrive at a better understanding of the operation of the social process" (Ngulube, 2005, p. 138). Data analysis is concerned with investigating variables, the relationship between them, as well as the patterns in these relationships (Mouton, 1996). Henning et al. (2004, p. 127) summarise data analysis as a continuous, developing, and repeating process during which transcribed data from interviews is investigated. Berg and Lune (2012, p. 355) posit that quantitative data analysis shows "how researchers can create a series of tally sheets to determine specific frequencies of relevant categories whilst qualitative data shows how researchers can examine ideological mindsets, themes, topics, symbols, and similar phenomena, while grounding such examinations in the data". Taylor and Gibbs (2010) pointed out that qualitative data analysis is a process of transforming qualitative data through analytical procedures, into a clear, understandable, insightful, trustworthy, and even original analysis.

Researchers are advised to clean their data before analysing it. Data cleaning entails detecting and removing errors and inconsistencies from data in order to improve the quality of the data obtained. Data quality problems happen because of misspellings during data entry, missing information and any other invalid data (Rahm & Do, 2000). Similarly, Ngulube (2005, p. 138) opines that preparing data for analysis includes cleaning the data and evaluating it for any "ambiguity, completeness, comprehensibility, internal consistency, relevance, and reliability".

According to Creswell (2014) in mixed methods studies, data can be analysed using the side-by-side comparison approach, where the researcher first reports the quantitative statistical results and then proceeds with qualitative findings that either confirm or disconfirm the statistical results. Alternatively, researchers can start with qualitative findings and then compare them with the quantitative results. This study adopted this approach where the quantitative data collected through questionnaires from faculty and postgraduate students was compared with the qualitative data obtained from interviews with UNISWAs librarians.

To find answers to the research questions, and to adequately communicate the research findings, quantitative data was analysed using IBM's SPSS statistical software to generate inferential and descriptive statistics such as mean, chi-square, and cross tabulation. The use of both descriptive and inferential statistics is essential since these provide the necessary

tools for summarising data and measuring the degree of association between variables and samples (Hamutumwa, 2014). The results from quantitative data were presented using tables and figures including graphs, bars, and pie charts. Qualitative data was analysed through content analysis by first transcribing, coding, grouping into categories, and interpreting texts based on common themes. Taylor and Gibbs (2010) assert that grouping data according to themes entails the identification of passages of text (and other meaningful images), and applying labels to them that clearly indicate these as examples of some thematic idea. Results of the qualitative data were presented in textual, tabular forms and summaries. Table 4.5 below is a summary mapping research questions to data analysis strategies.

Table 4.5: Mapping Research Questions to Sources of Data and Data Analysis Strategies.

Research Questions	Data Analysis Strategies
1) What are the perceptions of faculty and postgraduate students towards service quality in the use of the UNISWA IR?	* SPSS *Thematic analysis
2) What quality factors influence the usability of UNISWA's institutional repository by faculty and postgraduate students at UNISWA?	*SPSS *Thematic analysis
3) What is the level of usage of UNISWA's institutional repository by faculty and postgraduate students?	*SPSS *Thematic analysis
4) What are the challenges of service quality facing faculty and postgraduate students in the use of UNISWA IR?	*SPSS *Thematic analysis
5) What is the role of librarians in promoting service quality of the UNISWA IR?	*SPSS *Thematic analysis

4.9 Validity and Reliability

Kimberlin and Winterstein (2008) define validity as the extent to which an instrument or any test measures what it purports to measure. Reliability on the other hand is defined by Sullivan and Niemi (1979) as the extent to which an experiment, test or measuring procedure yields the same results. To ensure reliability and validity, the researcher adapted

questions which have been applied in previous SERVQUAL and UTAUT studies. Validity was further ensured through conducting a pilot survey in a different study area (the University of KwaZulu-Natal, UKZN) from that of the main study, using different participants who were not part of the main study. Instead of selecting a pre-test to critically examine the survey instruments, the researcher administered a pilot test to a diverse cross section of a sample to ensure that the entire survey schedule runs smoothly, and that coding can be done without complications. Participants for the survey were selected based on the convenience sampling approach where the researcher selected respondents who were easily accessible. Postgraduate students were reached in postgraduate student offices and research commons where they usually assemble. Faculty were reached in their offices.

Hertzog (2008) states that ten participants are appropriate for a pilot study's sample size. Questionnaires were piloted on forty-four postgraduate students (PhD and Masters) and six faculty members from the UKZN LIS programme to assess their perceptions on the impact of service quality and technology acceptance issues in the usability of IRs. The interview schedule's validity was tested on five cataloguers, and librarians in charge of the UKZN IR, (at a different location from that of the main study) to determine their views on issues affecting the usage of IRs, as well as their roles in promoting IRs. These librarians were found in Pietermaritzburg library, which was easily accessible to the researcher. To ensure reliability, data collected through survey questionnaire was analysed to generate Cronbach's alpha coefficient using the Statistical Package for Social Sciences (SPSS). Items from questionnaires with Cronbach alpha value of less than 0.7 were dropped or modified accordingly, and those with a value greater than 0.7 were adopted as this indicated higher reliability, which means that the questions were measuring what the researcher intended to measure. This resulted in the modification of some questions from the questionnaire. Data from interviews was validated by discussing the results of the pilot survey with the UKZN librarians. This led to the rephrasing and deletion of some questions which were not clearly stated. Similarly, the pilot study resulted in the modification of the questionnaire through the deleting and rephrasing/ clarification of unambiguous questions, and the reshuffling of the order of some questions that had a potential to influence respondent's responses.

4.10 Ethical Considerations

Permission to conduct the study was obtained from the University of Swaziland. The study also complied with UKZN research ethical requirements. Participants were provided with

information sheets before the study commenced, clearly describing the aims of the study as well as the processes involved. Participants signed a consent form to indicate their willingness to partake in the study. Participants were free to withdraw at any point of the study without being surcharged. Respondents were not required to write their names or any personally identifying information on the forms. Anonymity of respondents was further ensured through limiting identifying them by their names but instead used labels and codes to represent respondents. The researcher assured respondents that even though the results of the study would be published, their names and any other personal information would not be disclosed. Respondents were further assured that to protect their confidentiality, their information will not be disclosed to third parties. Findings of the study were compared with those from similar studies and reported for academic purposes. The researcher gave credit where the works of other authors were used during the compilation of the report of the study's findings.

Creswell (2014) avers that ethics should be observed prior to conducting a study, at the beginning, during data collection, and during the analysis phases. Prior to commencing the study, researchers should ensure that they: obtain the necessary permission, select a research site without any vested interests, and negotiate authorship of future publications. At the beginning of the study, researchers should ensure that they identify a beneficial research problem, disclose the purpose of their study, and avoid pressurising participants to sign consent forms. During the data collection phase, researchers should also respect the data collection site, make sure all participants receive the same kind of treatment/benefits, avoid deceiving participants, respect potential power imbalances, avoid exploiting participants, and avoid collecting harmful information. In the data analysis phase, researchers should avoid going narrative, avoid disclosing only positive results, and respect the privacy and confidentiality of respondents.

4.11 Summary

This chapter discussed the study's methodology which is divided into nine thematic sections including: research paradigms, research methods, research design, population of study, sampling procedures, data collection procedures, data analysis strategies, validity and reliability of data collection instruments, ethical considerations, and summary.

CHAPTER FIVE

DATA ANALYSIS AND PRESENTATION OF FINDINGS

5.1 Introduction

This chapter analyses data and presents the findings. Marshal and Rossman (1995) define data analysis as the process of bringing order, structure, and meaning to data. Swift (2006) on the other hand, defines data analysis as the process of transforming raw data into useful information. Marshal and Rossman (1995) assert that even though data analysis is a messy, ambiguous, and time-consuming process which does not proceed in a linear fashion, it is creative and fascinating at the end. Creswell (2009) avers that data analysis is a key aspect of any research since it helps in drawing conclusions and generalisations from the data as it relates to the problem statement. Berg (2004), and Connoway and Powell (2010) concur with this view, and assert that the main purpose of analysing data is to summarise observations or data such that it provides answers to a hypothesis or research questions. Mouton (2001, p. 108) opines that data analysis enhances the "understanding of various constitute elements of one's data through evaluating the relationships between concepts and identifying patterns or trends, or to establish themes in the data".

The purpose of this study was to investigate factors affecting the usability of the University of Swaziland's Institutional Repository by faculty and postgraduate students. The study sought to address the following research questions: What are the perceptions of faculty and postgraduate students towards service quality in the use of the UNISWA IR? What quality factors influence the usability of UNISWA's institutional repository by faculty and postgraduate students at UNISWA? What is the level of usage of UNISWA's institutional repository by faculty and postgraduate students? What are the challenges of service quality facing faculty and postgraduate students in the use of UNISWA IR? What is the role of librarians in promoting service quality of the UNISWA IR? What recommendations can be delineated based on the findings of the study?

The study was underpinned by the post positivist paradigm, with data collected from UNISWA's three campuses which include the Kwaluseni, Luyengo, and Mbabane. The respondents were faculty, postgraduate students, and librarians. Quantitative data was gathered from faculty and postgraduate students through survey questionnaires, and qualitative data was obtained from librarians through interviews. The former was processed

and analysed using the Statistical Package for Social Sciences (SPSS) version 24 to generate means, cross tabulations, and chi-squares that were used to present, discuss, and examine trends in data. Qualitative data on the other hand, was analysed thematically. Findings generated from qualitative data were used to complement/substantiate results from quantitative data.

Quantitative data was presented through graphical tools and tables while qualitative data were presented through narrative discussions and tables. Data presentation typically commences by describing the sample and sub groups, followed by results from the key themes. Findings are best presented in alignment with study aims, with descriptive data for the key outcome variables being reported first. These results provide a starting point after which univariate or multivariate statistical analyses can be outlined (Simpson & Lord, 2015, p. 380). According to Babbie (1992) quantitative data should be presented in such a way that it enables the reader to (in the case of percentages and tables) be able to collapse categories and recount the percentages. Readers should thus be provided with sufficient information to enable them to compute percentages in the table in the opposite direction from the data presented. Anderson (2010) opines that if qualitative data is presented through illustrative quotes (presenting raw data), these should not just be listed, they should be compiled, and analysed.

This chapter is organised using the research questions as the framework. The following themes preceded by the response rate and biographical data are covered in this chapter: service quality perceptions of faculty and postgraduate students; quality factors influencing UNISWA IRs usability; levels of usage of the UNISWA IR; challenges in the use of the IR; and the roles of librarians in promoting the institutional repository.

5.2 Response Rate

Response rate is defined by Neuman (1997) as the proportion of respondents who successfully complete a survey. Survey researchers often disagree concerning what constitutes an adequate response rate. This is because “adequate” is a judgement call, which depends on several factors including the population understudied, practical limitations, the topic, and the responses which specific researchers feel comfortable with. Neuman (1997) states that most researchers consider any response rate below 50% to be poor and those over 90% as excellent. Polit and Beck (2004, p. 366) assert that response rates greater than 65% are probably sufficient for most purposes, but lower response rates are common. On the

contrary, Babbie and Mouton (2001) pointed out that while response rates of 60% and 70% are respectively considered as good and very good, a response rate of 50% is still adequate for analysis. On the same note, Richardson (2005) states that in Social Sciences research, a response rate of 50% is considered satisfactory. Based on Babbie and Mouton (2001) and Polit and Beck (2004), with an overall response rate of 77% from both faculty and postgraduate students, and 83% from librarians is considered as very good, and adequate. Tables 5.1 and 5.2 below respectively present response rates.

Table 5.1: Responses from Faculty and Librarians (Source: Field data, 2017)

Faculty:	**Sample size (n)**	**Frequency**	**Percentage of responses (%)**
Agriculture & consumer Science	68	45	66
Commerce	16	8	50
Education	36	26	72
Health Science	37	25	68
Humanities	30	24	80
Science & Engineering	56	48	86
Social Science	34	30	88
Institute of Distance Education	10	9	90
Average Responses, Faculty	**287**	**215**	**75**
Librarians Responses:	6	5	83

Table 5.2: Responses from Masters and PhD student (Source: Field data, 2017)

	Sample size	**Frequency**	**Percentage of responses (%)**
PhD Students	17	11	65
Masters Students			
Humanities:			
M.A History	6	6	100
Education:			
M.Ed. Adult Education	5	5	100
M.Ed. Curriculum and Teaching	37	33	89
M.Ed. Education Foundation	67	40	60
Agriculture & Consumer Science:			
M.Sc. Agricultural Education	20	20	100
M.Sc. Agricultural Extension	1	1	100
M.Sc. Agriculture & Applied Economics	23	16	70
M.Sc. Consumer Science Education	4	4	100
M.Sc. Crop science	5	5	100
M.Sc. Animal Science	6	6	100
M.Sc. Horticulture	2	2	100
Science & Engineering:			
M.Sc. Environmental Resource Management	28	24	86
M.Sc. Chemistry	6	6	100
Average Responses, PhD and Masters Stu.	**227**	**180**	**79**

A total of 514 questionnaires were administered to faculty and postgraduate students. As presented in tables 5.1 and 5.2 respectively, out of the 287 questionnaires distributed to faculty, 215 (75%) were returned, and 180 (79%) questionnaires were returned from the 227 distributed to postgraduate students. The researcher managed to get 5 out of the 6 (83%) targeted librarians. One librarian was not reached for an interview. Tables 5.1 and 5.2 further indicate that amongst faculty, the highest response rates were from the Institute of Distance Education (90%), Social Science (88%), Humanities (80%), Science and Engineering (86%), and Education (72%) in decreasing order. The lowest response rates were from the faculties including Commerce (50%), Health Science (68%), and Agriculture and Consumer Science (66%).

Table 5.2 further shows that amongst Masters Students, highest response rates (100%) were obtained from the following programs: MA History, MA Adult Education, M.Sc. Agricultural Education, M.Sc. Agricultural Extension, M.Sc. Consumer Science Education, M.Sc. Horticulture, M.Sc. Animal Science, M.Sc. Crop Science, and M.Sc. Chemistry. Other high response rates amongst Masters Students were from M.Ed. Curriculum and Teaching (89%), M.Sc. Environmental Resource Management (86%), and M.Sc. Agriculture and Applied Economics (70%). The lowest response rates from postgraduate students were obtained from M.Ed. Education Foundation (60%), and PhD students (65%).

It is worth noting that it was difficult to obtain 100% feedback from some respondents even after vigorous follow ups due to a number of factors including: difficulties of finding respondents in their offices; refusal to answer questionnaires by some respondents who claimed they were not aware of the UNISWA institutional repository, and therefore could not partake in the study; and respondents' busy schedule. Despite the above-mentioned challenges, the overall response rates from all segments of respondents (ranging from 50 to 100%) were relatively high. Such responses are considered by Richardson (2005) and Babbie and Mouton (2001) as satisfactory and adequate for statistical analysis. Rogelberg and Stanton (2007) opine that unless a questionnaire is coercively administered to the target population, a 100 percent response rate is rarely achieved.

5.3 Demographic Profile of Respondents

Data from this section contains faculty, postgraduate students, and librarian's biographical information including their ages, gender, and academic status. Wyse (2012) asserts that while collecting data from respondents, researchers may be tempted to ask many

demographic questions. This however, should be avoided because some respondents may fear that their confidentiality may be compromised, and even perceive the demographic questions as an invasion of their privacy. Researchers should therefore thoroughly review their survey questions during the design process, and choose the most critical demographic questions for their studies. Table 5.3 presents the UNISWA faculty and postgraduate students' demographic information.

Table 5.3: Respondents' Biographical Information (Source: Field data, 2017)

Biographical Information	**Respondent Type**	**Categories**	**Frequency**	**Percentage (%)**
Respondent's Gender	Faculty	Male	124	58
		Female	91	42
		Total	**215**	**100**
	Postgraduate Students	Male	81	45
		Female	99	55
		Total	**180**	**100**
	Librarians	Male	1	20
		Female	4	80
		Total	**5**	**100**
Respondent's Age	Faculty	21-30 Yrs.	12	6
		31-40 Yrs.	50	23
		41-50 Yrs.	64	30
		51-60 Yrs.	57	26
		Above 60	32	15
		Total	**215**	**100**
	Students	21-30 Yrs.	38	21
		31-40 Yrs.	96	53
		41-50 Yrs.	44	24
		51-60 Yrs.	2	1
		Above 60	0	0
		Total	**180**	**100**
	Librarians	31-40 Yrs.	2	40
		41-50 Yrs.	1	20
		51-60 Yrs.	2	40
		Total	**5**	**100**
Academic Status	Faculty	Teach. Asst.	8	4
		Lecturer	149	69
		Senior Lect.	31	14
		Asso. Prof.	16	7
		Full Prof.	11	5
		Total	**215**	**100**
	Postgraduate Students	Masters	169	94
		PhD	11	6
		Total	**180**	**100**

As presented in Table 5.3, majority (124, 58%) of respondents amongst faculty were males, and 91 (42%) were females. On the contrary, amongst postgraduate students, majority of respondents were females (99, 55%) compared to (81, 45%) males. Similarly, most (4, 80%) of the interviewed librarians were females, and only one male.

Many amongst faculty (64, 30%) were aged between 41-50 years, followed by those aged between 51-60 years (57, 26%), 31-40 years (50, 23%), and above 60 (32, 15%). Only 12 (6%) of faculty were aged between 21-30 years. These results indicate that the UNISWAs faculty sampled in this study was predominantly aged, with more respondents between 41 and 60 years. Table 5.3 further reveals that most (96, 53%) postgraduate students were aged between 31-40, followed by those aged between 41-50 years (44, 24%), and 20-30 years (38, 21%). The findings also show a sharp decline in the number of postgraduate students as age increased, with only 2 (1%) students aged between 51-60 years. Moreover, as presented in Table 5.3, most of the interviewed librarians were aged between 31-40 years (2, 40%), and 51-60 years (2, 40%). The remaining librarian was aged between 41-50 years (1, 20%).

Most, 149 (37.7%) of the sampled faculty were lecturers, followed by 31 (7.8%) senior lecturers. There were only 16 (4.1%) associate professors, and 11 (2.8%) full professors. Based on these results, it is apparent that as academic status increased, the number of faculty declined. There were also very few (8, 2.0%) respondents amongst faculty who were teaching assistants. Since teaching assistantships are entry level positions at the University of Swaziland, there are usually a few teaching assistants compared to the rest of faculty. Furthermore, as presented in the biographical information section, most (169, 42.8%) of the postgraduate students were Masters Students, and only 11 (2.8%) were PhD students.

5.4 Expectations and Perceptions of Faculty and Post-Graduate Students

This section addresses the research question: *What are the perceptions of faculty and postgraduate students towards service quality in the use of the UNISWA IR?*

This part is based on the five dimensions of the Service Quality (SERVQUAL) model, which include the tangibles, empathy, responsiveness, assurance, and reliability (see chapter 2). SERVQUAL evaluates service quality through measuring the gaps between perceptions and expectations (P-E) scores. The comparison between user's expectations and perceptions determines whether a service was good or problematic. A service is considered as good if user's perceptions meet or exceed their perceptions, and problematic if their perceptions are lower than their expectations (Naidu, 2009). Table 5.4 presents the level of gaps/differences

between users' perceptions and their expectations. Ranking of the gaps was awarded from the widest to narrowest gaps.

Table 5.4: Perceptions and Expectations of IR Users (Source: Field data, 2017)

Dimension	Service quality indicator		Mean service quality and their average				
			Students	Faculty	Average	P-E	Ranks
Tangibles	IR easy to navigate	P	7.31	7.88	7.59	-1.04	13
		E	8.69	8.57	8.63		
	IR content is well organised	P	7.37	7.91	7.64	-1	14
		E	8.72	8.57	8.64		
	IR Page has good appearance	P	7.33	7.94	7.63	-1	14
		E	8.66	8.60	8.63		
	Documents quickly downloaded	P	7.37	7.84	7.60	-0.98	15
		E	8.63	8.52	8.58		
Empathy	Users can access IR from anywhere and anytime	P	7.10	7.70	7.40	-1.26	1
		E	8.75	8.56	8.66		
	IR provides quick and easy access to documents	P	7.21	7.89	7.55	-1.15	7
		E	8.72	8.69	8.70		
	IR enables users to save their search results for later use.	P	7.18	7.80	7.49	-1.16	6
		E	8.71	8.59	8.65		
	Suggests documents based on past searches	P	7.11	7.76	7.44	-1.22	4
		E	8.71	8.60	8.66		
	Notifies users of new documents in their research areas	P	7.12	7.73	7.42	-1.26	1
		E	8.79	8.57	8.68		
Responsiveness	IR site is good in responding to user's requests.	P	7.27	7.87	7.57	-1.06	12
		E	8.70	8.56	8.63		
	Users can	P	7.11	7.82	7.47	-1.2	5

Dimension	Service quality indicator		Mean service quality and their average				
			Students	Faculty	Average	P-E	Ranks
	email librarians for complains	E	8.71	8.62	8.67		
	User issues promptly addressed	P	7.07	7.74	7.41	-1.25	2
		E	8.74	8.58	8.66		
	User issues addressed politely	P	7.08	7.82	7.45	-1.24	3
		E	8.76	8.62	8.69		
Assurance	IR effectively retrieves documents	P	7.38	7.97	7.68	-1.04	13
		E	8.76	8.67	8.72		
	IR suggests spelling	P	7.10	7.71	7.41	-1.24	3
		E	8.72	8.57	8.65		
	IR has adequate security features	P	7.14	7.75	7.45	-1.22	4
		E	8.77	8.56	8.67		
	Users trust the site	P	7.19	7.75	7.47	-1.22	
		E	8.79	8.58	8.69		4
Reliability	IR page is always available	P	7.23	7.86	7.55	-1.08	10
		E	8.66	8.60	8.63		
	IR has error free documents	P	7.22	7.74	7.48	-1.07	11
		E	8.64	8.45	8.55		
	IR frequently updated	P	7.17	7.74	7.46	-1.09	9
		E	8.76	8.53	8.65		
	IR contains relevant documents	P	7.23	7.89	7.56	-1.13	8
		E	8.75	8.64	8.69		
	IR provides accurate resources	P	7.24	7.83	7.54	-1.09	9
		E	8.72	8.53	8.63		

As revealed by results in Table 5.4, in all service categories user's perceptions exceeded their expectations which resulted in negative scores from these categories. This means that user's service quality expectations were not met. The results further revealed variations within difference groups of users regarding their expectations and perceptions of service quality. This is the sense that faculty had higher perceptions and lower expectations compared to postgraduate students, who had higher expectations and lower perceptions.

The ranking of service quality indicators according to their levels of gaps revealed that some service quality indicators have wider gaps than others. The top five services with the narrowest gaps included: documents can be quickly downloaded, (-0.98, tangibles), 15th rank; IR content is well organised, (-1, tangibles), 14th rank; IR page has a good appearance, (-1, tangibles), 14th rank; IR is easy to navigate (-1.04, tangibles), 13th rank; IR is good in responding to user's requests (-1.06, responsiveness), 12th rank; IR has error free documents (-1.07, reliability), 11th rank. These services with narrower gaps, satisfied user's service quality needs fairly.

The results further revealed services with the widest gaps, which mean that users were mostly dissatisfied with these services. These include: users are notified of new documents in their research areas (-1.26, empathy), 1st rank; user's issues are addressed promptly (-1.24, responsiveness), 3rd rank; IR suggests spelling to users (-1.24, assurance), 3rd rank; Documents suggested to users based on past searches (-.122, empathy), 4th rank; IR has adequate security features (-1.22, assurance), 4th rank; users trust the IR site (-1.22, assurance), 4th rank; users can email librarians to lodge complaints (-1.2, responsiveness), 5th rank).

5.5 Quality Factors Influencing the IRs Usability

This section is based on one of the theories underpinning this study, the Unified Theory of Acceptance and Use of Technology (UTAUT). This technology acceptance theory assessed quality factors likely to influence the use, and adoption of the UNISWA IR by faculty and postgraduate students. UTAUT theory's four constructs (effort expectancy, performance expectancy, social influence, and facilitating conditions) were applied in section four of the survey questionnaire to address the research question: *What quality factors influence the usability of UNISWA's institutional repository by faculty and postgraduate students at UNISWA?* Venkatesh et al. (2003) asserts that examining this theory's constructs in real world settings enables researchers and practitioners to assess individual's intentions to use a specific system hence allowing the identification of key influences on acceptance in any context.

Crosstabulations of academic status, and UTAUT constructs were computed to determine the extent of the technology acceptance constructs' influence on the usability of UNISWA's institutional repository. Chi-Square tests (X^2) were further computed to determine if there is

a significant association between academic status and the different UTAUT constructs. Findings for this section are presented from Tables 5.5 to 5.48 respectively.

Table 5.5: Learning to Use the IR is Easy (n=395) (Source: Field data, 2017)

Effort Expectancy (Ease of Use): Learning how to use the IR is easy		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	1	3	4	8
	% within Teac Asst.	.0%	12.5%	37.5%	50.0%	100.0%
	% within Academic Status	.0%	3.3%	2.9%	2.6%	2.0%
Lecturer	Count	20	14	52	63	149
	% within lecturers	13.4%	9.4%	34.9%	42.3%	100.0%
	% within Acad. Status	18.5%	46.7%	50.5%	41.2%	37.8%
Senior Lecturer	Count	6	2	10	13	31
	% within Senior Lecturer	19.4%	6.5%	32.3%	41.9%	100.0%
	% within Academic Status	5.6%	6.7%	9.7%	8.5%	7.9%
Associate Professor	Count	2	0	4	10	16
	% within Ass. Professors	12.5%	.0%	25.0%	62.5%	100.0%
	% within Acad. Status	1.9%	.0%	3.9%	6.5%	4.1%
Professor	Count	2	1	3	5	11
	% within Professor	18.2%	9.1%	27.3%	45.5%	100.0%
	% within Acad. Status	1.9%	3.3%	2.9%	3.3%	2.8%
Total		30(27.9%)	18(60%)	72(69.9%)	95(62.1%)	215(54.6%)
Master's Student	Count	75	12	31	51	168
	% within Masters Stu.	44.4%	7.1%	18.5%	30.2%	100.0%
	% within Academic Status	68.2%	40.0%	30.1%	33.8%	42.6%
PhD Students	Count	5	0	0	6	11
	% within PhD Students	45.5%	.0%	.0%	54.5%	100.0%
	% within Academic Status	4.5%	.0%	.0%	3.9%	2.8%
Total		80(72.7%)	12(40.0%)	31(30.1%)	56(37.7%)	179(45.4%)

Table 5.5 shows results from the crosstabulation of academic status, and the ease of using the IR. The findings revealed that a majority (95, 62.1%) of faculty agreed that it is easy to learn how to use the IR, as against 56 (37.7%) postgraduate students who agreed on the same dimension. Faculty who disagreed were 18 (60%) as compared to 12 (40%) of their counterparts. Those that were non-committal on the issue at hand among faculty were 72 (69.9%) as against 31 (30.1%) of postgraduate students. Other respondents including 30 (27.9%) faculty and 80 (72.7%) postgraduate students stated that they had never used the UNISWA IR, and therefore could not provide a response in this section.

Table 5.6: Chi-Square Test (Ease of Learning to Use IR)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	53.850[a]	18	.000
Likelihood Ratio	60.881	18	.000
Linear-by-Linear Association	19.963	1	.000
N of Valid Cases	394		

As presented in Table 5.6, the results of the chi-square test show that the p-value was 0.000 < 0.05, while the chi-square value was 53.850, at 95% level of confidence. Based on the decision rule, there is a significant difference between faculty and postgraduate students in their views that learning how to use the IR is easy.

Table 5.7: Easy to Become Skilful (n=395) (Source: Field data, 2017)

Effort Expectancy (Ease of Use): It's easy to become skilful in using the IR		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Asst.	Count	0	0	3	5	8
	% within Teaching Asst.	.0%	.0%	37.5%	62.5%	100.0%
	% within Acad. Status	.0%	.0%	3.2%	3.1%	2.0%
Lecturer	Count	20	15	51	63	149
	% within lecturers	13.4%	10.1%	34.2%	42.3%	100.0%
	% within Acad. Status	18.2%	55.6%	53.7%	38.7%	37.7%
Senior Lecturer	Count	6	2	9	14	31
	% within Senior Lecturer	19.4%	6.5%	29.0%	45.2%	100.0%
	% within Acad. Status	5.5%	7.4%	9.5%	8.6%	7.8%
Associate Professor	Count	2	0	3	11	16
	% within Ass. Professors	12.5%	.0%	18.8%	68.8%	100.0%
	% within Acad. Status	1.8%	.0%	3.2%	6.7%	4.1%
Professor	Count	2	1	3	5	11
	% within Professor	18.2%	9.1%	27.3%	45.5%	100.0%
	% within Acad. Status	1.8%	3.7%	3.2%	3.1%	2.8%
Total faculty		30(27.3%)	18(66.7%)	69(72.8%)	98(60.2%)	215(54.4 %)

Master's Student	Count % within Masters Stu. % within Acad. Status	75 44.4% 68.2%	9 5.3% 33.3%	25 14.8% 26.3%	60 35.5% 36.8%	169 100.0% 42.8%
PhD Students	Count % within PhD Students % within Acad. Status	5 45.5% 4.5%	0 .0% .0%	1 9.1% 1.1%	5 45.5% 3.1%	11 100.0% 2.8%
Total Stud		80(72.7%)	9(33.3%)	26(27.4%)	65(39.9%)	180(45.6 %)

The result in Table 5.7 shows cross tabulating academic status and the ease of becoming skilful in using the IR. The findings indicate that majority (98, 60.2%) of faculty agreed that it is easy to become skilful when using the UNISWA IR, as compared to 65 (39.9%) postgraduate students who gave a similar response. On the other hand, only a few respondents including 18 (66.7%) from faculty against 9 (33.3%) of their counterparts disagreed on the issue at hand. Those that neither agreed nor disagreed included 69 (72.8%) of faculty against 26 (27.4%) postgraduate students. Other respondents including 30 (27.3%) of faculty, and 80 (72.7%) of their counterparts indicated that they had never used the IR.

Table 5.8 Chi-Square Test (Ease of Becoming Skilful)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	59.043[a]	18	.000
Likelihood Ratio	63.709	18	.000
Linear-by-Linear Association	18.624	1	.000
N of Valid Cases	395		

The results of the Chi-square test show that the p-value was 0.000 <0.05, while the chi-square value was 59.043, at 95% level of confidence. Based on the decision rule, there is a significant difference between faculty and postgraduate students in their levels of being skilful in using the UNISWA institutional repository.

Table 5.9: Comfortable with IR (n=395) (Source: Field data, 2017)

Effort Expectancy (Ease of Use): Am comfortable with using the IR		Never used IR	Disagree	Neutral	Agree	Total
Teaching Assistant	Count	0	1	3	4	8
	% within T. Asst.	.0%	12.5%	37.5%	50.0%	100.0%
	% within Acad. Status	.0%	1.6%	3.1%	3.2%	2.0%
Lecturer	Count	20	30	53	46	149
	% within lecturers	13.4%	20.1%	35.6%	30.9%	100.0%
	% within Acad. Status	18.2%	48.4%	54.6%	36.5%	37.7%
Senior Lecturer	Count	6	7	7	11	31
	% within Sen. Lecturer	19.4%	22.6%	22.6%	35.5%	100.0%
	% within Acad. Status	5.5%	11.3%	7.2%	8.7%	7.8%
Associate Professor	Count	2	1	3	10	16
	% within Asso. Prof.	12.5%	6.3%	18.8%	62.5%	100.0%
	% within Aca. Status	1.8%	1.6%	3.1%	7.9%	4.1%
Professor	Count	2	2	2	5	11
	% within Professor	18.2%	18.2%	18.2%	45.5%	100.0%
	% within Acad. Status	1.8%	3.2%	2.1%	4.0%	2.8%
Total		30(27.3%)	41(66.1%)	68(70.1%)	76(60.3%)	215(54.4%)
Master's Student	Count	75	20	28	46	169
	% within Masters Stu.	44.4%	11.8%	16.6%	27.2%	100.0%
	% within Acad. Status	68.2%	32.3%	28.9%	36.5%	42.8%
PhD Students	Count	5	1	1	4	11
	% within PhD Stu.	45.5%	9.1%	9.1%	36.4%	100.0%
	% within Acad. Status	4.5%	1.6%	1.0%	3.2%	2.8%
Total		80(72.7%)	21(33.9%)	29(29.9%)	50(39.7%)	180(45.6%)

Table 5.9 shows the result of the crosstabulation of academic status, and the ease of using the IR. The results revealed that a majority 76 (60.3%) of faculty agreed that they are comfortable with using the IR on their own, as against 50 (39.7%) postgraduate students who agreed on the same dimension. Those among faculty who disagreed were 41 (66.1%) as compared to 21(33.9%) of their counterparts. Those from faculty who neither agreed nor disagreed that they were comfortable in using the IR included 68 (70.1%), as against 29 (29.9%) students. Other respondents including 30 (27.3%) of faculty and 80 (72.7%) of their counterparts indicated that they had never used the UNISWA institutional repository.

Table 5.10: Chi-Square Test (Comfortability with IR)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	60.793[a]	18	.000
Likelihood Ratio	62.435	18	.000
Linear-by-Linear Association	15.085	1	.000
N of Valid Cases	395		

The result from the Chi-square test shows a significant difference between faculty and postgraduate students (N=395, X^2 = 60.793, df=18, p=0.000) in their levels of being comfortable in using the IR on their own.

Table 5.11: Ease of Interaction with IR (n=395) (Source: Field data, 2017)

Effort Expectancy (Ease of Use): Easy to interact with IR's features		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	1	4	3	8
	% within Teac. Asst.	.0%	12.5%	50.0%	37.5%	100.0%
	% within Aca. Status	.0%	2.2%	3.3%	2.5%	2.0%
Lecturer	Count	20	22	63	44	149
	% within lecturers	13.4%	14.8%	42.3%	29.5%	100.0%
	% within Aca. Status	18.5%	48.9%	52.1%	36.4%	37.7%
Senior Lecturer	Count	6	3	11	11	31
	% within Sen. Lect.	19.4%	9.7%	35.5%	35.5%	100.0%
	% within Aca. Status	5.6%	6.7%	9.1%	9.1%	7.8%
Associate Professor	Count	2	0	5	9	16
	% within Ass. Prof	12.5%	.0%	31.3%	56.3%	100.0%
	% within Aca. Status	1.9%	.0%	4.1%	7.4%	4.1%
Professor	Count	2	1	4	4	11
	% within Professor	18.2%	9.1%	36.4%	36.4%	100.0%
	% within Aca. Status	1.9%	2.2%	3.3%	3.3%	2.8%
Total Faculty		30(27.9%)	25(60%)	87(71.9%)	71(55.4%)	215(54.4%)
Master's Student	Count	75	17	32	45	169
	% within Masters Students	44.4%	10.1%	18.9%	26.6%	100.0%
	% within Aca. Status	68.2%	37.8%	26.4%	37.8%	42.8%
PhD Students	Count	5	1	2	3	11
	% within PhD Stu.	45.5%	9.1%	18.2%	27.3%	100.0%
	% within Aca. Status	4.5%	2.2%	1.7%	2.5%	2.8%
Total Stu		80(72.7%)	18(40%)	34(28.1%)	48(40.3%)	180(45.6%)

Table 5.11 presents results of the crosstabulation of academic status and respondents' ease of interacting with the UNISWA IRs features. As shown in Table 5.11, a substantial number, 87 (71.9%) of faculty against only 34 (28.1%) postgraduate students were neutral regarding their ease of interacting with the IRs features. On the other hand, those that agreed to the issue at hand include a bulk 71 (55.4%) of faculty, as compared to 48 (40.3%) of their counterparts. Few respondents including 25 (60%) of faculty against 18 (40%) postgraduate students disagreed on the ease of interacting with the IRs features. The remaining 30 (27.9%) against 80 (72.7%) indicated that they had never used the IR, and therefore do not know if it is easy or not to interact with its features.

Table 5.12: Chi-Square Test (Interaction with IR)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	56.205[a]	18	.000
Likelihood Ratio	60.174	18	.000
Linear-by-Linear Association	15.964	1	.000
N of Valid Cases	395		

The results from the Chi-square test show that there is a significant difference between faculty and postgraduate students (N=395, X^2 = 56.205, df=18, p=0.000) in their ease of interacting with features of the UNISWA institutional repository

Table 5.13: Can Do What I Want with IR (n=395) (Source: Field data, 2017)

Effort Expectancy (Ease of Use): I can do what I want with the IR		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	1	6	1	8
	% within T. Asst.	.0%	12.5%	75.0%	12.5%	100.0%
	% within Aca. Status	.0%	1.6%	4.8%	1.0%	2.0%
Lecturer	Count	20	29	68	32	149
	% within lecturers	13.4%	19.5%	45.6%	21.5%	100.0%
	% within Aca. Status	18.2%	46.8%	54.0%	33.0%	37.7%
Senior Lecturer	Count	6	7	7	11	31
	% within Senior Lecturer	19.4%	22.6%	22.6%	35.5%	100.0%
	% within Aca. Status	5.5%	11.3%	5.6%	11.3%	7.8%
Associate Professor	Count	2	2	6	6	16
	% within Ass. Prof	12.5%	12.5%	37.5%	37.5%	100.0%
	% within Aca. Status	1.8%	3.2%	4.8%	6.2%	4.1%
Professor	Count	2	2	3	4	11
	% within Professor	18.2%	18.2%	27.3%	36.4%	100.0%
	% within Aca. Status	1.8%	3.2%	2.4%	4.1%	2.8%
Total Faculty		30(27.3%)	41(66.1%)	90(71.6%)	54(55.6%)	215(54.4%)
Master's Student	Count	75	20	35	39	169
	% within Ma. Stu.	44.4%	11.8%	20.7%	23.1%	100.0%
	% within Aca. Status	68.2%	32.3%	27.8%	40.2%	42.8%
PhD Students	Count	5	1	1	4	11
	% within PhD Stu.	45.5%	9.1%	9.1%	36.4%	100.0%
	% within Aca. Status	4.5%	1.6%	.8%	4.1%	2.8%
Total stu.		80(72.7%)	21(33.9%)	36(28.6%)	43(44.3%)	180(45.6%)

The results presented in Table 5.13 indicate that a substantial number (90, 71.6%) of faculty compared to an inconsiderable number (36, 28.6%) of postgraduate students were non-committal regarding their abilities to do what they want with the IR. More than half (54, 55.6%) of faculty, against almost the same (43, 44.3%) number of postgraduate students

agreed that it is easy to do what they want with the IR. On the contrary, 41 (66.1%) of faculty compared to 21 (33.9%) students disagreed. The remaining 30 (27.3%) of faculty against 80 (72.7%) of their counterparts indicated that they had never used the UNISWA IR.

Table 5.14: Chi-Square Test (Can Do What I Want)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	66.114[a]	18	.000
Likelihood Ratio	67.800	18	.000
Linear-by-Linear Association	13.294	1	.000
N of Valid Cases	395		

The results of the chi-square test show a significant difference between faculty and postgraduate students (N=395, X^2 = 56.205, df=18, p=0.000) in their abilities to do what they want with the UNISWA institutional repository.

Based on results from UTAUT's effort expectancy dimensions which include: learning how to use the IR is easy; it is easy to become skilful in using the IR; I am comfortable using the IR on my own; it is easy to interact with the IRs features; and I can do what I want with the IR, one can conclude that a significant amount of faculty and postgraduate students were impressed with the ease of using the UNISWA institutional repository.

Table 5.15: IRs Usefulness (n=395) (Source: Field data, 2017)

Performance Expectancy (Perceived Usefulness): I find the IR Useful		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	2	4	2	8
	% within T. Asst.	.0%	25.0%	50.0%	25.0%	100.0%
	% within Aca. Status	.0%	15.4%	4.9%	1.0%	2.0%
Lecturer	Count	20	5	43	81	149
	% within lecturer	13.4%	3.4%	28.9%	54.4%	100.0%
	% within Aca. Status	18.3%	38.5%	53.1%	42.2%	37.7%
Senior Lecturer	Count	6	3	10	13	31
	% within S. Lecturer	19.5%	9.7%	32.3%	41.9%	100.0%
	% within Aca. Status	5.5%	23.1%	12.3%	6.8%	7.8%
Associate Professor	Count	2	0	2	12	16
	% within Ass. Prof	12.5%	.0%	12.5%	75.0%	100.0%
	% within Aca Status	1.8%	.0%	2.5%	6.3%	4.1%
Professor	Count	2	0	3	6	11
	% within Professor	18.2%	.0%	27.3%	54.5%	100.0%
	% within Aca. Status	1.8%	.0%	3.7%	3.1%	2.8%
Total faculty		30(27.4%)	10(77%)	62(76.5%)	114(59.4%)	215(54.4%)
Master's	Count	75	3	17	74	169

Student	%within Masters Stu. %within Acad. Status	44.4% 68.8%	1.8% 23.1%	10.1% 21.0%	43.8% 38.5%	100.0% 42.8%
PhD Students	Count % within PhD Stu. % within Aca. Status	5 45.5% 4.6%	0 .0% .0%	2 18.2% 2.5%	4 36.4% 2.1%	11 100.0% 2.8%
Total Stu.		80(73.4%)	3(23.1%)	19(23.5%)	78(40.6%)	180(45.6%)

Table 5.15 presents the results of cross tabulating academic status and the perceived usefulness of the UNISWA IR. The findings indicate that a majority 114 (59.4%) of faculty agreed that they find the IR useful, as against 78 (40.6%) respondents amongst postgraduate students who agreed on the same dimension. Those from faculty who disagreed were only 10 (77%), as compared to even fewer (3, 23.1%) of their counterparts. Those that neither agreed nor disagreed to the issue at hand included 62 (76.5%) of faculty against 19 (23.5%) postgraduate students. Other respondents including 30 (27.4%) faculty against 80 (73.4%) of their counterparts stated that they had never used the UNISWA institutional repository.

Table 5.16: Chi-Square Test (IRs Usefulness)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	78.513[a]	18	.000
Likelihood Ratio	74.549	18	.000
Linear-by-Linear Association	18.388	1	.000
N of Valid Cases	395		

The results of the chi-square test show a significant difference between faculty and postgraduate students (N=395, X^2 = 78.513, df=18, p=0.000) in their perception of the IR as a useful research and information resource tool.

Table 5.17: Research Made Easier (n=395) (Source: Field data, 2017)

Performance Expectancy (Perceived Usefulness): IR makes researching easier		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count % within T. Asst. % within Aca. Status	0 .0% .0%	2 25.0% 9.5%	4 50.0% 4.2%	2 25.0% 1.2%	8 100.0% 2.0%
Lecturer	Count % within lecturers % within Aca. Status	20 13.4% 18.2%	12 8.1% 57.1%	48 32.2% 50.0%	68 45.6% 40.7%	149 100.0% 37.7%
Senior Lecturer	Count % within S. Lecturer % within Aca. Status	6 19.4% 5.4%	3 9.7% 14.3%	10 32.3% 10.4%	12 38.7% 7.2%	31 100.0% 7.8%
Associate Professor	Count % within Ass. Prof % within Aca. Status	2 12.5% 1.8%	1 6.3% 4.8%	7 43.8% 7.3%	6 37.5% 3.6%	16 100.0% 4.1%

Professor	Count % within Professor % within Aca. Status	2 18.2% 1.8%	0 .0% .0%	5 45.5% 5.2%	4 36.4% 2.4%	11 100.0% 2.8%
Total Faculty		30(27.2%)	18(85.7%)	74(77.1%)	92(55.1%)	215(54.4%)
Master's Student	Count % within Ma. Stu. % within Aca. Status	75 44.4% 68.2%	3 1.8% 14.3%	22 13.0% 22.9%	69 40.8% 41.3%	169 100.0% 42.8%
PhD Students	Count % within PhD Stu. % within Aca. Status	5 45.5% 4.5%	0 .0% .0%	0 .0% .0%	6 54.5% 3.6%	11 100.0% 2.8%
Total Stu.		80(72.7%)	4(14.3%)	22(22.9%)	75(44.9%)	180(45.6%)

The results as presented in Table 5.17 shows that most 92 (55.1%) of faculty against 75 (44.9%) students agreed that the IR makes their research easier. A bulk (74, 77.1%) of faculty against a few (22, 22.9%) of their counterparts were non-committal on the issue at hand. Very few from both groups of respondents including 18 (85.7%) of faculty against only 4 (14.3%) postgraduate students disagreed that the IR makes their research easier. Others including 30 (27.2%) respondents among faculty, against 80 (72.1%) postgraduate students indicated that they had never used the IR.

Table 5.18: Chi-Square Test (Research Made Easier)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	71.172[a]	18	.000
Likelihood Ratio	75.690	18	.000
Linear-by-Linear Association	13.248	1	.000
N of Valid Cases	395		

The results of the chi-square test show a significant difference between faculty and postgraduate students (N=395, X^2 = 71.172, df=18, p=0.000) in their view of the IR as a tool that makes their research easier.

Table 5.19: Research Visibility (n=395) (Source: Field data, 2017)

Performance Expectancy (PU): IR increases research visibility		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count % within T. Asst. % within Aca. Status	0 .0% .0%	2 25.0% 11.8%	4 50.0% 4.1%	2 25.0% 1.2%	8 100.0% 2.0%
Lecturer	Count % within lecturers % within Acad. Status	20 13.4% 18.2%	9 6.0% 52.9%	55 36.9% 56.7%	65 43.6% 38.0%	149 100.0% 37.7%
Senior Lecturer	Count % within S. Lecturer % within Aca. Status	6 19.4% 5.5%	2 6.5% 11.8%	9 29.0% 9.3%	14 45.2% 8.2%	31 100.0% 7.8%
Associate	Count	2	1	5	8	16

Professor	% within Ass. Prof % within Acad. Status	12.5% 1.8%	6.3% 5.9%	31.3% 5.2%	50.0% 4.7%	100.0% 4.1%
Professor	Count % within Professor % within Acad. Status	2 18.2% 1.8%	0 .0% .0%	4 36.4% 4.1%	5 45.5% 2.9%	11 100.0% 2.8%
Total Faculty		30(27.3%)	14(82.4%)	77(79.4%)	94(55%)	215(54.4%)
Master's Student	Count % within Ma. Students % within Aca. Status	75 44.4% 68.2%	3 1.8% 17.6%	19 11.2% 19.6%	72 42.6% 42.1%	169 100.0% 42.8%
PhD Students	Count % within PhD Students % within Aca. Status	5 45.5% 4.5%	0 .0% .0%	1 9.1% 1.0%	5 45.5% 2.9%	11 100.0% 2.8%
Total Stu		80(72.7%)	3(17.6%)	20(20.6%)	77(45%)	180(45.6%)

The results in Table 5.19 show that most of the respondents who agreed that the IR increases visibility of their work included 94 (55%) of faculty, as compared to 77 (45%) postgraduate students who gave a similar response. Majority (77, 79.4%) of faculty compared to 20 (20.6%) postgraduate students neither agreed nor disagreed on the issue at hand. Very few respondents including 14 (82.4%) faculty against less than half (3, 17.6%) of their counterparts disagreed that the IR increases the visibility of their work. The remaining 30 (27.3%) of faculty against 80 (72.7%) postgraduate students stated that they had never used the UNISWA IR.

Table 5.20: Chi-Square Test (Research Visibility)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	73.299[a]	18	.000
Likelihood Ratio	74.889	18	.000
Linear-by-Linear Association	13.207	1	.000
N of Valid Cases	395		

The results of the Chi-square test show a significant difference between faculty and postgraduate students (N=395, X^2 = 73.299, df=18, p=0.000) in their perceptions of the IR as a tool that increases the visibility of research work.

Table 5.21: Research Sharing Through IRs (n=395) (Source: Field data, 2017)

Performance Expectancy: IR is a fast way of communicating and sharing research with my peers		Never used IR	Disagree	Neutral	Agree	Total
Teaching Assistant	Count	0	2	4	2	8
	% within T. Asst.	.0%	25.0%	50.0%	25.0%	100.0%
	% within Acad. Status	.0%	12.5%	4.3%	1.1%	2.0%
Lecturer	Count	20	6	52	71	149
	% within lecturers	13.4%	4.0%	34.9%	47.7%	100.0%
	% within Acad. Status	18.2%	37.5%	55.9%	40.3%	37.7%
Senior Lecturer	Count	6	3	7	15	31
	% within S. Lecturer	19.4%	9.7%	22.6%	48.4%	100.0%
	% within Acad. Status	5.5%	18.8%	7.5%	8.5%	7.8%
Associate Professor	Count	2	1	2	11	16
	% within Ass. Prof	12.5%	6.3%	12.5%	68.8%	100.0%
	% within Aca. Status	1.8%	6.3%	2.2%	6.3%	4.1%
Professor	Count	2	0	5	4	11
	% within Professor	18.2%	.0%	45.5%	36.4%	100.0%
	% within Aca. Status	1.8%	.0%	5.4%	2.3%	2.8%
Total Faculty		30(27.3%)	12(75.1%)	70(75.3%)	103(58.5%)	215(54.4%)
Master's Student	Count	75	4	23	67	169
	% within Ma. Stu.	44.4%	2.4%	13.6%	39.6%	100.0%
	% within Aca. Status	68.2%	25.0%	24.7%	38.1%	42.8%
PhD Students	Count	5	0	0	6	11
	% within PhD Stu.	45.5%	.0%	.0%	54.5%	100.0%
	% within Aca. Status	4.5%	.0%	.0%	3.4%	2.8%
Total Stu		80(72.7%)	4(25.0%)	23(24.7%)	73(41.5%)	180(45.6%)

Table 5.21 shows the results of cross tabulating academic status and respondents' perceived usefulness of the IR. The findings indicate that many 103 (58.5%) amongst faculty against 73 (41.5%) postgraduate students agreed that the IR is a fast way of communicating and sharing research with their peers. Very few respondents including 12 (75.1%) faculty against only 4 (25.0%) postgraduate students disagreed on the issue at hand. Those amongst faculty who neither agreed nor disagreed that the IR is a fast way of communicating research were 70 (75.3) as against 23 (24.7%) of their counterparts. Other respondents including 30 (27.3%) faculty and 80 (72.7%) students had never used the IR.

Table 5.22: Chi-Square Test (Research Sharing)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	74.885[a]	18	.000
Likelihood Ratio	74.927	18	.000
Linear-by-Linear Association	17.687	1	.000
N of Valid Cases	395		

The results of the chi-square test as presented in Table 5.22 show a significant difference

between faculty and postgraduate students (N=395, X^2 = 74.885, df=18, p=0.000) in their views of the IR being a fast way of communicating and sharing research amongst peers.

Table 5.23: Research Preservation (n=395) (Source: Field data, 2017)

Performance Expectancy (Perceived Usefulness) The IR ensures that research is preserved for future use		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	1	5	2	8
	% within T. Asst.	.0%	12.5%	62.5%	25.0%	100.0%
	% within Aca. Status	.0%	7.7%	7.2%	1.0%	2.0%
Lecturer	Count	20	7	39	83	149
	% within lecturers	13.4%	4.7%	26.2%	55.7%	100.0%
	% within Aca. Status	18.7%	53.8%	56.5%	40.3%	37.7%
Senior Lecturer	Count	6	2	5	18	31
	% within S. Lecturer	19.4%	6.5%	16.1%	58.1%	100.0%
	% within Aca. Status	5.6%	15.4%	7.2%	8.7%	7.8%
Associate Professor	Count	2	0	1	13	16
	% within Ass. Prof	12.5%	.0%	6.3%	81.3%	100.0%
	% within Aca. Status	1.9%	.0%	1.4%	6.3%	4.1%
Professor	Count	2	0	2	7	11
	% within Professor	18.2%	.0%	18.2%	63.6%	100.0%
	% within Aca. Status	1.9%	.0%	2.9%	3.4%	2.8%
Total Faculty		30(28.1%)	10(76.9%)	52(75.2%)	123(59.7%)	215(54.4%)
Master's Student	Count	75	3	17	74	169
	% within Ma. Stu.	44.4%	1.8%	10.1%	43.8.6%	100.0%
	% within Aca. Status	68.2%	23.1%	24.6%	36.5%	42.8%
PhD Students	Count	5	0	0	6	11
	% within PhD Stu	45.5%	.0%	.0%	54.5%	100.0%
	% within Aca. Status	4.5%	.0%	.0%	2.9%	2.8%
Total Stu		80(72.7%)	3(23.1%)	17(24.6%)	80(39.5%)	180(45.6%)

Table 5.23 presents results from the crosstabulation of academic status and the perceived usefulness of the UNISWA IR. As shown in Table 5.23, many respondents including 123 (59.7%) of faculty compared to 80 (39.5%) of their counterparts agreed that the IR ensures that their work is preserved for future use. On the contrary, very few respondents including 10 (76.9%) amongst faculty against only 3 (23.1%) postgraduate students disagreed on the issue at hand. Those amongst faculty who neither agreed nor disagreed were 52 (75.2%), as against less than half (17, 24.6%) of their counterparts. The remaining faculty (30, 28.1%) against 80 (72%) of their counterparts stated that they had never used the UNISWA IR.

Table 5.24: Chi-Square Test (Research Preservation)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	67.586[a]	18	.000
Likelihood Ratio	68.961	18	.000
Linear-by-Linear Association	15.099	1	.000
N of Valid Cases	395		

Table 5.24 shows a significant difference between faculty and postgraduate students (N=395, X^2 = 74.885, df=18, p=0.000) in their views of the IR as a facility that preserves their work for future use.

Table 5.25: Career Advancement (n=395) (Source: Field data, 2017)

Performance Expectancy (Perceived Usefulness) The IR will contribute towards my career advancement		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	1	5	2	8
	% within T. Asst.	.0%	12.5%	62.5%	25.0%	100.0%
	% within Aca. Status	.0%	3.8%	5.3%	1.2%	2.0%
Lecturer	Count	20	14	54	61	149
	% within lecturers	13.4%	9.4%	36.2%	40.9%	100.0%
	% within Aca. Status	18.2%	53.8%	57.4%	37.0%	37.7%
Senior Lecturer	Count	6	2	8	15	31
	% within S. Lecturer	19.4%	6.5%	25.8%	48.4%	100.0%
	% within Aca. Status	5.5%	7.7%	8.5%	9.1%	7.8%
Associate Professor	Count	2	2	2	10	16
	% within Ass. Prof	12.5%	12.5%	12.5%	62.5%	100.0%
	% within Aca. Status	1.8%	7.7%	2.1%	6.1%	4.1%
Professor	Count	2	1	4	4	11
	% within Professor	18.2%	9.1%	36.4%	36.4%	100.0%
	% within Aca. Status	1.8%	3.8%	4.3%	2.4%	2.8%
Total Faculty		30(27.3%)	20(69.1%)	73(77.6%)	92(55.8%)	215(54.4%)
Master's Student	Count	75	6	19	69	169
	% within Ma. Stu.	44.4%	3.6%	11.2%	40.8%	100.0%
	% within Aca. Status	68.2%	23.1%	20.2%	41.8%	42.8%
PhD Students	Count	5	0	2	4	11
	% within PhD Stu	45.5%	.0%	18.2%	36.4%	100.0%
	% within Aca. Status	4.5%	.0%	2.1%	2.4%	2.8%
Total Stu		80(72.7%)	6(23.1%)	21(22.3%)	73(44.2%)	180(45.6%)

The results displayed in Table 5.25 show that many (92, 55.8%) amongst faculty, as against 73 (44.2%) postgraduate students agreed that IR will contribute towards their career advancement. On the other hand, very few respondents including 20 (69.1%) against 6 (23.1%) of their counterparts disagreed on this issue. Respondents amongst faculty that neither agreed nor disagreed were 73 (77.6%) compared to only 21 (22.3%) postgraduate

students who gave a similar response. The remaining 30 (27.3%) respondents among faculty against 80 (72.7%) postgraduate students indicated that they had never used the IR

Table 5.26 Chi-Square Test (Career Advancement)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	70.389[a]	18	.000
Likelihood Ratio	73.514	18	.000
Linear-by-Linear Association	14.197	1	.000
N of Valid Cases	395		

The results of the Chi-square test indicate that there is a significant difference between faculty and postgraduate students (N=395, X^2 = 70.389, df=18, p=0.000) in their views of the IR as a tool that contributes to their career advancement.

Based on findings from the performance expectancy construct with dimensions including: I find the IR useful; the IR makes my research easier; the IR increases the visibility of my work; the IR is a fast way of communicating my research with peers; the IR ensures that my research is preserved for futures use; and the IR will contribute towards my career advancement, it is evident that many respondents find the UNISWA IR useful.

Table 5.27 Important People Think I Should Use IR (n=395) (Source: Field data, 2017)

Social Influence: People who are important to me think that I should use the IR		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	3	3	2	8
	% within T. Asst.	.0%	37.5%	37.5%	25.0%	100.0%
	% within Aca. Status	.0%	4.8%	3.0%	1.6%	2.0%
Lecturer	Count	20	31	51	47	149
	% within lecturers	13.4%	20.8%	34.2%	31.5%	100.0%
	% within Aca. Status	18.3%	49.2%	51.5%	37.9%	37.7%
Senior Lecturer	Count	6	8	8	9	31
	% within S. Lecturer	19.4%	25.8%	25.8%	29.0%	100.0%
	% within Aca. Status	5.5%	12.7%	8.1%	7.3%	7.8%
Associate Professor	Count	2	1	8	5	16
	% within Ass. Prof	12.5%	6.3%	50.0%	31.3%	100.0%
	% within Aca. Status	1.8%	1.6%	8.1%	4.0%	4.1%
Professor	Count	2	4	3	2	11
	% within Professor	18.2%	36.4%	27.3%	18.2%	100.0%
	% within Aca. Status	1.8%	6.3%	3.0%	1.6%	2.8%
Total Faculty		30(27.4%)	47(74.6%)	73(73.7%)	65(52.4%)	215(54.4%)
Master's Student	Count	75	14	23	57	169
	% within Ma. Stu.	44.4%	8.3%	13.6%	33.7%	100.0%
	% within Aca. status	68.2%	22.2%	23.2%	46.3%	42.8%
PhD Students	Count	5	2	3	1	11
	% within PhD Stu	45.5%	18.2%	27.3%	9.1%	100.0%

	% within Aca. Status	4.5%	3.2%	3.0%	.8%	2.8%
Total Stu.		80(72.7%)	16(25.4%)	26(26.2%)	58(47.1%)	180(45.6%)

Table 5.27 shows results from the crosstabulation of academic status and the impacts of social influence on the use and adoption of the IR by users. The findings show that, a majority of faculty 73 (73.7%) did not commit themselves when asked if their use of the IR could be influenced by the fact that people who are important to them think they should use it. On the contrary, only 26 (26.2%) of their counterparts were neutral on this dimension. Those amongst faculty who agreed that they are influenced by people who are important to them were 65 (52.4%) as compared to 58 (47.1%) from students who gave a similar response. Other respondents including 47 (74.6%) of faculty as against 16 (25.4%) students disagreed, 30 (27.4%) of faculty against 80 (72.7%) of their counterparts said they had never used the IR.

Table 5.28: Chi-Square Test (Important People's Thoughts)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	70.646[a]	18	.000
Likelihood Ratio	74.026	18	.000
Linear-by-Linear Association	12.884	1	.000
N of Valid Cases	395		

The results of the Chi-square test show a significant difference between faculty and postgraduate students (N=395, X^2 = 70.646, df=18, p=0.000) in their levels of being influenced by people who are important to them to use the institutional repository.

Table 5.29: Lecturers Encouraged Usage (n=395) (Source: Field data, 2017)

Social Influence: My lecturers encouraged me to use the IR		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	3	3	2	8
	% within T. Asst.	.0%	37.5%	37.5%	25.0%	100.0%
	% within Aca. Status	.0%	2.6%	3.5%	2.4%	2.0%
Lecturer	Count	20	61	41	27	149
	% within lecturers	13.4%	40.9%	27.5%	18.1%	100.0%
	% within Aca. Status	18.2%	53.0%	48.2%	31.8%	37.7%
Senior Lecturer	Count	6	12	11	2	31
	% within S. Lecturer	19.4%	38.7%	35.5%	6.5%	100.0%
	% within Aca. Status	5.5%	10.4%	12.9%	2.4%	7.8%
Associate Professor	Count	2	10	4	0	16
	% within Ass. Prof	12.5%	62.5%	25.0%	.0%	100.0%
	% within Aca. Status	1.8%	8.7%	4.7%	.0%	4.1%
Professor	Count	2	6	2	1	11
	% within Professor	18.2%	54.5%	18.2%	9.1%	100.0%

	% within Aca. Status	1.8%	5.2%	2.4%	1.2%	2.8%
Total Faculty		30(27.3%)	92(79.9%)	61(71.7%)	32(37.8%)	215(54.4%)
Master's Student	Count	75	20	23	51	169
	% within Ma. Stu.	44.4%	11.8%	13.6%	30.2%	100.0%
	% within Aca. Status	68.2%	17.4%	27.1%	60.0%	42.8%
PhD Students	Count	5	3	1	2	11
	% within PhD Stu	45.5%	27.3%	9.1%	18.2%	100.0%
	% within Aca. Status	4.5%	2.6%	1.2%	2.4%	2.8%
Total Stu		80(72.7%)	23(20%)	24(28.3%)	53(62.4%)	180(45.6%)

As presented in Table 5.29 above, many respondents amongst faculty (92, 79.9%) disagreed to the social influence statement: "my lecturers encouraged me to use the IR". On the other hand, a few (23, 20%) amongst students also disagreed to the same statement. Those who agreed to this social influence statement amongst faculty were only 32 (37.8%) compared to 53 (62.4%) of their counterparts. Majority amongst faculty (61, 71.7%) against less than half (24, 28.3%) postgraduate students neither agreed nor disagreed on the issue at hand. The remaining 30 (27.3%) of faculty against 80 (72.7%) of students had never used the IR.

Table 5.30: Chi-Square Test (Lecturers' Encouragement)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	94.332[a]	18	.000
Likelihood Ratio	103.504	18	.000
Linear-by-Linear Association	4.959	1	.026
N of Valid Cases	395		

The results of the Chi-square test as presented in Table 5.30, show a significant difference between faculty and postgraduate students (N=395, X^2 = 94.332, df=18, p=0.000) in their levels of being influenced by their lecturers to use the UNISWA IR.

Table 5.31: Peers Encouraged IR Usage (n=395) (Source: Field data, 2017)

Social Influence: My peers have encouraged me to use the IR		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	4	3	1	8
	% within T. Asst.	.0%	50.0%	37.5%	12.5%	100.0%
	% within Aca. Status	.0%	4.1%	3.5%	1.0%	2.0%
Lecturer	Count	20	44	48	37	149
	% within lecturers	13.4%	29.5%	32.2%	24.8%	100.0%
	% within Aca. Status	18.2%	44.9%	56.5%	36.3%	37.7%
Senior Lecturer	Count	6	10	10	5	31
	% within S. Lecturer	19.4%	32.3%	32.3%	16.1%	100.0%
	% within Aca. Status	5.5%	10.2%	11.8%	4.9%	7.8%
Associate Professor	Count	2	9	3	2	16
	% within Ass. Prof	12.5%	56.3%	18.8%	12.5%	100.0%
	% within Aca. Status	1.8%	9.2%	3.5%	2.0%	4.1%

Professor	Count % within Professor % within Aca. Status	2 18.2% 1.8%	7 63.6% 7.1%	1 9.1% 1.2%	1 9.1% 1.0%	11 100.0% 2.8%
Total Faculty		30(27.3%)	74(75.5%)	65(76.5%)	46(45.2%)	215(54.4%)
Master's Student	Count % within Ma. Stu. % within Aca. Status	75 44.4% 68.2%	21 12.4% 21.4%	19 11.2% 22.4%	54 32.0% 52.9%	169 100.0% 42.8%
PhD Students	Count % within PhD Stu % within Aca. Status	5 45.5% 4.5%	3 27.3% 3.1%	1 9.1% 1.2%	2 18.2% 2.0%	11 100.0% 2.8%
Total Stu		80(72.7%)	24(24.5%)	20(23.6%)	56(54.9%)	180(45.6%)

The results presented in Table 5.31, revealed that a majority (74, 75.5%) of faculty disagreed to being encouraged by their peers to use the IR, whereas only 24 (24.5%) of their counterparts gave a similar response. On the other hand, 46 (45.2%) amongst faculty against slightly more (56, 54.9%) postgraduate students agreed to being encouraged by their peers to use the IR. Other respondents amongst faculty (65, 76.5%) as against 20 (23.6%) postgraduate students were non-committal on the issue at hand. Those that had never used the IR include 30 (27.3%) of faculty against 80 (72.7%) of their counterparts.

Table 5.32: Chi-Square Test (Peers' Encouragement)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	88.500[a]	18	.000
Likelihood Ratio	90.740	18	.000
Linear-by-Linear Association	11.135	1	.001
N of Valid Cases	395		

The results of the Chi-square test show that there is a significant difference between faculty and postgraduate students (N=395, X^2 = 88.500, df=18, p=0.000) in their levels of being encouraged by their peers to use the IR.

Table 5.33: Important Researchers Have Copies in the IR (n=395) (Source: Field data, 2017)

Social Influence: Researchers who are important to me have their copies in the IR.		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count % within T. Assistant % within Academic Status	0 .0% .0%	5 62.5% 5.8%	2 25.0% 1.9%	1 12.5% 1.1%	8 100.0% 2.0%
Lecturer	Count % within lecturers % within Aca. Status	20 13.4% 18.2%	38 25.5% 44.2%	58 38.9% 55.8%	33 22.1% 34.7%	149 100.0% 37.7%
Senior	Count	6	8	9	8	31

Lecturer	% within S. Lecturer % within Aca. Status	19.4% 5.5%	25.8% 9.3%	29.0% 8.7%	25.8% 8.4%	100.0% 7.8%
Associate Professor	Count % within Ass. Prof % within Aca. Status	2 12.5% 1.8%	7 43.8% 8.1%	3 18.8% 2.9%	4 25.0% 4.2%	16 100.0% 4.1%
Professor	Count % within Professor % within Academic Status	2 18.2% 1.8%	8 72.7% 9.3%	0 .0% .0%	1 9.1% 1.1%	11 100.0% 2.8%
Total Faculty		30(27.3%)	66(76.7%)	72(69.3%)	47(49.5%)	215(54.4%)
Master's Student	Count % within Masters Stu. % within Acad. Status	75 44.4% 68.2%	18 10.7% 20.9%	30 17.8% 28.8%	46 27.2% 48.4%	169 100.0% 42.8%
PhD Students	Count % within PhD Stu. % within Acad. Status	5 45.5% 4.5%	2 18.2% 2.3%	2 18.2% 1.9%	2 18.2% 2.1%	11 100.0% 2.8%
Total Stu		80(72.7%)	20(23.2%)	32(30.7%)	48(50.5%)	180(45.6%)

The results from the crosstabulation of academic status, and social influence revealed that many (72, 69.3%) among faculty were neutral, as against only few (32, 30.7%) postgraduate students who neither agreed nor disagreed that they used the IR because researchers who are important to them also have their copies in the repository. Those that agreed to being influenced by the availability works by important researchers amongst faculty were 47 (49.5%) as compared to almost the same number (48, 50.5%) of students who also gave a similar response. Many amongst faculty (66, 76.7%) against only 20 (23.2%) postgraduate students disagreed to the issue at hand. The remaining respondents amongst faculty (30, 27.3%) against 80 (72.7%) of their counterparts had never used the IR.

Table 5.34: Chi-Square Test (Important Researchers)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	87.225[a]	18	.000
Likelihood Ratio	86.970	18	.000
Linear-by-Linear Association	13.502	1	.000
N of Valid Cases	395		

The results of the Chi-square test show that there is a significant difference between faculty and postgraduate students (N=395, X^2 = 87.225, df=18, p=0.000) in their levels of being encouraged to use the UNISWA IR by the availability of works from important researchers. Based on the results from the social influence constructs with dimensions: people who are important to me think I should use the IR; my lecturers have encouraged me to use the IR; my peers encouraged me to use the IR; and researchers that are important to me have their

copies in the IR, one can conclude that most respondents amongst faculty were not influenced by the social influence factors. Such factors however, somehow affected post-graduate students' decisions to use and adopt the UNISWA IR.

Table 5.35: Resource Availability (n=395) (Source: Field data, 2017)

Facilitating Condition: I have resources (financial/or equipment) to support my use of the IR		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count % within Teaching Asst. % within Acad. Status	0 .0% .0%	1 12.5% 1.1%	5 62.5% 7.5%	2 25.0% 1.5%	8 100.0% 2.0%
Lecturer	Count % within lecturers % within Acad. Status	20 13.4% 18.3%	45 30.2% 50.6%	36 24.2% 53.7%	48 32.2% 36.9%	149 100.0% 37.7%
Senior Lecturer	Count % within S. Lecturer % within Acad. Status	6 19.4% 5.5%	9 29.0% 10.1%	5 16.1% 7.5%	11 35.5% 8.5%	31 100.0% 7.8%
Associate Professor	Count % within Ass. Prof % within Acad. Status	2 12.5% 1.8%	5 31.3% 5.6%	0 .0% .0%	9 56.3% 6.9%	16 100.0% 4.1%
Professor	Count % within Professor % within Acad. Status	2 18.2% 1.8%	1 9.1% 1.1%	2 18.2% 3.0%	6 54.5% 4.6%	11 100.0% 2.8%
Total Faculty		30(27.3%)	61(68.5%)	48(71.7%)	76(58.4%)	215(54.4%)
Master's Student	Count %within Masters Stu. % within Acad. Status	75 44.4% 68.2%	27 16.0% 30.3%	18 10.7% 26.9%	49 29.0% 38%	169 100.0% 42.8%
PhD Students	Count % within PhD Students %within Acad. Status	5 45.5% 4.5%	1 9.1% 1.1%	1 9.1% 1.5%	4 36.4% 3.1%	11 100.0% 2.8%
Total Stu		80(72.7%)	28(31.4%)	19(28.4%)	53(41.1%)	180(45.6%)

The results presented in Table 5.35, show that a majority (76, 58.4%) of faculty against 53 (41.1%) postgraduate students agreed that they had the required resources to support their use of the IR. On the other hand, those amongst faculty who disagreed on the availability of resources were 61 (68.5%) as compared to only 28 (31.4%) postgraduate students who also disagreed. Other respondents amongst faculty (48, 71.7%) against 19 (28.4%) of their counterparts gave a neutral response. The remaining respondents among faculty (30, 27.3%) against (80, 72.7%) students indicated that they had never used the institutional repository.

Table 5.36: Chi-Square Test (Resource Availability)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	69.670[a]	18	.000
Likelihood Ratio	70.875	18	.000

Linear-by-Linear Association	8.989	1	.003
N of Valid Cases	395		

The results of the Chi-square test as presented in Table 5.36, show a significant difference between faculty and postgraduate students (N=395, X^2 = 69.670, df=18, p=0.000) in their views of the availability of resources (financial or equipment) to support their use of the IR.

Table 5.37: Knowledge for IR Usage (n=395) (Source: Field data, 2017)

Facilitating Condition: I have the required knowledge to enable me to use the IR		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	3	2	3	8
	% within T. Asst.	.0%	37.5%	25.0%	37.5%	100.0%
	% within Aca. Status	.0%	3.4%	3.2%	2.2%	2.0%
Lecturer	Count	20	45	36	48	149
	% within lecturers	13.4%	30.2%	24.2%	32.2%	100.0%
	% within Aca. Status	18.2%	51.7%	58.1%	35.3%	37.7%
Senior Lecturer	Count	6	7	2	16	31
	% within S. Lecturer	19.4%	22.6%	6.5%	51.6%	100.0%
	% within Aca. Status	5.5%	8.0%	3.2%	11.8%	7.8%
Associate Professor	Count	2	1	3	10	16
	% within Ass. Prof	12.5%	6.3%	18.8%	62.5%	100.0%
	% within Aca. Status	1.8%	1.1%	4.8%	7.4%	4.1%
Professor	Count	2	2	1	6	11
	% within Professor	18.2%	18.2%	9.1%	54.5%	100.0%
	% within Aca. Status	1.8%	2.3%	1.6%	4.4%	2.8%
Total Faculty		30(27.3%)	58(66.5%)	44(70.9%)	83(61.1%)	215(54.4%)
Master's Student	Count	75	27	17	50	169
	% within Ma. Stu.	44.4%	16.0%	10.1%	29.6%	100.0%
	% within Aca. Status	68.2%	31.0%	27.4%	36.8%	42.8%
PhD Students	Count	5	2	1	3	11
	% within PhD Stu	45.5%	18.2%	9.1%	27.3%	100.0%
	% within Aca. Status	4.5%	2.3%	1.6%	2.2%	2.8%
Total Stu		80(72.7%)	29(33.3%)	18(29%)	53(39%)	180(45.6%)

The results show that many respondents amongst faculty (83, 61.6%) agreed that they have the required knowledge to enable their usage of the IR, as compared to only 53 (39%) postgraduate students who gave a similar response. On the other hand, those amongst faculty who disagreed on the issue at hand were 58 (66.5%) against 29 (33.3%) of their counterparts. Other respondents including 30 (27.3%) of faculty against 80 (72.7%) postgraduate students had never used the IR. The remaining respondents including 44 (70.9%) of faculty against only 18 (29%) postgraduate students neither agreed nor disagreed that they had the required knowledge to enable their usage of the IR.

Table 5.38: Chi Square Test (Knowledge for IR Usage)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	66.075[a]	18	.000
Likelihood Ratio	67.973	18	.000
Linear-by-Linear Association	10.590	1	.001
N of Valid Cases	395		

The results of the Chi-square test show that there is a significant difference between faculty and postgraduate students (N=395, X^2 = 66.075, df=18, p=0.000) in their levels of the knowledge required to enable them to use the IR.

Table 5.39: Software Compatibility (n=395) (Source: Field data, 2017)

Facilitating Condition: The UNISWA IR is compatible with the university's software installed in my computer		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count % within T. Asst. % within Aca. Status	0 .0% .0%	1 12.5% 1.9%	4 50.0% 3.6%	3 37.5% 2.4%	8 100.0% 2.0%
Lecturer	Count % within lecturers % within Aca. Status	20 13.4% 18.2%	22 14.8% 42.3%	53 35.6% 48.2%	54 36.2% 43.9%	149 100.0% 37.7%
Senior Lecturer	Count % within S. Lecturer % within Aca. Status	6 19.4% 5.5%	2 6.5% 3.8%	17 54.8% 15.5%	6 19.4% 4.9%	31 100.0% 7.8%
Associate Professor	Count % within Ass. Prof % within Aca. Status	2 12.5% 1.8%	0 .0% .0%	3 18.8% 2.7%	11 68.8% 8.9%	16 100.0% 4.1%
Professor	Count % within Professor % within Aca. Status	2 18.2% 1.8%	0 .0% .0%	3 27.3% 2.7%	6 54.5% 4.9%	11 100.0% 2.8%
Total Faculty		30(27.3%)	25(48%)	80(72.7%)	80(65%)	215(54.5 %)
Master's Student	Count % within Master Stu. % within Acad. Status	75 44.4% 68.2%	26 15.4% 50.0%	28 16.6% 25.5%	40 23.7% 32.5%	169 100.0% 42.8%
PhD Students	Count % within PhD Stu. % within Acad. Status	5 45.5% 4.5%	1 9.1% 1.9%	2 18.2% 1.8%	3 27.3% 2.4%	11 100.0% 2.8%
Total Students		80(72.7%)	27(51.9%)	30(27.3%)	43(34.9%)	180 (45.6%)

The results presented in Table 5.39, indicate that many respondents amongst faculty 80 (65%) against only 43 (34.9%) postgraduate students, agreed that the UNISWA IR is compatible with the university software installed in their computers. Surprisingly, the same number of respondents amongst faculty were neutral on this issue, as against 30 (34.9%) of their counterparts who gave a similar response. On the other hand, there were only 25 (48%)

among faculty compared with 27 (51.9%) students who disagreed on the compatibility of the UNISWA IR with their computers. The remaining respondents amongst faculty 30 (27.3%) and postgraduate students 80 (72.7%) indicated that they had never used the IR.

Table 5.40: Chi-Square Test (Software Compatibility)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	75.669[a]	18	.000
Likelihood Ratio	79.374	18	.000
Linear-by-Linear Association	22.712	1	.000
N of Valid Cases	395		

The results of the Chi-square test show that there is a significant difference between faculty and postgraduate students (N=395, X^2 = 75.669, df=18, p=0.000) in their views of UNISWA IR being compatible with the university's software installed in their computers.

Table 5.41: Librarians' Assistance (n=395) (Source: Field data, 2017)

Facilitating Condition: Library staff members are available to assist with difficulties while using the IR		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	1	4	3	8
	% within T. Asst.	.0%	12.5%	50.0%	37.5%	100.0%
	% within Aca. Status	.0%	2.6%	3.6%	2.2%	2.0%
Lecturer	Count	20	20	62	47	149
	% within lecturers	13.4%	13.4%	41.6%	31.5%	100.0%
	% within Acad. Status	18.3%	52.6%	55.9%	34.3%	37.7%
Senior Lecturer	Count	6	4	11	10	31
	% within S. Lecturer	19.4%	12.9%	35.5%	32.3%	100.0%
	% within Aca. Status	5.5%	10.5%	9.9%	7.3%	7.8%
Associate Professor	Count	2	0	7	7	16
	% within Ass. Prof	12.5%	.0%	43.8%	43.8%	100.0%
	% within Acad. Status	1.8%	.0%	6.3%	5.1%	4.1%
Professor	Count	2	1	4	4	11
	% within Professor	18.2%	9.1%	36.4%	36.4%	100.0%
	% within Acad. Status	1.8%	2.6%	3.6%	2.9%	2.8%
Total Faculty		30(27.4%)	26(68.3%)	88(79.3%)	71(51.8%)	215(54.4%)
Master's Student	Count	75	11	22	61	169
	% within Masters Stu.	44.4%	6.5%	13.0%	36.1%	100.0%
	% within Acad. Status	68.2%	28.9%	19.8%	44.8%	42.8%
PhD Students	Count	5	1	1	4	11
	% within PhD Stu	45.5%	9.1%	9.1%	36.4%	100.0%
	% within Acad. Status	4.5%	2.6%	.9%	2.9%	2.8%
Total Stu		80(72.7%)	12(33.5%)	23(20.7%)	65(47.7%)	180(45.6%)

Table 5.41 shows that many respondents amongst faculty (71, 51.8%) agreed that librarians are available to assist them with any difficulties they encounter whilst using the IR. Many

(65, 47.7%) postgraduate students gave a similar response. On the other hand, only 26 (68.3%) of faculty against 12 (33.5%) postgraduate students disagreed on the issue at hand. A bulk (88, 79.3%) of faculty against only 23 (20.7%) postgraduate students neither agreed nor disagreed. The remaining respondents including 30 (27.4%) of faculty and 80 (72.7%) postgraduate students indicated that they had never used the IR.

Table 5.42: Chi-Square Test (Librarians' Assistance)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	68.209[a]	18	.000
Likelihood Ratio	74.407	18	.000
Linear-by-Linear Association	11.379	1	.001
N of Valid Cases	395		

The results of the Chi-square test show that there is a significant difference between faculty and postgraduate students (N=395, X^2 = 68.209, df=18, p=0.000) in their views of library staff being available to assist them with any difficulties encountered while using the IR.

Based on the results from the facilitating conditions construct with dimensions including: I have resources to support my use of the IR; I have the required knowledge to enable me to use the IR; the UNISWA IR is compatible with the university software installed in my computer; and library staff are available to assist with any difficulties encountered while using the IR, it is apparent that a majority of UNISWA respondents agreed to being influenced to use the IR by "facilitating conditions".

Table 5.43: Future Usage Intensions (n=395) (Source: Field data, 2017)

Intention to Use: assuming I can access it, I intent to use the IR in future		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	0	1	7	8
	% within Teaching Asst.	.0%	.0%	12.5%	87.5%	100.0%
	% within Academic Status	.0%	.0%	5.0%	2.7%	2.0%
Lecturer	Count	20	3	13	113	149
	% within lecturers	13.4%	2.0%	8.7%	75.8%	100.0%
	% within Acad. Status	18.2%	60.0%	65.0%	43.5%	37.7%
Senior Lecturer	Count	6	1	1	23	31
	% within Senior Lecturer	19.4%	3.2%	3.2%	74.2%	100.0%
	% within Academic Status	5.5%	20.0%	5.0%	8.8%	7.8%
Associate Professor	Count	2	0	2	12	16
	% within Ass. Professors	12.5%	.0%	12.5%	75.0%	100.0%
	% within Acad. Status	1.8%	.0%	10.0%	4.6%	4.1%
Professor	Count	2	1	2	6	11
	% within Professor	18.2%	9.1%	18.2%	54.5%	100.0%

	% within Acad. Status	1.8%	20.0%	10.0%	2.3%	2.8%
Total Faculty		30(27.3%)	9(100%)	19(95%)	161(61.9%)	215(54.4%)
Master's Student	Count	75	0	1	93	169
	% within Masters Stu	44.4%	.0%	.6%	55.0%	100.0%
	% within Acad. Status	68.2%	.0%	5.0%	35.8%	42.8%
PhD Students	Count	5	0	0	6	11
	% within PhD Students	45.5%	.0%	.0%	54.5%	100.0%
	% within Acad. Status	4.5%	.0%	.0%	2.3%	2.8%
Total Stu		80(72.7%)	0(0%)	1(5.0%)	99(38.1%)	180(45.6%)

As presented in Table 5.43 above, the findings show that a majority (161, 61.9%) of faculty agreed that assuming they can access the IR, they intend to use it in future, as against many (99, 38.1%) students who gave a similar response. Very few respondents amongst faculty, (19, 95%) against only 1 (5.0%) postgraduate student disagreed on the issue at hand. Those that neither agreed nor disagreed include only 28 (90.3%) amongst faculty as compared to only 3 (9.7%) of their counterparts. Other respondents including 30 (27.3%) of faculty against 80 (72.7%) postgraduate students indicated that they had never used the IR.

Table 5.44: Chi-Square Test (Future Usage Intensions)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	67.733[a]	18	.000
Likelihood Ratio	71.233	18	.000
Linear-by-Linear Association	28.443	1	.000
N of Valid Cases	395		

The results of the chi-square test indicate that there is a significant difference between faculty and postgraduate students (N=395, X^2 = 75.669, df=18, p=0.000) in their intentions to use the IR in future, if it is accessible.

Table 5.45: Increased IR Usage (n=395) (Source: Field data, 2017)

Intention to Use: I will increase my usage in future		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	0	0	1	7	8
	% within Teaching Asst.	.0%	.0%	12.5%	87.5%	100.0%
	% within Acad. Status	.0%	.0%	3.2%	2.8%	2.0%
Lecturer	Count	20	3	21	105	149
	% within lecturers	13.4%	2.0%	14.1%	70.5%	100.0%
	% within Acad. Status	18.2%	60.0%	67.7%	42.2%	37.7%
Senior Lecturer	Count	6	1	1	23	31
	% within Senior Lecturer	19.4%	3.2%	3.2%	74.2%	100.0%
	% within Acad. Status	5.5%	20.0%	3.2%	9.2%	7.8%
Associate Professor	Count	2	0	3	11	16
	% within Ass. Professors	12.5%	.0%	18.8%	68.8%	100.0%
	% within Acad. Status	1.8%	.0%	9.7%	4.4%	4.1%

Professor	Count % within Professor % within Acad. Status	2 18.2% 1.8%	1 9.1% 20.0%	2 18.2% 6.5%	6 54.5% 2.4%	11 100.0% 2.8%
Total Faculty		30(27.3%)	5(100%)	28(90.3%)	152(61%)	215(54.4%)
Master's Student	Count % within Masters Stu. % within Acad. Status	75 44.4% 68.2%	0 .0% .0%	3 1.8% 9.7%	91 53.8% 36.5%	169 100.0% 42.8%
PhD Students	Count % within PhD Students % within Acad. Status	5 45.5% 4.5%	0 .0% .0%	0 .0% .0%	6 54.5% 2.4%	11 100.0% 2.8%
Total Stu		80(72.7%)	0(0%)	3(9.7%)	97(38.9%)	180(45.6%)

The results show that many respondents (152, 61%) amongst faculty agreed that they will increase their usage of the IR compared to 97 (38.9%) of postgraduate students who also agreed on the same dimension. On the contrary, very few (5, 100%) respondents amongst faculty disagreed to the issue at hand, and no students disagreed. Those that were non-committal were 28 (90.3%) of faculty against only 3 (9.7%) of postgraduate students. Others including 30 (27.3%) amongst faculty against 80 (72.7%) postgraduate students indicated that they had never used the UNISWA IR.

Table 5.46: Chi-Square Test (Increased IR Usage)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	69.669[a]	18	.000
Likelihood Ratio	73.581	18	.000
Linear-by-Linear Association	26.183	1	.000
N of Valid Cases	395		

The results of the Chi-Square tests show that there is a significant difference between faculty and postgraduate students (N=395, X^2 = 69.669, df=18, p=0.000) in their intensions to increase their usage of the institutional repository.

Table 5.47: Encourage Peers to Use IR (n=395) (Source: Field data, 2017)

Intention to Use: I will encourage my colleagues, friends and students to use the IR		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Asst.	Count % within Teaching Asst. % within Acad. Status	0 .0% .0%	0 .0% .0%	2 25.0% 6.5%	6 75.0% 2.4%	8 100.0% 2.0%
Lecturer	Count % within lecturers % within Acad. Status	20 13.4% 18.2%	2 1.3% 50.0%	23 15.4% 74.2%	103 69.1% 41.2%	149 100.0% 37.7%
Senior Lecturer	Count % within Senior Lecturer	6 19.4%	0 .0%	2 6.5%	23 74.2%	31 100.0%

	% within Acad. Status	5.5%	.0%	6.5%	9.2%	7.8%
Associate Professor	Count	2	0	0	14	16
	% within Ass. Professors	12.5%	.0%	.0%	87.5%	100.0%
	% within Acad. Status	1.8%	.0%	.0%	5.6%	4.1%
Professor	Count	2	1	1	7	11
	% within Professor	18.2%	9.1%	9.1%	63.6%	100.0%
	% within Acad. Status	1.8%	25.0%	3.2%	2.8%	2.8%
Total Faculty		30(27.3%)	3(75%)	28(90.4%)	153(61.2%)	215(54.4%)
Master's Student	Count	75	1	3	90	169
	%within Masters Stu.	44.4%	.6%	1.8%	53.3%	100.0%
	% within Acad. Status	68.2%	25.0%	9.7%	36.1%	42.8%
PhD Students	Count	5	0	0	6	11
	% within PhD Students	45.5%	.0%	.0%	54.5%	100.0%
	% within Acad. Status	4.5%	.0%	.0%	2.4%	2.8%
Total Stu.		80(72.7%)	1(25.0%)	3(9.7%)	96(38.5%)	180(45.6%)

The findings as presented in Table 5.47 above, show that majority of respondents amongst faculty 153 (61.2%) agreed to encourage their colleagues, students, and friends to use the IR compared to a substantial number (96, 38.5%) of students who gave a similar response. On the other hand, very few respondents amongst both faculty (3, 75%) and postgraduate students (1, 25.0%) disagreed to the issue at hand. Those amongst faculty who were non-committal were 28 (90.4%) against only 3 (9.7%) of their counterparts. The remaining respondents including 31 (28.2%) faculty against 80 (71.8%) of their counterparts stated that they had never used the IR.

Table 5.48: Chi-Square Test (Encourage Peers)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	69.374[a]	18	.000
Likelihood Ratio	70.252	18	.000
Linear-by-Linear Association	23.147	1	.000
N of Valid Cases	395		

The results of the Chi-square test show a significant difference between faculty and postgraduate students (N=395, X^2 = 69.374, df=18, p=0.000) in their intensions to encourage their colleagues, friends and students to use the institutional repository.

Based on results from the intension to use construct, it is apparent that majority of UNISWA's faculty and postgraduate students favoured this construct. Majority of respondents agreed that: assuming they can access the IR, they intend to use it in future;

they will increase their usage in future; and they will encourage their colleagues, friends, and students to use the IR.

5.6 Levels of Usage of the IR

This section addressed the research question: *What is the level of usage of UNISWA's institutional repository by faculty and postgraduate students?*

To gain a deeper insight on respondent's usage patterns, and understanding of institutional repositories, they were asked questions regarding their awareness about the UNISWA IR, current levels of computer skills, training needs, frequency of usage and submissions to the IR, submission preferences, benefits of using an IR, and reasons for usage and/or non-use of the UNISWA IR. Table 5.49 presents responses on users' awareness of the UNISWA IR.

Table 5.49: Awareness of the IR (n=395) (Source: Field data, 2017)

Awareness about the IR		Yes	No	Checked IR after briefed	Total
Teaching Assistant	Count	5	0	3	8
	% within Teaching Asst.	62.5%	.0%	37.5%	100.0%
	% within Academic Status	2.4%	.0%	3.1%	2.0%
Lecturer	Count	88	14	47	149
	% within lecturers	59.1%	9.4%	31.5%	100.0%
	% within Acad. Status	42.9%	14.9%	49.0%	37.7%
Senior Lecturer	Count	22	4	5	31
	% within Senior Lecturer	71.0%	12.9%	16.1%	100.0%
	% within Academic Status	10.7%	4.3%	5.2%	7.8%
Associate Professor	Count	13	2	1	16
	% within Ass. Professors	81.3%	12.5%	6.3%	100.0%
	% within Acad. Status	6.3%	2.1%	1.0%	4.1%
Professor	Count	8	1	2	11
	% within Professor	72.7%	9.1%	18.2%	100.0%
	% within Acad. Status	3.9%	1.1%	2.1%	2.8%
Total Faculty		136(66.2%)	21(22.4%)	58(60.4%)	215(54.4%)
Master's Student	Count	64	69	36	169
	% within Masters Stu.	37.9%	40.8%	21.3%	100.0%
	% within Academic Status	31.2%	73.4%	37.5%	42.8%
PhD Students	Count	5	4	2	11
	% within PhD Students	45.5%	36.4%	18.2%	100.0%
	% within Academic Status	2.4%	4.3%	2.1%	2.8%
Total Stu		69(33.6%)	73(77.7%)	38(39.6%)	180(45.6%)

As indicated in Table 5.49, when users were asked if they were aware of UNISWA IR, many (136, 66.2%) amongst faculty agreed, against 69 (33.6%) of postgraduate students who also agreed to being aware of the IR. In contrast, very few (21, 22.4%) from faculty were not aware of the IR, compared to a bulk of students (73, 77.7%) who gave a similar response. Other respondents amongst faculty (58, 60.4%) stated that they viewed the IR site

after being sensitised by the researcher about its existence, against only 38 (39.6%) postgraduate students who managed to do the same. These findings thereby indicate that most respondents amongst faculty knew about the existence of the IR, while majority of postgraduate students did not know about it.

The results as presented in Table 5.49 are buttressed by librarian's responses to question 23 of the interview schedule, where they were asked to describe user's awareness, attitudes, and perceptions towards the IR. In response to awareness levels, Librarian #4 pointed out that "*UNISWA IR users especially faculty know about the existence of the IR even though many of them decide not to use it*". On the same note, Librarian #1 stated that, "*I assume users especially postgraduate students know about the IR since they download documents from it"*. On the contrary, librarian #2 stated that "*most students and faculty do not know about the IR*". Librarians #3 and 5 on the other hand, indicated that they were not sure concerning user's awareness about the IR. Librarian #1 further stated that, "*as much as we assume that users know about the IR, we are not exactly sure about the numbers of those who are aware*". *This is because since the IRs implementation, the library has not sought feedback from users to determine their awareness levels, and perceptions about the IR.*

Chi-square tests were further computed to determine the levels of significance between faculty and postgraduate student's levels of awareness about the UNISWA IR. Table 5.50 below presents results of the chi-square test.

Table 5.50: Chi-Square Test (Awareness of the IR)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	61.263[a]	12	.000
Likelihood Ratio	64.716	12	.000
Linear-by-Linear Association	.455	1	.500
N of Valid Cases	395		

The findings as presented in Table 5.50 reveal a significant difference between faculty and postgraduate students (N=395, X^2=61.263, df=12, p=0.000) in their levels of awareness about the UNISWA IR.

Further analysis was conducted to determine IR awareness levels and by faculties of respondents. Findings are presented in figure 5.1.

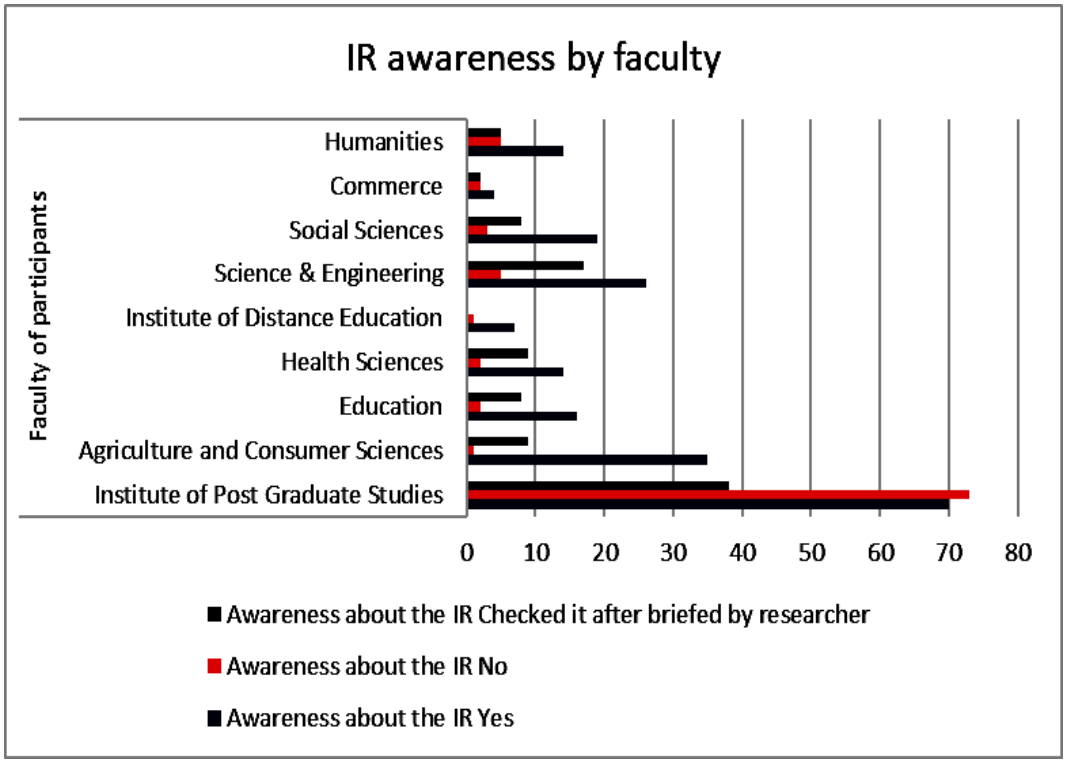

Figure 5.1: IR Awareness by Faculty (n=395) (Source: Field data, 2017)

The results revealed that 70 (34.1%) postgraduate students from the institute of postgraduate studies were aware of the UNISWA IR, while 73 (77.7%) of them were not. Faculties with the awareness levels ranging from highest to the lowest, include Agriculture and Consumer Sciences with 35 (17.1%) aware against 1 (1.1%) not aware; Science and Engineering with 26 (12.7%) aware and 5 (5.3%) not aware; Social Sciences with 19 (19.3%) aware and 3 (3.2%) not aware; Education with 16 (7.8%) aware and 2 (2.1%) not aware; Humanities with 14 (6.8%) aware and 5 (5.3%) not aware; Institute of Distance Education with 7 (3.4%) aware and 1 (1.1%) not aware; and Commerce with 4 (2.0%) aware and 2 (2.1%) not aware.

Faculty and postgraduate students were thereafter requested in question 2.2 of the survey questionnaire to indicate where they heard about the IR. Combined responses from faculty and postgraduate students are presented in Figure 5.2.

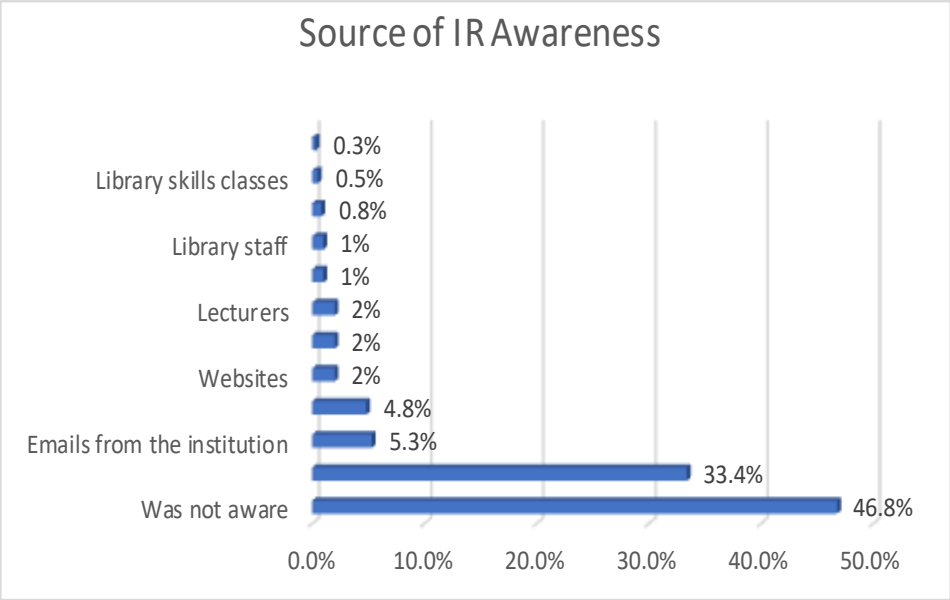

Figure 5.2: IR Awareness Sources (n=395) (Source: Field data, 2017)

As shown in figure 5.2, slightly less than half (185, 46.8%) of the respondents indicated that they were not aware of the UNISWA IR. The hike in respondents who do not know the IR is probably because some of the respondents who viewed the IR after being briefed by the researcher ticked under the section "was not aware". Several respondents (132, 33.4%) stated that they heard about the IR from colleagues. Other popular awareness strategies included emails from the institution (21, 6.3%), and seminars and workshops (19, 4.8%). The least popular awareness sources included websites (8, 2%); library committee meetings (8, 2%); informed by lecturers (8, 2%): figured it out on my own (4, 1%); library staff (4, 1%); orientation (3, 0.8%); library skills classes (2, 0.5%); and grapevine (1, 0.3%). Based on these results, it is apparent that the most popular IR awareness source is through colleagues.

To determine if respondents understood the implications of having their work archived in an institutional repository, they were requested in question 2.7 of the survey questionnaire to indicate their opinions on the benefits of the UNISWA IR. Combined responses from faculty and postgraduate students are presented from Tables 5.51 to 5.60 respectively.

Tables 5.51: Research Availability Worldwide (n=395) (Source: Field data, 2017)

Make my research available to a worldwide audience		Yes	No	Not aware of IR	Total
Teaching Assistant	Count	2	3	3	8
	% within Teaching Asst.	25.0%	37.5%	37.5%	100.0%
	% within Academic Status	2.1%	2.7%	1.6%	2.0%
Lecturer	Count	50	40	59	149
	% within lecturers	33.6%	26.8%	39.6%	100.0%
	% within Acad. Status	53.2%	35.4%	31.4%	37.7%
Senior Lecturer	Count	8	14	9	31
	% within Senior Lecturer	25.8%	45.2%	29.0%	100.0%
	% within Academic Status	8.5%	12.4%	4.8%	7.8%
Associate Professor	Count	7	6	3	16
	% within Ass. Professors	43.8%	37.5%	18.8%	100.0%
	% within Acad. Status	7.4%	5.3%	1.6%	4.1%
Professor	Count	1	7	3	11
	% within Professor	9.1%	63.6%	27.3%	100.0%
	% within Acad. Status	1.1%	6.2%	1.6%	2.8%
Total Facu.		68(72.3%)	70(62%)	77(41%)	215(54.4%)
Master's Student	Count	24.	40	105	169
	% within Masters Stu	14.2%	23.7%	62.1%	100.0%
	% within Acad. Status	25.5%	35.4%	55.9%	42.8%
PhD Students	Count	2	3	6	11
	% within PhD Students	18.2%	27.3%	54.5%	100.0%
	% within Acad. Status	2.1%	2.7%	3.2%	2.8%
Total Stu.		26(27.6%)	43(38.1%)	111(59.1%)	180(45.6%)

Tables 5.51 presents the results of cross tabulating academic status, and the benefits of using the IR. The findings show that a majority (70, 62%) of faculty disagreed that the UNISWA IR makes their research available to a worldwide audience. On the other hand, a few 43 (38.1%) postgraduate students disagreed on the issue at hand. Surprisingly, a significant 68 (72.3%) number of faculty also agreed that the IR makes their research available worldwide against only 26 (27.6%) of their counterparts who gave a similar response. The remaining respondents amongst faculty including 77 (41%) against 111 (59.1%) of their counterparts had never used the IR.

Tables 5.52: Chi-Square Test (Worlwide Availability)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	42.127[a]	12	.000
Likelihood Ratio	41.555	12	.000
Linear-by-Linear Association	16.843	1	.000
N of Valid Cases	395		

The results of the chi-square test show a significant difference between faculty and postgraduate students (N=395, X^2=42.127, df=12, p=0.000) in their views that the IR makes their research available to a worldwide audience.

Table 5.53: Research Available Faster (n=395) (Source: Field data, 2017)

Make my research available faster than the traditional publishing process		**Yes**	**No**	**Not aware of IR**	**Total**
Teaching Assistant	Count	3	2	3	8
	% within Teaching Asst.	37.5%	25.0%	37.5%	100.0%
	% within Acad. Status	3.1%	1.8%	1.6%	2.0%
Lecturer	Count	49	41	59	149
	% within lecturers	32.9%	27.5%	39.6%	100.0%
	% within Acad. Status	50.0%	37.6%	31.4%	37.7%
Senior Lecturer	Count	9	13	9	31
	% within Senior Lecturer	29.0%	41.9%	29.0%	100.0%
	% within Acad. Status	9.2%	11.9%	4.8%	7.8%
Associate Professor	Count	7	6	3	16
	% within Ass. Prof	43.8%	37.5%	18.8%	100.0%
	% within Acad. Status	7.1%	5.5%	1.6%	4.1%
Professor	Count	3	5	3	11
	% within Professor	27.3%	45.5%	27.3%	100.0%
	% within Acad. Status	3.1%	4.6%	1.6%	2.8%
Total Faculty		71(72.5%)	67(61.4%)	77(41%)	215(54.4%)
Master's Student	Count	24	40	105	169
	%within Masters Stu.	14.2%	23.7%	62.1%	100.0%
	% within Acad. Status	24.5%	36.7%	55.9%	42.8%
PhD Students	Count	3	2	6	11
	% within PhD Students	27.3%	18.2%	54.5%	100.0%
	% within Acad. Status	3.1%	1.8%	3.2%	2.8%
Total Stu.		27(27.6%0	42(38.5%)	111(59.1%)	180(45.6%)

The results as presented in Table 5.53 indicate that several (71, 72.5%) respondents amongst faculty agreed that the IR makes their research available faster than the traditional publishing process. On the contrary, an inconsiderable (27, 27.6%) number of students agreed to the same statement. Those amongst faculty who disagreed were 67 (61.4%) compared with 42 (38.5%) of their counterparts. The remaining respondents amongst faculty who included 77 (41%) against 111 (59.1%) of their counterparts were not aware of the IR.

Table 5.54: Chi-Square Test (Research Available Fast)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.943[a]	12	.000
Likelihood Ratio	36.833	12	.000
Linear-by-Linear Association	14.232	1	.000
N of Valid Cases	395		

The results of the chi-square test show a significant difference between faculty and postgraduate students (N=395, X^2=35.943, df=12, p=0.000) in their views that the UNISWA IR makes their research available faster than the traditional publishing process.

Table 5.55: Long Term Preservation (n=395) (Source: Field data, 2017)

Provide long term preservation of my digital research materials		**Yes**	**No**	**Not aware of IR**	**Total**
Teaching Asst.	Count	3	2	3	8
	% within Teaching Asst.	37.5%	25.0%	37.5%	100.0%
	% within Academic Status	2.1%	3.2%	1.6%	2.0%
Lecturer	Count	64	26	59	149
	% within lecturers	43.0%	17.4%	39.6%	100.0%
	% within Acad. Status	44.1%	41.9%	31.4%	37.7%
Senior Lecturer	Count	14	8	9	31
	% within Senior Lecturer	45.2%	25.8%	29.0%	100.0%
	% within Academic Status	9.7%	12.9%	4.8%	7.8%
Associate Professor	Count	10	3	3	16
	% within Asso. Prof	62.5%	18.8%	18.8%	100.0%
	% within Acad. Status	6.9%	4.8%	1.6%	4.1%
Professor	Count	6	2	3	11
	% within Professor	54.5%	18.2%	27.3%	100.0%
	% within Acad. Status	4.1%	3.2%	1.6%	2.8%
Total Faculty		97(66.9%)	41(66%)	77(41%)	215(54.4%)
Master's Student	Count	43	21	105	169
	% within Masters Stu.	25.4%	12.4%	62.1%	100.0%
	% within Academic Status	29.7%	33.9%	55.9%	42.8%
PhD Students	Count	5	0	6	11
	% within PhD Students	45.5%	.0%	54.5%	100.0%
	% within Academic Status	3.4%	.0%	3.2%	2.8%
Total Students		48(33.1%)	21(33.9%)	111(59.1%)	180(45.6%)

The results of the crosstabulation of academic status, and benefits of using the IR indicate that majority (97, 66.9%) of faculty as compared to 48 (33.1%) postgraduate students agreed that the IR provides long term preservation of their digital research materials. In contrast, only a few (41, 66%) amongst faculty disagreed against a minority (21, 33.9%) of postgraduate students who gave a similar response.

Table 5.56: Chi-Square Tests (Long Term Preservation)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	33.663[a]	12	.001
Likelihood Ratio	35.849	12	.000
Linear-by-Linear Association	8.749	1	.003
N of Valid Cases	395		

The results from the Chi-square test show a significant difference between faculty and postgraduate students (N=395, X^2=33.663, df=12, p=0.001) in their views that the IR provides long term preservation of their digital materials.

Table 5.57: Convenient Central Place (n=395) (Source: Field data, 2017)

Preserve research work of the university in a convenient and central place		**Yes**	**No**	**Not aware of IR**	**Total**
Teaching Assistant	Count	3	2	3	8
	% within Teaching Asst.	37.5%	25.0%	37.5%	100.0%
	% within Aca. Status	1.8%	4.7%	1.6%	2.0%
Lecturer	Count	71	19	59	149
	% within lecturers	47.7%	12.8%	39.6%	100.0%
	% within Acad. Status	43.3%	44.2%	31.4%	37.7%
Senior Lecturer	Count	18	4	9	31
	% within Senior Lecturer	58.1%	12.9%	29.0%	100.0%
	% within Aca. Status	11.0%	9.3%	4.8%	7.8%
Associate Professor	Count	11	2	3	16
	% within Ass. Prof	68.8%	12.5%	18.8%	100.0%
	% within Acad. Status	6.7%	4.7%	1.6%	4.1%
Professor	Count	5	3	3	11
	% within Professor	45.5%	27.3%	27.3%	100.0%
	% within Acad. Status	3.0%	7.0%	1.6%	2.8%
Total Faculty		108(65.8%)	30(69.9%)	77(41%)	215(54.4%)
Master's Student	Count	52	12	105	169
	% within Masters Stu	30.8%	7.1%	62.1%	100.0%
	% within Aca. Status	31.7%	27.9%	55.9%	42.8%
PhD Students	Count	4	1	6	11
	% within PhD Students	36.4%	9.1%	54.5%	100.0%
	% within Aca. Status	2.4%	2.3%	3.2%	2.8%
Total Stu		56(34.1%)	13(30.2%)	111(58.7%)	180(45.6%)

The results show that a majority (108, 65.8%) of faculty agreed that the IR preserves the work of the university in a convenient and central place, as compared to a few (56, 34.1%) postgraduate students who gave a similar response. On the other hand, those amongst faculty who disagreed on the issue at hand include only (30, 69.9%) against a negligible number (13, 30.2%) of postgraduate students. Other respondents who included 77 (41%) of faculty against 111 (59.1%) postgraduate students were not aware of the IR.

Tables 5.58: Chi-Square Test (Convenient Central Place)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	33.945[a]	12	.001
Likelihood Ratio	33.582	12	.001
Linear-by-Linear Association	9.784	1	.002
N of Valid Cases	395		

The results of the Chi-square test show a significant difference between faculty and postgraduate students (N=395, X^2=33.945, df=12, p=0.001) in their views that the IR preserves the research work of the university in a convenient and central place.

Table 5.59: Access to Current Research (n=395) (Source: Field data, 2017)

Allow me to search for most current findings of my colleagues throughout the university		**Yes**	**No**	**Not aware of IR**	**Total**
Teaching Asst.	Count % within Teaching Asst. % within Academic Status	4 50.0% 2.4%	1 12.5% 2.4%	3 37.5% 1.6%	8 100.0% 2.0%
Lecturer	Count % within lecturers % within Acad. Status	66 44.3% 39.8%	24 16.1% 58.5%	59 39.6% 31.4%	149 100.0% 37.7%
Senior Lecturer	Count % within Senior Lecturer % within Academic Status	19 61.3% 11.4%	3 9.7% 7.3%	9 29.0% 4.8%	31 100.0% 7.8%
Associate Professor	Count % within Ass. Professors % within Acad. Status	10 62.5% 6.0%	3 18.8% 7.3%	3 18.8% 1.6%	16 100.0% 4.1%
Professor	Count % within Professor % within Acad. Status	6 54.5% 3.6%	2 18.2% 4.9%	3 27.3% 1.6%	11 100.0% 2.8%
Total Faculty		105(63.2%)	33(80.4%)	77(41%)	215(54.4%)
Master's Student	Count % within Masters Students % within Academic Status	56 33.1% 33.7%	8 4.7% 19.5%	105 62.1% 55.9%	169 100.0% 42.8%
PhD Students	Count % within PhD Students % within Academic Status	5 45.5% 3.0%	0 .0% .0%	6 54.5% 3.2%	11 100.0% 2.8%
Total Stu		61(36.7%)	8(19.5%)	111(59.15)	180(45.6%)

The results presented in Table 5.59 revealed that many (105, 63.2%) amongst faculty agreed that the IR allows them to search for recent findings by their colleagues. There were also many (61, 36.7%) amongst students who agreed. On the other hand, very few (33, 80.4%) from faculty as compared to even fewer (8, 19.5%) postgraduate students disagreed on the issue at hand. Other respondents including 77 (41%) of faculty and 111 (59.1%) of their counterparts were not aware of the IR.

Tables 5.60: Chi-Square Tests (Access to Current Research)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	36.855[a]	12	.000
Likelihood Ratio	38.815	12	.000
Linear-by-Linear Association	6.691	1	.010
N of Valid Cases	395		

The results of the Chi-square test show a significant difference between faculty and postgraduate students (N=395, X^2=36.855, df=12, p=0.000) in their opinions that the UNISWA IR allows them to search for most current findings of their colleagues throughout the university.

To gain a deeper insight on IR users' levels of computer competencies and thus their likelihood of successfully utilising the IR, respondents were further asked in question 2.4 of the survey questionnaire to rate their level of skills in searching and retrieving documents from the institutional repository. Odede and Odede (2016) opine that computer skills and competency is a critical factor influencing students' abilities to successfully use online resources. Majid and Abazova (2009) argue that students with good and excellent computer skills are more likely to use online information resources than those with poor or no computer skills. The results of UNISWA IR users' levels of skills are presented in Table 5.61.

Table 5.61: Level of Skills (n=395) (Source: Field data, 2017)

User level of skill in using IR		**Not aware of IR**	**Low skill**	**Average**	**High skill**	**Total**
Teaching Assistant	Count	3	3	2	0	8
	% within T. Assistant	37.5%	37.5%	25.0%	.0%	100.0%
	% within Aca. Status	1.6%	3.7%	2.7%	.0%	2.0%
Lecturer	Count	59	43	28	19	149
	% within lecturers	39.6%	28.9%	18.8%	12.8%	100.0%
	% within Aca. Status	31.6%	52.4%	37.3%	37.3%	37.7%
Senior Lecturer	Count	9	10	7	5	31
	% within Senior Lect.	29.0%	32.3%	22.6%	16.1%	100.0%
	% within Aca. Status	4.8%	12.2%	9.3%	9.8%	7.8%
Associate Professor	Count	3	1	6	6	16
	%within Asso. Prof	18.8%	6.3%	37.5%	37.5%	100.0%
	% within Aca. Status	1.6%	1.2%	8.0%	11.8%	4.1%
Professor	Count	3	3	3	2	11
	% within Professor	27.3%	27.3%	27.3%	18.2%	100.0%
	% within Aca. Status	1.6%	3.7%	4.0%	3.9%	2.8%
Total Faculty		77(41.2%)	60(73.2%)	46(61.3%)	32 (63.2%)	215 (54.4%)
Master's Student	Count	104	20	28	17	169
	%within Master Stu.	61.5%	11.8%	16.6%	10.1%	100.0%
	%within Aca. Status	55.6%	24.4%	37.3%	33.3%	42.8%

PhD Students	Count % within PhD Stu. %within Aca. Status	6 54.5% 3.2%	2 18.2% 2.4%	1 9.1% 1.3%	2 18.2% 3.9%	11 100.0% 2.8%
Total Stu		110 (55.8%)	22(26.8%)	29(38.6%)	19 (37.2%)	180 (45.6%)

Besides those that indicated that they were not aware of the UNISWA institutional repository, majority (60, 73.2%) of faculty stated that their levels of skills were low against few (22, 26.8%) postgraduate students who gave a similar response. On the other hand, 46 (61.3%) amongst faculty compared to less than half (29, 26.8%) of their counterparts stated that their levels of skills in searching and retrieving documents from the IR were average. The lowest number of respondents who included 32 (63.2%) among faculty against even fewer (19, 37.2%) postgraduate students regarded their computer skills as high.

Table 5.62: Chi-Square Test (Level of Skills)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	46.446[a]	18	.000
Likelihood Ratio	46.006	18	.000
Linear-by-Linear Association	2.571	1	.109
N of Valid Cases	395		

The results from the chi-square test indicate a significant difference between faculty and postgraduate students (N=395, X^2=46.446, df=18, p=0.000) in their levels of skills in searching and retrieving documents from the UNISWA institutional repository.

Faculty and postgraduate students were further requested in section 2.5 of the survey questionnaire to indicate if they needed to be trained on how to use the UNISWA institutional repository effectively. Results are presented in Table 5.63.

Table 5.63: User Training Needs (n=395) (Source: Field data, 2017)

Do you need training on how to use the IR?		**Yes**	**No**	**Not aware of IR**	**Total**
Teaching Assistant	Count % within Teaching Asst. % within Acad. Status	5 62.5% 3.4%	0 .0% .0%	3 37.5% 1.6%	8 100.0% 2.0%
Lecturer	Count % within lecturers % within Acad. Status	66 44.3% 45.2%	24 16.1% 40.0%	59 39.6% 31.2%	149 100.0% 37.7%
Senior Lecturer	Count % within Senior Lecturer % within Acad. Status	13 41.9% 8.9%	9 29.0% 15.0%	9 29.0% 4.8%	31 100.0% 7.8%
Associate Professor	Count % within Ass. Prof	6 37.5%	7 43.8%	3 18.8%	16 100.0%

	% within Acad. Status	4.1%	11.7%	1.6%	4.1%
Professor	Count	5	3	3	11
	% within Prof	45.5%	27.3%	27.3%	100.0%
	% within Acad. Status	3.4%	5.0%	1.6%	2.8%
Total Faculty		95(65%)	43(71.7%)	77(40.8%)	215(54.4%)
Master's Student	Count	47	16	106	169
	%within Masters. Stu.	27.8%	9.5%	62.7%	100.0%
	% within Acad. Sta.	32.2%	26.7%	56.1%	42.8%
PhD Students	Count	4	1	6	11
	% within PhD Stu	36.4%	9.1%	54.5%	100.0%
	% within Acad. Sta.	2.7%	1.7%	3.2%	2.8%
Total Stu.		51(34.9%)	17(28.4%)	112(59.3%)	180(45.6%)

As presented in Table 5.63, a substantial (95, 65%) number of faculty agreed that they needed training on how to use the UNISWA IR compared to slightly more than half (51, 34.9%) of postgraduate students who also required to be trained. In contrast, very few (43, 71.7%) amongst faculty against a negligible number (17, 28.4%) of postgraduate students declined the need to be trained. The remaining respondents are those who were not aware of the IR.

Table 5.64: Chi-Square Tests (User Training Needs)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	42.917[a]	12	.000
Likelihood Ratio	41.610	12	.000
Linear-by-Linear Association	11.121	1	.001
N of Valid Cases	395		

The results of the chi-square test as presented in Table 5.64 show a significant difference between faculty and postgraduate students (N=395, X^2=42,917, df=12, p=0.000) in their need to be trained on how to effectively utilise the UNISWA institutional repository.

The researcher thereafter asked respondents in section 2.6 of the survey questionnaire to indicate if UNISWA library currently provides enough training on the use of the institutional repository. Their responses are shown in Table 5.65.

Table 5.65: Adequacy of Training (n=395) (Source: Field data, 2017)

ADEQUACY OF TRAINING: Does the library provide adequate training on IR usage?		**Never used IR**	**Disagree**	**Neutral**	**Agree**	**Total**
Teaching Assistant	Count	3	3	2	0	8
	% within T. Asst.	37.5%	37.5%	25.0%	.0%	100.0%
	% within Aca. Status	1.6%	2.6%	3.3%	.0%	2.0%
Lecturer	Count	59	46	28	16	149
	% within lecturers	39.6%	30.9%	18.8%	10.7%	100.0%
	% within Acad. Status	31.4%	40.0%	46.7%	50.0%	37.7%
Senior Lecturer	Count	9	11	6	5	31
	% within S. Lecturer	29.0%	35.5%	19.4%	16.1%	100.0%
	% within Aca. Status	4.8%	9.6%	10.0%	15.6%	7.8%
Associate Professor	Count	3	4	8	1	16
	% within Asso. Prof	18.8%	25.0%	50.0%	6.3%	100.0%
	% within Aca. Status	1.6%	3.5%	13.3%	3.1%	4.1%
Professor	Count	3	5	2	1	11
	% within Professor	27.3%	45.5%	18.2%	9.1%	100.0%
	% within Acad. Status	1.6%	4.3%	3.3%	3.1%	2.8%
Total Faculty		77(41%)	69(60%)	46(76.6%)	23(71.8%)	215 (54.4%)
Master's Student	Count	105	43	13	8	169
	% within Masters Stu.	62.1%	25.4%	7.7%	4.7%	100.0%
	% within Acad. Status	55.9%	37.4%	21.7%	25.0%	42.8%
PhD Students	Count	6	3	1	1	11
	% within PhD Stu	54.5%	27.3%	9.1%	9.1%	100.0%
	% within Acad. Status	3.2%	2.6%	1.7%	3.1%	2.8%
Total Stu.		111 (59.1%)	46(40%)	14(23.4%)	9(28.1%)	180 (45.6%)

The results presented in Table 5.65 revealed that majority 69 (60%) of faculty disagreed that the library provides adequate training on the IRs usage against few (46, 40%) postgraduate students who also disagreed. On the other hand, very few (23, 71.8%) of faculty against even fewer (9, 28.1%) postgraduate students agreed that the UNISWA IR training is adequate. Other respondents amongst faculty who included 46 (76.6%) against less than half of their counterparts (14, 23.4%) neither agreed nor disagreed on the issue at hand. The remaining respondents are those that had never used the IR.

Table 5.66: Chi-Square Test (Adequacy of Training)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	46.802[a]	18	.000
Likelihood Ratio	44.290	18	.001
Linear-by-Linear Association	12.474	1	.000
N of Valid Cases	395		

The results of the Chi-square test show that there is a significant difference between faculty and postgraduate students (N=395, X^2=46.802, df=18, p=0.000) in their opinions on the adequacy of training provided by the UNISWA library on the IRs usage.

To determine UNISWA respondents' IR usage trends, they were asked in section 3.11 of the survey questionnaire to indicate if they ever used any IRs from other institutions across the world. Most respondents gave negative responses to this question. Combined responses from faculty and postgraduate students are presented in Figure 5.3 below.

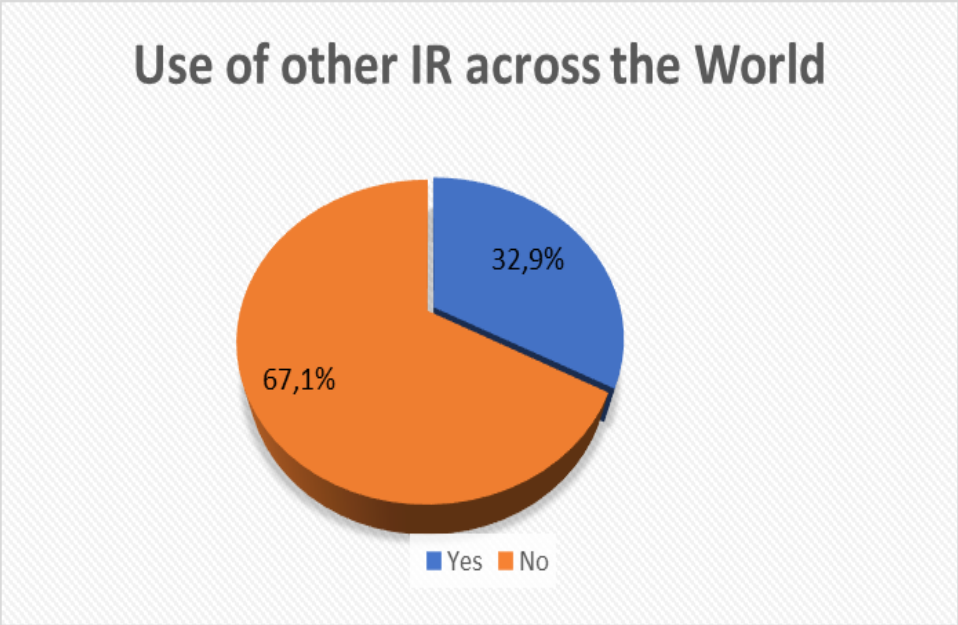

Figure 5.3: Use of IRs World Over (n=395) (Source: Field data, 2017)

As displayed in figure 5.3 most (265, 67.1%) respondents indicated that they had never used repositories from other institutions across the world. On the other hand, only 130 (32.9%) of faculty and postgraduate students stated that they had used other IRs. Those amongst respondents who agreed that they have prior experience with IRs were further probed to determine their reasons for using the IRs. Their responses are summarised in Table 5.67.

Table 5.67: Reasons for IRs Usage (n=395) (Source: Field data, 2017)

Reasons for using IRs from across the World	Frequency	Percentage (%)
I have never used any other IR	265	67.1
Research Purposes	117	29.6
Was required to submit my work/thesis in the IR	11	2.8
Tracking my published work	2	0.5
Total	395	100

As presented in Table 5.67, a substantial number (265, 67.1%) of the respondents stated that they never used IRs from other institutions world over. Several (117, 29.6%) respondents had used the IRs for research purposes. Only 11 (2.8%) respondents stated that they used the IRs, as they were required by their departments to submit their thesis/dissertations to fulfil graduation requirements. Very few (2, 0.5%) respondents stated that they used other IRs to track their work especially where they had collaborated with authors from those institutions.

To ascertain further the usage of UNISWA's institutional repository by the faculty and postgraduate students, respondents were requested in question 3.1 of the survey questionnaire to indicate how often they accessed and used the local IR. Combined responses from faculty and postgraduate students are presented in Figure 5.4 below.

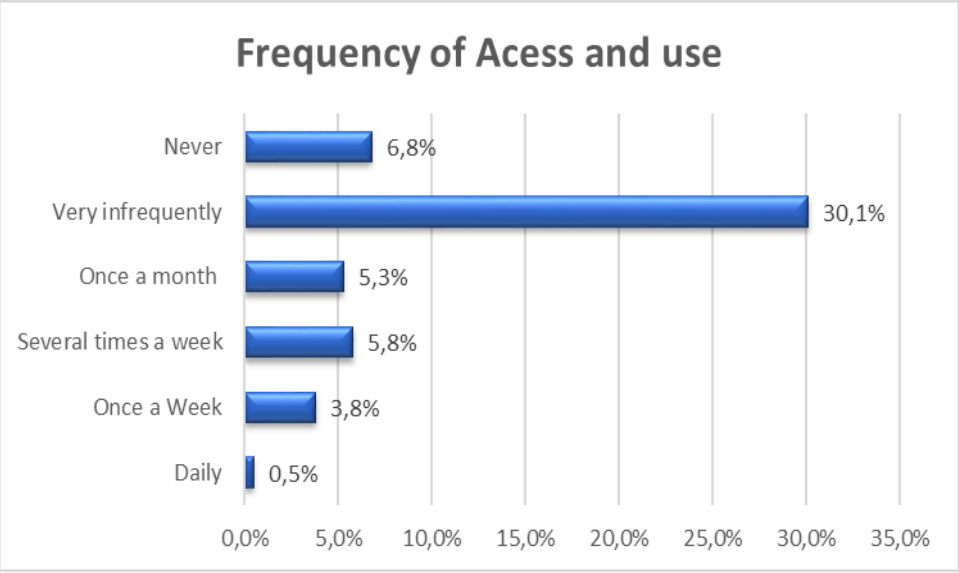

Figure 5.4: frequency of Access and Use of IRs (n=395) (Source: Field data, 2017)

As presented in Figure 5.4, most (215, 54.4%) of the respondents indicated that they do not use the IR. These were followed by (119, 30.1%) of faculty and postgraduate students who indicated that they infrequently access the IR. Others pointed out that they use the IR several times a week (23, 5.8%); once a month (21, 5.3%); and once a week (15, 3.8%). Very few (2, 0.5%) amongst faculty and students stated that they used the IR on daily basis.

The findings presented in Figure 5.4 are bolstered by librarian's responses to question 26 of the interview schedule, where librarians were requested to indicate the most frequent users of the IR. Librarian #2 said, *"I am not sure; I assume it is academic staff".* Librarians #1, 3, 4, and 5 on the other hand, stated that the IR is mostly used by postgraduate students but they were not sure about their frequency of usage. Librarian #1 added that, based on the IRs log views, students download dissertations from the IR. Before the establishment of the IR, dissertations were only available through the special collections department, where they were loaned to students for only a few (2) hours. Librarian #1 stated that:

> *"I think students like the idea that they are no longer limited but can download as many dissertations as they want from the IR, and use them independently after downloading. Now before requesting for print dissertation from the library, they check from the library's online catalogue or the IR if the thesis they want is available online or not."*

The researcher further requested respondents to justify their frequent, infrequent, and no usage of the UNISWA IR. Figure 5.5 presents combined responses from faculty and students.

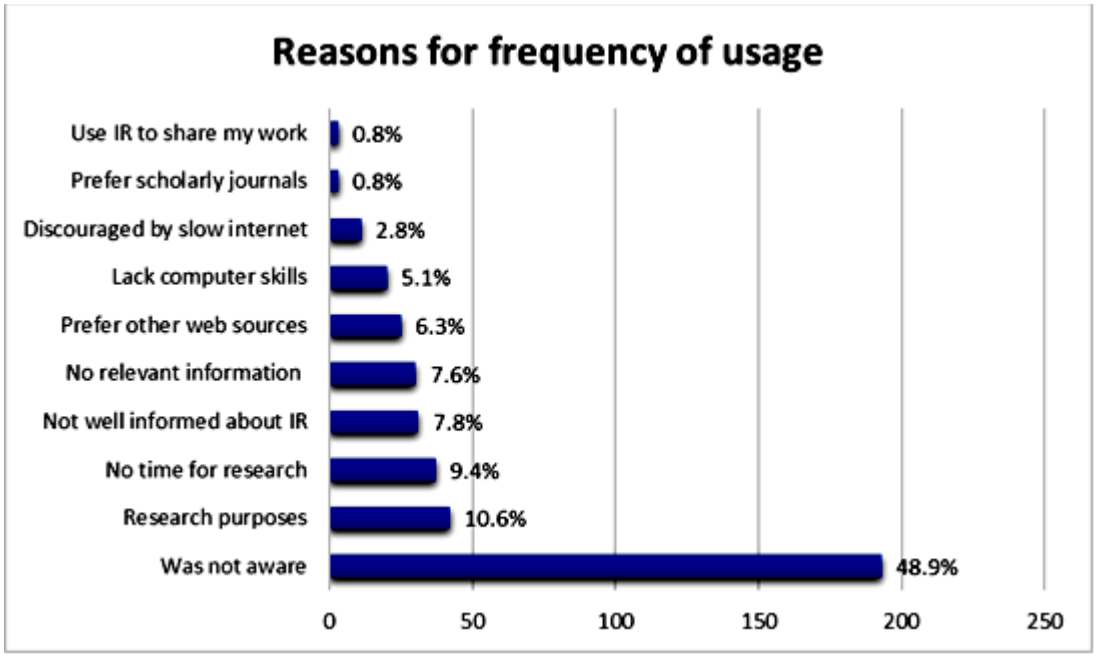

Figure 5.5: Reasons for Frequency of Usage (n=395) (Source: Field data, 2017)

As presented in Figure 5.5, most (193, 48.9%) respondents indicated that their reasons for less or non-usage of the IR is lack of awareness. Other respondents cited reasons for less usage including: no time for research due to workload, (42, 10.6%); not well informed about the IR (31, 7.8%); no relevant information for my research area (30, 7.6%); preference for other web sources (25, 6.3%); lack of skills for searching the IR (20, 5.1%); discouraged from using the IR by slow internet (11, 2.8%); and preference for reputable journals (3, 0.8%). Other respondents indicated that they frequently use the IR for research purposes (42, 10.6%); and to share their research with their peers (3, 0.8%).

Respondents were further asked in section 3.5 of the survey questionnaire to indicate how frequently they submitted their research to the UNISWA IR. Their responses are presented in figure 5.6.

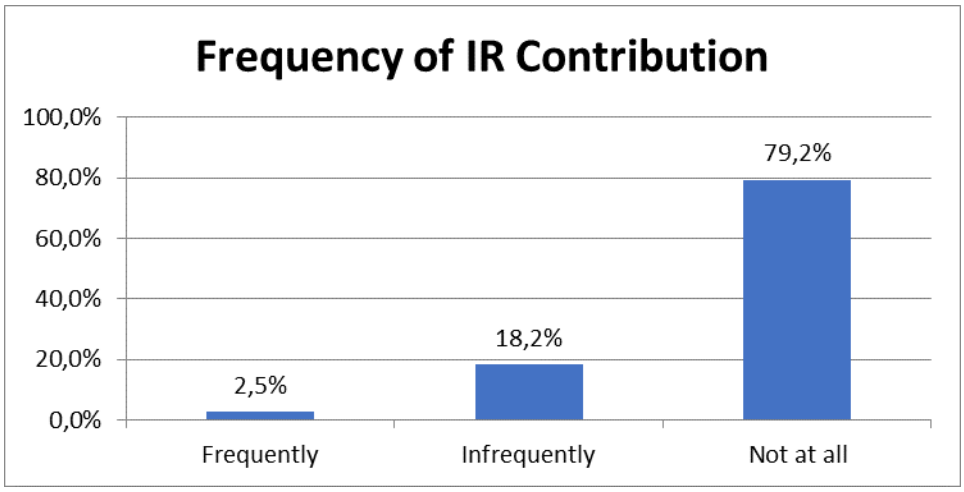

Figure 5.6: Frequency of IR Contributions (n=395) (Source: Field data, 2017)

As shown in figure 5.6, many (313, 79.2%) respondents amongst faculty and postgraduate students stated that they do not contribute their work to the UNISWA IR. Others (72, 18.2%) pointed out that they infrequently contribute. Only 10 (2.5%) respondents indicated that they frequently contribute their research to UNISWA's institutional repository. Based on the findings one can conclude that even though many respondents especially amongst faculty indicated in previous sections (see Table 5.49) that they were aware of the UNISWA IR, very few of these users contribute their content to the IR.

Respondents were thereafter requested in section 3.6 of the survey questionnaire to justify the reasons for their frequency of contribution to the IR. Combined responses from faculty and post-graduate students are summarised and presented in Table 5.68 below.

Table 5.68: Reasons for Frequency of IR Contributions (n=395) (Source: Field data, 2017)

Reasons	Frequencies	Percentage %
Not aware of the IR	104	26.3
I do not have enough publications	119	30.1
Willing to use, but not well informed	55	13.9
No time for research/ hectic work schedule	37	9.4
IRs promote easy access to works by colleagues	13	3.3
I prefer scholarly journals	12	3.0
I lack skills for using the IR	12	3.0
No one asked for my publications	9	2.3
Discouraged from using the IR by slow internet	9	2.3
I have not considered contributing my work	8	2.0
Copyright for my work belongs to publishers	6	1.5
I don't find the UNISWA IR useful	4	1.0
I am not sure if the IR is properly managed	2	0.5
IR submissions are not mandatory	2	0.5

No option to upload my own work	2	0.5
I contribute research findings to my department	1	0.3
Total	**395**	**100**

The results in Table 5.68 show that less than half (104, 26.3%) of the respondents indicated that they did not contribute their work because they were not aware of the IR. Other respondents pointed out that they did not have enough publications (119, 30.1%); not well informed about the IR (55, 13.9); and that they have no time for research due to heavy work load (37, 9.4%). Others cited reasons including: preference for scholarly journals (12, 3.0%); lack of skills (12, 3.0); no one asked for my publications (9, 2.3%); discouraged from using IR by slow internet (9, 2.3%); I have not considered sharing my work in an IR (8, 2.0%); and I do not own the copyright for my work (6, 1.5%). Very few amongst respondents cited reasons including: I do not find the UNISWA IR useful (4, 1.0%); I am not sure if the IR is properly managed (2, 0.5%); IR submissions are not mandatory (2, 0.5%); IR does not offer options for users to upload their work (2, 0.5%), and I contribute my research findings to my own department (1, 0.3%). Other respondents (13, 3.3%) indicated that they contribute their work to the IR for easy access by other colleagues doing research.

Faculty and postgraduate students were further asked in section 3.8 of the survey questionnaire to indicate if they preferred directly depositing their documents to the UNISWA IR or submitting through librarians. Their responses are presented in Figure 5.7.

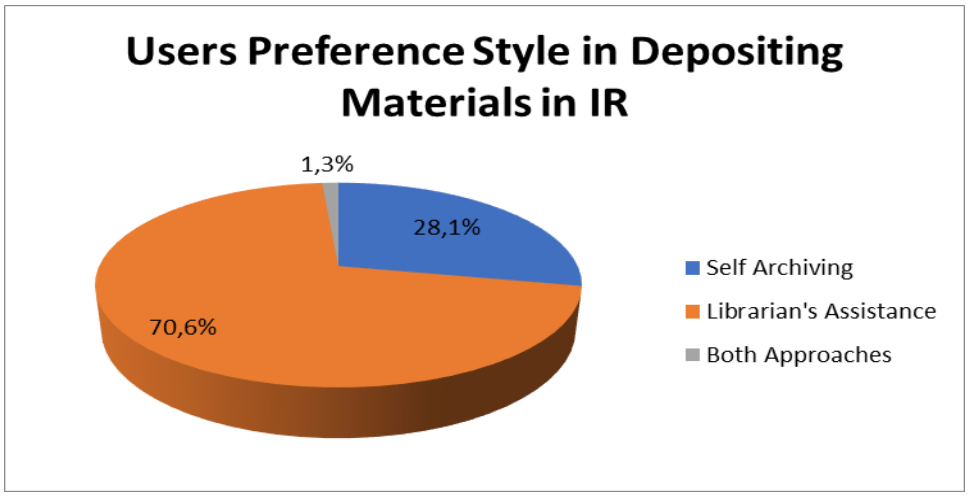

Figure 5.7: Users Preferred IR Submission Style (n=395) (Source: Field data, 2017)

As shown in figure 5.7, majority (279, 70.6%) of faculty and postgraduate students pointed out that they preferred submitting their research to librarians who can then archive the work on their behalf. On the other hand, other respondents (111, 28.1%) indicated that they preferred submitting work on their own. Only a few (5, 1.3%) respondents amongst faculty and postgraduate students indicated that they prefer having both options available.

Faculty and postgraduate students were further requested in question 3.8 of the survey questionnaire to justify reasons for their preferred IR submission option. Table 5.69 below shows their responses.

Table 5.69: Reasons for Specific Archiving Preference (n=395) (Source: Field data, 2017)

Reasons	**Freq**	**%**
Librarians have the required expertise	153	38.7
No Technical skills/Need training	75	19
Doing it on my own is more convenient	49	12.4
No time to do it myself	38	9.6
Doing it myself will enable me to understand the IRs system	37	9.4
I have technical know-how and can do it myself	20	5.1
To ensure that no information is lost	14	3.5
Combining both would make work easier and faster	4	1
I don't trust anyone with my scholarly articles	2	0.5
Was not aware of IR	2	0.5
To ensure copyright laws are not violated	1	0.3
Total	395	100

Table 5.69 shows that most (153, 38.7%) of the surveyed respondents stated that they preferred having their documents archived by librarians since they have the required expertise. Many other respondents stated reasons including: the lack of technical skills, (75, 19%); doing it on my own is more convenient (49, 12.4%); I have no time to do it myself (38, 9.6%); doing it myself would enable me to understand the UNISWA IR system (37, 9.4%); I have the technical skills, so I can do it on my own (20, 5.1%); and librarians can ensure that no information is lost and effectively classify my work (14, 3.5%). Very few amongst respondents indicated that: combining both options would make their submission process easier and faster (4, 1%); I do not trust anyone with my scholarly work (2, 0.5%); and lastly, if I do it myself I could ensure that copyright laws are not violated.

5.7 Challenges in the Use of the IR

This section addresses the research question: *What are the challenges of service quality facing faculty and postgraduate students in the use of UNISWA IR?*

To determine these challenges, respondents were requested in question 3.3 of the survey questionnaire to rate specific service quality factors in terms of their likelihood of being barriers limiting the use of the UNISWA institutional repository. Crosstabulations and Chi-square (X^2) tests were computed to determine the association between academic status, and barriers limiting the use of the UNISWA IR. Findings are presented from Tables 5.70 to 5.75 respectively.

Tables 5.70: Cross Tabulation of Academic Status and Slow Internet Connection (n=395)

BARRIER TO USING IR Slow Internet Connection		**Not likely**	**Somewhat likely**	**Very likely**	**Total**
Teaching Assistant	Count	1	2	5	8
	% within Teaching Asst.	12.5%	25.0%	62.5%	100.0%
	% within Acad. Status	2.2%	3.3%	1.7%	2.0%
Lecturer	Count	18	26	105	149
	% within lecturers	12.1%	17.4%	70.5%	100.0%
	% within Acad. Status	40.0%	42.6%	36.3%	37.7%
Senior Lecturer	Count	3	3	25	31
	% within Senior Lecturer	9.7%	9.7%	80.6%	100.0%
	% within Acad. Status	6.7%	4.9%	8.7%	7.8%
Associate Professor	Count	1	2	13	16
	% within Ass. Prof	6.3%	12.5%	81.3%	100.0%
	% within Acad. Status	2.2%	3.3%	4.5%	4.1%
Professor	Count	3	0	8	11
	% within Professor	27.3%	.0%	72.7%	100.0%
	% within Acad. Status	6.7%	.0%	2.8%	2.8%
Total facu.		26 (57.8%)	33 (54.1%)	156 (54%)	215 (54.4%)
Master's Student	Count	17	26	126	169
	% within Masters Stu.	10.1%	15.4%	74.6%	100.0%
	% within Acad. Status	37.8%	42.6%	43.6%	42.8%
PhD Students	Count	2	2	7	11
	% within PhD Students	18.2%	18.2%	63.6%	100.0%
	% within Acad. Status	4.4%	3.3%	2.4%	2.8%
Total Stu.		19(42.2%)	28 (45.9%)	133(46%)	180(45.6%)

(Source: Field data, 2017)

Table 5.70 presents the results of the crosstabulation of academic status, and slow internet connection. The results show that a majority (156, 54%) of faculty indicated that slow internet connection is very likely to inhibit them from using the IR, as against many (133, 46%) postgraduate students who gave a similar response. Faculty who indicated that slow internet connection is not likely to affect them were 26 (57.1%) as compared to 19 (42.2%) of their counterparts. The remaining 33 (54.1%) of faculty against 28 (45.9%) postgraduate

students were undecided on the issue at hand. These results clearly show that slow internet connection is regarded as problematic by both groups of UNISWA respondents, and is thus more likely to be an impediment in the use and adoption of the IR.

Table 5.71: Chi-Square Test (Slow Internet Connection)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.871[a]	12	.795
Likelihood Ratio	8.914	12	.710
Linear-by-Linear Association	.072	1	.789
N of Valid Cases	395		

The results of the Chi-square test show that there is no significant difference between faculty and postgraduate students (N=395, X^2 =7.871, df=12, p=0.795) in their rating of "slow internet connection" as a barrier limiting use of the IR.

To strengthen the findings presented in Tables 5.71, librarians were requested in question 27 of the interview schedule to comment on challenges they come across in their endeavours to enhance the use of the UNISWA IR. On a similar note, librarians raised the issue of slow internet, and argued that it indeed is an impediment to the effective provision of electronic library services including the IR. One of the interviewed respondents (librarian#1) stated that:

> *"When using an online resource, users basically expect the download time to be quick, the site to be available at all times, and to be able to independently use that resource. Once these factors are met, users are more likely to continue using that resource. This is a challenge with UNISWA b*ecause mos*t of the time the speed of our internet is horrible. This affects not just the usage of the IR but also its marketing. Even if we may want to market the IR through virtual platforms, this would take us forever to accomplish due to our problematic internet, and the fact that some users hate using online platforms. Some staff members often complain that how are they supposed to effectively use the IR and any other electronic resources when the internet is either too slow or not available at all?"*

Table 5.72: Cross Tabulation of Academic Status and Lack of Computer Access (n=395)

BARRIER TO USING IR Lack of Computer Access		Not likely	Somewhat likely	Very likely	Total
Teaching Assistant	Count	4	3	1	8
	% within Teaching Asst.	50.0%	37.5%	12.5%	100.0%
	% within Academic Status	2.5%	2.5%	.8%	2.0%
Lecturer	Count	77	41	31	149
	% within lecturers	51.7%	27.5%	20.8%	100.0%
	% within Acad. Status	48.7%	34.7%	26.1%	37.7%
Senior Lecturer	Count	16	12	3	31
	% within Senior Lecturer	51.6%	38.7%	9.7%	100.0%
	% within Academic Status	10.1%	10.2%	2.5%	7.8%
Associate Professor	Count	11	1	4	16
	% within Ass. Professors	68.8%	6.3%	25.0%	100.0%
	% within Acad. Status	7.0%	.8%	3.4%	4.1%
Professor	Count	7	4	0	11
	% within Professor	63.6%	36.4%	.0%	100.0%
	% within Acad. Status	4.4%	3.4%	.0%	2.8%
Total Faculty		115(72.7%)	61(51.6%)	39(32.8%)	215(54.4%)
Master's Student	Count	39	52	78	169
	% within Masters Students	23.1%	30.8%	46.2%	100.0%
	% within Academic Status	24.7%	44.1%	65.5%	42.8%
PhD Students	Count	4	5	2	11
	% within PhD Students	36.4%	45.5%	18.2%	100.0%
	% within Academic Status	2.5%	4.2%	1.7%	2.8%
Total Student		43(27.2%)	57(48.3%)	80(67.2%)	180(45.6%)

(Source: Field data, 2017)

Table 5.72 presents results from the crosstabulation of academic status, and lack of computer access as a barrier that might inhibit the use of UNISWA's institutional repository by faculty and postgraduate students. As shown in Table 5.72, majority (115, 72.7%) of faculty indicated that lack of computer access was not likely stop them from accessing the IR, as against (43, 27.2%) students who gave a similar response. On the other hand,39 (32.8%) of faculty, against 80 (67.2%) postgraduate students, stated that lack of computer access is very likely to inhibit them from using the IR. Those that were non-committal on the issue at hand included (61, 51.6%) of faculty against (57, 48.3%) postgraduate students. The findings indicate that UNISWA faculty is less likely to be affected by the lack of computer access whereas students are very likely to be affected. This is probably because faculty have personal computers in their offices, while most students rely on computers from shared university and library computer labs while on campus.

Table 5.73: Chi-Square Test (Lack of Computer Access)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	56.440[a]	12	.000
Likelihood Ratio	62.205	12	.000
Linear-by-Linear Association	19.779	1	.000
N of Valid Cases	395		

The results of the Chi-square test show a significant difference between faculty and postgraduate students (N=395, X^2=56.440, df=12, p=0.000) in their rating of "lack of computer access" as a barrier inhibiting users from accessing the IR.

Table 5.74: Cross Tabulation of Academic Status and Lack of Skills for Accessing the IR (n=395)

BARRIER TO USING IR Lack of skill for accessing IR		Not likely	Somewhat likely	Very likely	Total
Teaching Asst.	Count	2	2	4	8
	% within Teaching Asst.	25.0%	25.0%	50.0%	100.0%
	% within Academic Status	1.7%	1.8%	2.4%	2.0%
Lecturer	Count	49	46	54	149
	% within lecturers	32.9%	30.9%	36.2%	100.0%
	% within Acad. Status	42.6%	41.1%	32.1%	37.7%
Senior Lecturer	Count	12	9	10	31
	% within Senior Lecturer	38.7%	29.0%	32.3%	100.0%
	% within Academic Status	10.4%	8.0%	6.0%	7.8%
Associate Professor	Count	11	3	2	16
	% within Ass. Professors	68.8%	18.8%	12.5%	100.0%
	% within Academic Status	9.6%	2.7%	1.2%	4.1%
Professor	Count	5	3	3	11
	% within Professor	45.5%	27.3%	27.3%	100.0%
	% within Academic Status	4.3%	2.7%	1.8%	2.8%
Total Faculty		79(68.6%)	63(56.3%)	73(43.5%)	215(54.4%)
Master's Student	Count	34	43	92	169
	% within Masters Students	20.1%	25.4%	54.4%	100.0%
	% within Academic Status	29.6%	38.4%	54.8%	42.8%
PhD Students	Count	2	6	3	11
	% within PhD Students	18.2%	54.5%	27.3%	100.0%
	% within Academic Status	1.7%	5.4%	1.8%	2.8%
Total Students		36(31.3%)	49(43.8%)	95(56.6%)	180(45.6%)

(Source: Field data, 2017)

When asked if lack of skills is a challenge that would prevent them from using the IR, majority (79, 68.6%) of faculty as against only 36 (31.3%) of postgraduate students indicated that they were not likely to be inhibited by lack of skills from accessing the IR. Surprisingly a substantial number (73, 43.5%) of faculty also indicated that lack of skills is very likely to be a barrier, as against many (95, 56.6%) of their counterparts who gave a similar response. The remaining 63 (56.3%) of faculty against 49 (43.8%) of their

counterparts were undecided. The findings therefore, glaringly show that "lack of skills" inhibits UNISWA users, particularly postgraduate students from using the IR. These results are in-line with those presented in Table 5.103 where a number of postgraduate students indicated that their levels of skills ranged from low to average.

Table 5.75: Chi-Square Test (Lack of Skills)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	33.098[a]	12	.001
Likelihood Ratio	31.744	12	.002
Linear-by-Linear Association	4.841	1	.028
N of Valid Cases	395		

The results of the Chi-square test show that there is a significant difference between faculty and postgraduate students (N=395, X^2=33.098, df=12, p=0.001) in their rating of "lack of skills for accessing the IR" as a barrier inhibiting them from using the UNISWA IR.

The findings presented in Table 5.74 are confirmed by interview responses from librarians who also pointed out that "lack of skills" inhibits library users from effectively using electronic resources including the IR. Librarian #1 stated that:

> "*Some postgraduate students left the institution a long time after completing their undergraduate program. This was before the university introduced computers and computer foundation courses. Most of these postgraduate student's computer skills are therefore either rusty or not existing. Such students are more likely to get lost while trying to understand and navigate the UNISWA IR and any other electronic resource".*
>
> Librarian #3 further stated that, *"Some students and faculty do not use electronic resources electronic resources at all, and rely on print materials for their research needs. This is because they lack skills for accessing electronic resources. With regards to students, this problem is fuelled by the fact that library skills classes are offered to them only during their first year of study which might be a bit early because by this time they are still new to the university and don't understand the importance of using library resources for research purposes. Continuously offering library skills classes alongside research methods classes for all students would help them acquire the skills needed to effectively search for resources, and to navigate the IR or any other online databases".*

Table 5.76: Crosstabulation of Academic Status and Lack of Awareness (n=395)

BARRIER TO USING IR Lack of awareness		Not likely	Somewhat likely	Very likely	Total
Teaching Assistant	Count	1	2	5	8
	% within Teaching Asst.	12.5%	25.0%	62.5%	100.0%
	% within Academic Status	1.4%	2.1%	2.2%	2.0%
Lecturer	Count	23	40	86	149
	% within lecturers	15.4%	26.8%	57.7%	100.0%
	% within Acad. Status	33.3%	42.6%	37.1%	37.7%
Senior Lecturer	Count	10	6	15	31
	% within Senior Lecturer	32.3%	19.4%	48.4%	100.0%
	% within Academic Status	14.5%	6.4%	6.5%	7.8%
Associate Professor	Count	6	6	4	16
	% within Ass. Professors	37.5%	37.5%	25.0%	100.0%
	% within Acad. Status	8.7%	6.4%	1.7%	4.1%
Professor	Count	3	3	5	11
	% within Professor	27.3%	27.3%	45.5%	100.0%
	% within Acad. Status	4.3%	3.2%	2.2%	2.8%
Total Faculty		43(62.2%)	57(60.7%)	115(49.7%)	215(54.4%)
Master's Student	Count	25	33	111	169
	% within Masters Students	14.8%	19.5%	65.7%	100.0%
	% within Academic Status	36.2%	35.1%	47.8%	42.8%
PhD Students	Count	1	4	6	11
	% within PhD Students	9.1%	36.4%	54.5%	100.0%
	% within Academic Status	1.4%	4.3%	2.6%	2.8%
Total Students		26(37.6%)	37(39.4%)	117(50.4%)	180(45.6%)

(Source: Field data, 2017)

Table 5.76 shows findings from cross tabulating academic status and lack of awareness as a challenge that would prevent respondents from using the IR. Table 5.76 shows that a majority (117, 50.4%) of students against a bulk (115, 49.7%) of faculty think lack of awareness is very likely to be a barrier affecting their use of the IR. On the other hand, only a few (26, 37.6%) of postgraduate students against 43 (62.2%) of faculty stated that lack of awareness is not likely to inhibit their use of the IR. Those that were non-committal on the issue at hand were 37 (39.4%) of postgraduate students as compared to 57 (60.7%) of their counterparts. These findings therefore clearly indicate that awareness is a major issue affecting majority of both groups of respondents. Even though many amongst faculty indicated earlier on (see Table 5.49) that they were aware of the UNISWA IR, the results presented in Table 5.76 reveal that lack of awareness is likely to be a challenge in the IRs usage.

Table 5.77: Chi-Square Test (Lack of Awareness)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.411[a]	12	.079
Likelihood Ratio	18.440	12	.103
Linear-by-Linear Association	.260	1	.610
N of Valid Cases	395		

The results of the chi-square test show that there is no significant difference between faculty and students (N=395, X^2=19.411, df=12, p=0.079) in their rating of "lack of awareness" as a barrier limiting the use of the UNISWA IR.

Table 5.78: Crosstabulation of Academic Status and Fear of Copyright Violation (n=395)

BARRIER TO USING IR Fear of Copyright Violation		**Not likely**	**Somewhat likely**	**Very likely**	**Total**
Teaching Assistant	Count	6	1	1	8
	% within Teaching Asst.	75.0%	12.5%	12.5%	100.0%
	% within Academic Status	2.8%	1.0%	1.3%	2.0%
Lecturer	Count	97	31	21	149
	% within lecturers	65.1%	20.8%	14.1%	100.0%
	% within Acad. Status	45.3%	30.7%	26.3%	37.7%
Senior Lecturer	Count	24	4	3	31
	% within Senior Lecturer	77.4%	12.9%	9.7%	100.0%
	% within Academic Status	11.2%	4.0%	3.8%	7.8%
Associate Professor	Count	14	1	1	16
	% within Ass. Professors	87.5%	6.3%	6.3%	100.0%
	% within Acad. Status	6.5%	1.0%	1.3%	4.1%
Professor	Count	10	1	0	11
	% within Professor	90.9%	9.1%	.0%	100.0%
	% within Acad. Status	4.7%	1.0%	.0%	2.8%
Total faculty		151(70.5%)	38(37.7%)	26(32.7%)	215(54.4%)
Master's Student	Count	55	63	51	169
	% within Masters Students	32.5%	37.3%	30.2%	100.0%
	% within Academic Status	25.7%	62.4%	63.8%	42.8%
PhD Students	Count	8	0	3	11
	% within PhD Students	72.7%	.0%	27.3%	100.0%
	% within Academic Status	3.7%	.0%	3.8%	2.8%
Total Students		63(29.4%)	63(62.4%)	54(67.6%)	180(45.6%)

(Source: Field data, 2017)

The results of the crosstabulation of academic status and fear of copyright violations show that a majority (151, 70.5%) of faculty compared to 63 (29.4%) of their counterparts indicated that the fear of copyright infringements is not likely to limit their use of the IR. Those who were very likely to be affected by this issue include only 26 (32.7%) of faculty against 54 (67.6%) postgraduate students. Other respondents including 38 (37.7%) of

faculty against 63 (62.4%) postgraduate students were neither not likely nor very likely to be affected by the fear of copyright violations. Based on the results, one can conclude that a majority of UNISWA respondents are not likely to be affected by the fear of copyright violations from using the IR.

Table 5.79: Chi-Square Test (Copyright Violation)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	64.511[a]	12	.000
Likelihood Ratio	71.510	12	.000
Linear-by-Linear Association	16.440	1	.000
N of Valid Cases	395		

The results of the Chi-square test indicate that there is a significant difference between faculty and postgraduate students (N=395, X^2=64.511, df=12, p=0.000) in their rating of "fear of copyright violations" as a barrier limiting the use of IR.

Contrary to the findings presented in Table 5.78, librarian #1 argued, "*the issue of copyrights has been a challenge affecting the acquisition of content from faculty. This is because that some vendors do not allow the inclusion of their published materials in IRs. Those who do have a list of requirements to be met before their work can be archived in that IR. These include amongst others changing the format of the document to ensure that it becomes different from the publishers' final version. This would be too much work for faculty who are already complaining about their hectic work load. To combat these challenges, the library needs to hire a librarian who will be specifically responsible for the IR".*

Table 5.80: Crosstabulation of Academic Status and No Time to Access the IR (n=395)

BARRIER TO USING IR No Time to access the IR		**Not likely**	**Somewhat likely**	**Very likely**	**Total**
Teaching Assistant	Count	4	2	2	8
	% within Teaching Asst.	50.0%	25.0%	25.0%	100.0%
	% within Academic Status	3.5%	1.5%	1.4%	2.0%
Lecturer	Count	53	47	49	149
	% within lecturers	35.6%	31.5%	32.9%	100.0%
	% within Acad. Status	46.5%	34.3%	34.0%	37.7%
Senior Lecturer	Count	13	8	10	31
	% within Senior Lecturer	41.9%	25.8%	32.3%	100.0%
	% within Academic Status	11.4%	5.8%	6.9%	7.8%
Associate Professor	Count	7	4	5	16
	% within Ass. Professors	43.8%	25.0%	31.3%	100.0%
	% within Acad. Status	6.1%	2.9%	3.5%	4.1%
Professor	Count	5	4	2	11

	% within Professor % within Acad. Status	45.5% 4.4%	36.4% 2.9%	18.2% 1.4%	100.0% 2.8%
Total Faculty		82(71.9%)	65(47.4%)	68(47.2%)	215(54.4%)
Master's Student	Count % within Masters Students % within Academic Status	30 17.8% 26.3%	69 40.8% 50.4%	70 41.4% 48.6%	169 100.0% 42.8%
PhD Students	Count % within PhD Students % within Academic Status	2 18.2% 1.8%	3 27.3% 2.2%	6 54.5% 4.2%	11 100.0% 2.8%
Total Students		32(25.4%)	72(52.6%)	76(52.8%)	180(45.6%)

(Source: Field data, 2017)

As presented in Table 5.80, the findings indicate that most (82, 71.9%) respondents amongst faculty are not likely to be inhibited by lack of time from accessing the IR compared to a few (32, 25.4%) of their counterparts who gave the same response. On the other hand, a majority (76, 52.8%) of postgraduate students stated that they were very likely to have "no time" for accessing the IR, as against (68, 47.2%) of their counterparts who gave a similar response. The remaining (65, 47.4%) of faculty against (72, 52.6%) remained neutral on the issue at hand.

Table 5.81: Chi-Square Test (No Time)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.354[a]	12	.025
Likelihood Ratio	23.823	12	.021
Linear-by-Linear Association	6.885	1	.009
N of Valid Cases	395		

The results of the Chi-square test show that there is a significant difference between faculty and students (N=395, X^{22}=23.354, df=12, p=0.025) in their rating of "no time to assess the IR" as a barrier in the use of the UNISWA IR.

Even though majority of faculty indicated that ''no time'' is not likely to impede them from using the IR, librarians on the contrary, argued that "no time" is a common excuse cited by both faculty and postgraduate students for not using or contributing their works in the IR.

> Librarian #3 stated, *"Postgraduate students say they only come to campus once a week and therefore have limited time, which they use to attend classes. They say they mostly rely on lecture notes given by their lecturers, and visit the library to check books reserved by their lecturers".*

Librarian #4 also further stated, *"Faculty are playing the no time card to hide the fact that some of them are not actively involved in research. They also complain about their heavy teaching load. The university should address this issue and try to find out if teaching load and hence no time for research is really a challenge for faculty".*

Respondents were thereafter requested in question 3.4 of the survey questionnaire to rate their concerns regarding submitting their work in an institutional repository. Cross tabulations and chi-square tests were computed to assess the association between faculty and postgraduate students, and their concerns regarding IR submissions. Findings for this section are presented from Tables 5.82 to 5.89 respectively.

Table 5.82: Crosstabulation of Academic Status and Prior Publishing (n=395) (Source: Field data, 2017)

I worry this might constitute prior publication and prevent me from submitting my work to journal		**Not at all concerned**	**Slightly concerned**	**Somewhat Conc.**	**Mod. Conc.**	**Extr. Conc.**	**Total**
T. Asst.	Count % within Acad.	1 .8%	4 6.6%	3 2.9%	0 .0%	0 .0%	8 2.0%
Lecturer	Count % within Acad.	51 39.2%	10 16.4%	40 38.1%	21 67.7%	27 39.7%	149 37.7%
Senior Lecturer	Count % within Acad.	11 8.5%	6 9.8%	6 5.7%	1 3.2%	7 10.3%	31 7.8%
Associate Professor	Count % within Acad.	8 6.2%	1 1.6%	1 1.0%	2 6.5%	4 5.9%	16 4.1%
Professor	Count % within Acad.	6 4.6%	0 .0%	2 1.9%	0 .0%	3 4.4%	11 2.8%
Total		77(59.3%)	21(34.4%)	52(49.6%)	24 (77.4%)	41 (60.3%)	215 (54.4%)
Master's Student	Count % within Acad.	52 40.0%	37 60.7%	49 46.7%	6 19.4%	25 36.8%	169 42.8%
PhD Students	Count % within Aca.	1 .8%	3 4.9%	4 3.8%	1 3.2%	2 2.9%	11 2.8%
Total		53(40.8%)	40(65.6%)	53(50.5%)	7 (22.6%)	27(39.7 %)	180 (45.6%)

Table 5.82 presents the results of the crosstabulation of academic status and respondent's concerns that submitting their work in the IR might be regarded as prior publishing and

prevent them from submitting their work to journals. The findings show that majority (77, 59.3%) of faculty as against 53 (40.8%) of postgraduate students indicated that they are not at all concerned about this issue. Almost the same number of faculty (52, 49.6%) as compared to (53, 50.5%) of the counterparts stated that they were somewhat concerned. Other respondents including 21 (34.4%) of faculty against 40 (65.5%) of postgraduate students were slightly concerned; 24 (77.4%) as against only 7 (22.6%) were moderately concerned; and 41 (60.3% as compared to 27 (39.7%) were extremely concerned about the issue at hand.

Table 5.83: Chi-Square Tests (Prior Publishing)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	50.701[a]	24	.001
Likelihood Ratio	55.821	24	.000
Linear-by-Linear Association	1.151	1	.283
N of Valid Cases	395		

The results of the chi-square test show a significant difference between faculty and students (N=395, X^2=50.701, df=24, p=0.001) in their concerns that IR submissions may be regarded as prior publishing and prevent them from submitting their work to academic journals.

Table 5.84: Crosstabulation of Academic Status & Assigning Distribution Rights (n=395) Source: Field data (2017)

I am hesitant to assign distribution rights of my work to the university		**Not at all conc.**	**Slightly conc.**	**Somwhat conc.**	**Mod. conc.**	**Extr. Conc.**	**Total**
Teaching Asst.	Count % within Acad.	3 1.9%	4 5.8%	1 1.2%	0 .0%	0 .0%	8 2.0%
Lecturer	Count % within Acad.	61 39.4%	23 33.3%	25 30.5%	14 42.4%	26 46.4%	149 37.7%
Senior Lecturer	Count % within Acad.	16 10.3%	3 4.3%	3 3.7%	5 15.2%	4 7.1%	31 7.8%
Asso. Prof	Count % within acad.	8 5.2%	0 .0%	4 4.9%	1 3.0%	3 5.4%	16 4.1%
Prof	Count % within Acad.	10 6.5%	0 0%	0 0%	0 0%	1 1.8%	11 2.8%
Total Faculty		98 (63.3%)	30 (43.4%)	33 (40.3%)	20 (60.6%)	34 (60.7%)	215 (54.4%)
Master's Student	Count % within Acad.	56 36.1%	37 53.6%	44 53.7%	12 36.4%	20 35.7%	169 42.8%

PhD Students	Count %within Academic status	1 .6%	2 2.9%	5 6.1%	1 3.0%	2 3.6%	11 2.8%
Total		57 (36.7%)	39(56.5%)	49(59.6%)	13(39.4%)	22(39.3)	180(45.6 %)

Table 5.84 presents results of cross tabulating academic status and respondent's hesitancy to assign distribution rights of their work to the UNISWA. The results indicate that many 98 (63.3%) of faculty compared to 57 (36.7%) of their counterparts indicated that they are not at all hesitant to assign the distribution rights of their work to the university library. Least respondents, 20 (60.6%) from faculty against 13 (39.4%) of students stated that they were moderate on this issue. Other respondents indicated that they were slightly concerned, 30 (43.4%) faculty against 39 (56.5%) of postgraduate students; somewhat concerned, 33 (40.3%) faculty against 49 (59.6%) students; and extremely concerned, 34 (60.7%) faculty compared with 22 (39.3%) of postgraduate students.

Table 5.85: Chi-Square Test (Distribution Rights)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	45.422[a]	24	.005
Likelihood Ratio	51.708	24	.001
Linear-by-Linear Association	.120	1	.729
N of Valid Cases	395		

The results of the chi-square test show that there is significant difference between faculty and postgraduate students (N=395, X^2=45.422, df=24, p=0.005) in their hesitancy to assign distribution rights of their work to the university.

Table 5.86: Crosstabulation of Academic Status and Citation Value (n=395) (Source: Field data, 2017)

Am concerned that works submitted to an IR will not have citation value		**Not at all conc.**	**Slightly conc.**	**Somwhat conc.**	**Mod. concerned**	**Extremely concerned**	**Total**
Teaching Asst.	Count % within Acad. status	2 1.3%	2 3.2%	3 3.9%	1 2.6%	0 .0%	8 2.0%
Lecturer	Count % within Acad.	66 42.9%	18 28.6%	27 35.1%	19 48.7%	19 30.6%	149 37.7%

	Status						
Senior Lecturer	Count % within Acad. status	14 9.1%	6 9.5%	6 7.8%	3 7.7%	2 3.2%	31 7.8%
Associate Professor	Count % within Acad.	8 5.2%	2 3.2%	1 1.3%	0 .0%	5 8.1%	16 4.1%
Professor	Count % within Acad. status	7 4.5%	0 .0%	1 1.3%	0 .0%	3 4.8%	11 2.8%
Total		97(63%)	28(44.5%)	38(49.4%)	23(59%)	29(46.7%)	215(54.4%)
Master's Student	Count % within Acad. status	55 35.7%	33 52.4%	35 45.5%	14 35.9%	32 51.6%	169 42.8%
PhD Students	Count % within Acad. Status	2 1.3%	2 3.2%	4 5.2%	2 5.1%	1 1.6%	11 2.8%
Total		57(37%)	35(55.6%)	39(50.7%)	16(41%)	33(53.2%)	180(45.6%)

Table 5.86 presents the results of the crosstabulation of academic status and respondents' concerns that works submitted to an IR will not have citation value. The results indicate that a majority (97, 63%) of faculty signalled that they are not at all concerned about this issue, as compared to 57 (37%) of their counterparts who gave a similar response. The fewest number of respondents including 23 (59%) of faculty against 16 (41%) students indicated that they were moderately concerned. The remaining respondents including 28 (44.5%) of faculty against 35 (55.6%) of postgraduate students were slightly concerned; somewhat concerned, 38 (49.4%) as against 39 (50.7%); and extremely concerned, 29 (46.7%) compared to 33 (53.2%). The results therefore indicate that most of the respondents were not concerned about this issue.

Table 5.87: Chi-Square Test (Citation Value)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	31.354[a]	24	.144
Likelihood Ratio	36.714	24	.047
Linear-by-Linear Association	2.136	1	.144
N of Valid Cases	395		

The results of the chi-square show that there is no significant difference between faculty and postgraduate students (N=395, X^2=31.354, df=24, p=0.144) in their concerns that works submitted to IRs will not have citation value.

Table 5.88: Crosstabulation of Academic Status and Patentability (n=395) (Source: Field data, 2017)

I would be worried about the patentability of my ideas		**Not at all conc.**	**Slightly conc.**	**Somwhat conc.**	**Mod. concerned**	**Extr. Conc.**	**Total**
T. Asst.	Count % within Acad. Status	1 .7%	2 3.2%	4 5.3%	1 2.5%	0 .0%	8 2.0%
Lect.	Count % within Acad. Status	58 38.7%	19 30.2%	30 40.0%	18 45.0%	24 35.8%	149 37.7%
Senior Lect.	Count	13	4	4	4	6	31
	% within Acad. Status	8.7%	6.3%	5.3%	10.0%	9.0%	7.8%
Ass. Prof	Count % within Acad.	6 4.0%	1 1.6%	3 4.0%	1 2.5%	5 7.5%	16 4.1%
Professor	Count % within Acad. Status	9 6.0%	0 .0%	1 1.3%	0 .0%	1 1.5%	11 2.8%
Total		87 (58.1%)	26 (41.3%)	42 (55.9%)	24 (60%)	36 (53.8%)	215 (54.4%)
Ma. Stu.	Count % within Acad. Status	61 40.7%	35 55.6%	28 37.3%	16 40.0%	29 43.3%	169 42.8%
PhD Stu	Count % within Acad. Status	2 1.3%	2 3.2%	5 6.7%	0 .0%	2 3.0%	11 2.8%
Total Stu		63(42%)	37 (58.8%)	33(44%)	16(40.0%)	31 (46.3%)	180 (45.6%)

Table 5.88 shows the crosstabulation of faculty and postgraduate students, and their concerns about the patentability of the ideas after having their work archived in an IR. Most of the respondents including 87 (58.1%) of faculty against 63 (42%) of postgraduate students stated that they were not at all concerned about the patentability of their ideas. A few respondents, 24 (60%) against 16 (40.0%) were moderate on this issue. Others among faculty were: slightly concerned, 26 (41.3%) compared to 37 (58.8%) postgraduate students; somewhat concerned, 42 (55.9%) against 33 (44%); and extremely concerned 36 (53.8%) of faculty as compared to 31 (46.3%) of their counterparts.

Table 5.89: Chi-Square Test (Patentability)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	32.226[a]	24	.121
Likelihood Ratio	34.517	24	.076
Linear-by-Linear Association	.589	1	.443
N of Valid Cases	395		

The results of the chi-square test indicate that there is no significant difference between faculty and postgraduate students (N=395, X^2=32.226, df=24, p=0.121) in their concerns about the patentability of works archived in institutional repositories.

5.8 Librarians Roles in IRs Promotion

This section assessed areas where librarians need to improve the UNISWA IR for it to be effectively utilised by the targeted users. The research question addressed is: *What is the role of librarians in promoting service quality of the UNISWA IR?*

Faculty and postgraduate students were requested in question 6.1 of the questionnaire to indicate how the IR can be improved to make it an effective research and information resource tool. Their responses are presented in Table 5.90 below.

Table 5.90: IR Improvement, Responses from Faculty and Post-Graduate Students (n=395) (Source: Field data, 2017)

Suggested Area of Improvement for the IR	Multiple Responses	
	Freq	%
Raise awareness/advertise/market	270	68.4
Frequent update of documents and continuously update users about the recent outputs	96	24.3
University should have faster internet and more computers for IR to be effective	69	17.5
Use advanced and user friendly (interactive) IR software	39	9.9
Continuously train staff and provide options for them to self-upload their work	38	9.6
Technical savvy person should coordinate all IR activities	37	9.4
Continuous request for contributions from researchers and follow ups	26	6.6
Provide a user guide for users (in-print and online)	21	5.3
Give IR more prominence on library web page with more descriptive details	18	4.6
Make IR accessible to uses off campus and world wide	16	4.1
Develop a mandatory IR submission policy	12	3

Provide incentive for researchers	8	2
Monitor/follow up IR usage across departments	8	2
Strengthen quality assurance	6	1.5
Clarify rights management issues (copyright)	3	0.8

The results in Table 5.90 show that a majority (270, 68.4%) of respondents thought the most effective way of improving the IR and ensuring that it is effectively used is through raising awareness. A bulk of other users (96, 24.3%) indicated that librarians should frequently update the IR and continuously update users on any recent outputs; and 69 (17.5%) thought that improving the speed of internet connection and providing adequate computers for users could play a vital role in improving the IR as a research and information resource tool. Some users (39, 9.9%) favoured the procurement of an advanced/user-friendly IR software; Continuous training of users on how to navigate the IR (38, 9.6%); having a technical savvy person specifically in charge of the IR (37, 9.4%); and continuously request for publications from researchers and follow up on those requests (26, 6.6%). Few respondents including 21(5.3%) mentioned that the IR should be improved through the provision of user guides both in-print and online; making the IR more visible in the library webpage with more descriptive details (18, 4.6%); making IR accessible off-campus and world over (16, 4.1%); developing a mandatory IR submission policy (12, 3%); providing incentives for IR contributors (8, 2%); monitor and evaluate usage across UNISWA departments (8, 2%); strengthening the quality of documents deposited in the IR (6, 1.5%); and clarify copyright issues to users (3, 0.8%).

The responses presented in Table 5.90 are strengthened by librarian's responses to question 29 of the interview schedule, where they were required to suggest areas where the IR can be improved to enhance its growth and future use. Librarian's interview responses showed that some of the strategies suggested by faculty and postgraduate students such as clarifying copyright issues, requesting for publications, and raising awareness about the IR, have already been applied in the UNISWA case. Even though quality assurance was a major concern raised by many librarians, surprisingly this was not the case with faculty, as one would expect. Librarian's corresponding responses are summarised and presented in Table 5.91 below.

Table 5.91: IR Improvement, Responses from Librarians (n=5) (Source: Field data, 2017)

Respondent	Strategy	Responses
Librarian #1	Raise awareness	*This has been done through assigning faculty representatives to market the IR in their respective faculties and departments.*
	Quality assurance	*We have not done much on this angle, we trust that departments will play their role in ensuring that the work they produce is up to standard especially thesis and dissertations. We also trust that faculty contribute articles that have gone through peer review.*
	Copyright	*Workshops were conducted by experts from the law department to teach users on copyright and its limitations.*
	Mandatory policy	*We currently do not have a policy in place to guide the operation of our IR. We work based on resolutions taken in staff meetings. Mandates would encourage users to contribute their work in the IR, and put them at ease with the whole IR idea. This policy could be effective if; shared and explained well to users, supported by the university administration, and applied to every department across UNISWA.*
	Self-uploads	*Researchers should be allowed to self-upload their content as opposed to our current model of submitting work via the library. Librarians can later check if copyright and the quality of the work are in-line with the IRs regulations before approving the submission.*
Librarian #2	Add more documents	*The IR should be well populated and marketed to the university community.*
Librarian #3	Quality assurance	*Library should check if submitted work adheres to quality standards which should be set by the library. Heads of departments should ensure that dissertations submitted to the IR are up to standard. Faculty should ensure that they submit peer reviewed articles.*
	Mandatory policy	*The library should draft a policy that makes it mandatory for UNISWA scholars to submit their work in the IR. This policy should be supported and enforced by the UNISWA administration.*
	IR specialist	*There should be a specific department dedicated to running the IR. Users should also be given a contact person from all three campuses.*
	Self-	*If willing to upload documents on their own, users should be*

	uploads	*encouraged, but guided on what is allowed in the IR. This might be easier than the long-process of having users bringing their work to the library for archival.*
	Add more documents	*Increase subject areas archived in the IR so that it can be relevant to many users.*
Librarian #4	Quality assurance	*Library should promote the quality of work deposited in the IR through having a policy stipulating acceptable grades for student's dissertations. Works published in bogus journals should not be allowed in the IR as this encourages the dissemination of substandard work, and might have negative ramifications on the UNISWA IR.*
Librarian #5	Quality assurance	*There should be a policy stipulating the kind of documents and grades accepted from student projects, to avoid having substandard work.*
	Request publications	*Librarians should regularly go around requesting for publications from researchers instead of waiting for publications to be brought to them.*
	IR specialists	*There should be a specific department in charge of the IR that will be responsible for assessing gaps in knowledge and accumulating the required information.*

***Note:** Faculty representatives include academic staff such as lecturers, senior lecturers, and professors who represent their respective faculties in library committee meetings.

UNISWA faculty and postgraduate students were further asked in question 6.2 of the survey questionnaire to indicate how they would rank UNISWA librarian's current efforts in promoting the usage of the IR. Combined responses from faculty and postgraduate students are presented in figure 5.8 below.

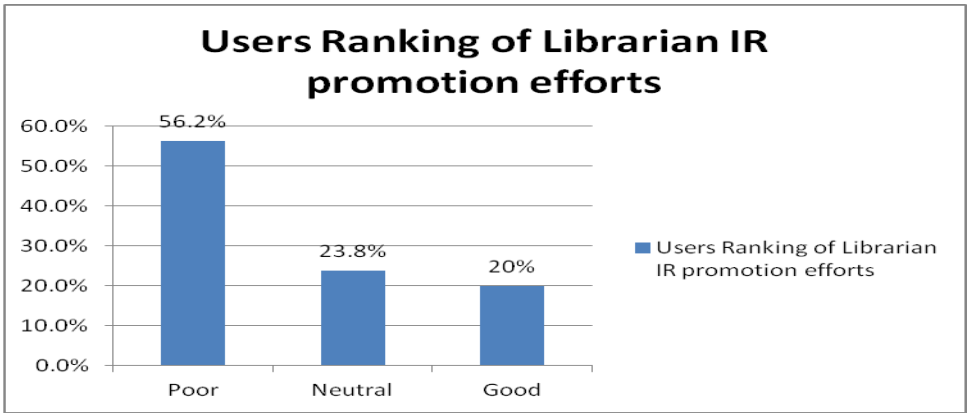

Figure 5.8: Users' Rankings of IR Promotion Efforts (n=395) (Source: Field data, 2017)

As presented in Figure 5.8, majority (222, 56.2%) of UNISWA faculty and postgraduate students indicated that librarian's efforts in promoting the IR are poor. On the other hand, a minority (79, 20%) of the surveyed respondents indicated the IR was well marketed. Other respondents (94, 23.8%) were non-committal on the issue at hand. The overall results therefore suggest that librarians are not doing a good job in marketing the institutional repository. They perhaps need to employ rigorous marketing tactics in order to reach out to UNISWA IR users effectively.

The findings presented in Figure 5.8 are strengthened by librarian's responses to question 13 of the interview schedule, where they were required to comment on the effectiveness of the currently used IR marketing efforts. Librarians pointed out that the current strategies include amongst others word of mouth, mentioning the IR to students in library skills classes, and presenting the IR in respective faculties. Three out of the five interviewed librarians stated that the effectiveness of the current marketing strategies is minimal. According to Librarian #1

> "*The impact of the current strategies is negligible compared with the amount of staff members who have shown interest and contributed their work in the IR*"
>
> on the same note Librarian #2 stated that "*the current strategies are not effective since most students and staff members I have come across don't know about the IR. There are also still a few documents uploaded in the IR considering the amount of research generated by the UNISWA community".*

These findings indicate that a majority (3, 60%) of the interviewed librarians agree with the bulk (222, 56.2%) of faculty and postgraduate students who indicated that the current IR marketing strategies are poor and not effective. This perhaps explains why the IR is less utilised by the targeted audiences.

Librarians were further probed why their IR marketing strategies are not effective. Relevant responses are summarised below in the words of two librarians. Librarian #1 stated that:

> *"We hoped library faculty representatives were going to raise awareness about the IR through marketing the IR on our behalf in their respective faculties. This is the first major mistake we made, in the sense that we shifted the marketing responsibility to people whom we were not sure if they were interested in the project or not. They ended up being not so useful middle persons in the supply*

chain which is why the library has struggled to receive content from UNISWA faculties and departments. Faculty representatives together with librarians representing the library in respective faculties have failed to push the IR agenda to other colleagues. They often say they have nothing to report in faculty board meetings instead of using this platform to market library projects including the IR".

On the same note Librarian #3 indicated that:

"The current model of using faculty representatives is tricky because as much as we know that our representatives from faculties and departments across UNISWA are aware of the IR idea, we are not sure if IR users in the entire university do receive information about the IR from our faculty representatives. We have also failed as librarians to make follow ups regarding our users' knowledge and acceptance of the repository. Our major mistake is therefore assuming users know about the IR, and relying so much on our faculty representatives to market the IR".

Contrary to discussions by librarians #1 and 3, other librarians argue the IR has been effectively marketed. This response is in line with the minority (79, 20%) of faculty and postgraduate students who also indicated that librarian's efforts in marketing the IR were good. Librarians' responses are respectively summarised below in the words of librarians #4 and 5.

Librarian #4 stated, *"There is nothing wrong with the marketing of the IR. That has been effectively done. As long as there is no effective binding policy that will mandate departments to deposit their materials in the IR, we will forever blame marketing efforts instead of focusing on users who have to be playing an active role in contributing their content to the IR. Faculty representatives instead of librarians are to be blamed for poorly marketing the IR in their respective because even when instructed to report to their faculties on any IR activities and specific timelines, we do not receive any feedback from faculties and departments".*

On the same note, librarian #5 argued that:

"The library has really tried to market the IR through stakeholder workshops where all UNISWA faculties and departments were well represented, and in

library committee meetings which are faculties have representative. The library can only go so far in selling the IR idea. At the end of the day, it is up to individuals to decide whether to use the platform and contribute their work or not. This is just like the old saying, you can take the horse to the river, but you can never force it to drink the water".

Respondents were further asked in question 6.3 of the questionnaire to suggest strategies that can be used by librarians to market the institutional repository effectively such that it becomes appealing to the UNISWA community. Their responses are presented in Table 5.92.

Table 5.92: IR Marketing, Faculty and Students' Responses (n=395) (Source: Field data, 2017)

Effective IR marketing strategies	Multiple responses	
	Freq	%
Frequent/specialised workshops	201	50.9
Email periodically	135	34.2
Frequent seminars and presentations	99	25.1
Posters, pamphlets, brochures, and leaflets	66	16.7
Orientation for new students and staff	63	15.9
Incorporate IR in student's curriculum	37	9.4
Use HODs, faculty reps and faculty board meetings	34	8.6
Advertise IR on UNISWA's website and notice boards	33	8.4
Vigorously market the IR through social media	30	7.6
Encourage lecturers to emphasize IR to students	24	6.1
Use UNISWA radio program to promote the IR	9	2.3
Show IR success stories from other departments/academic environments	6	1.5
Market through audio CDs	5	1.3
Use student notifications/ listserv	3	0.8
Market through word of mouth	2	0.5

The results in Table 5.92 show that slightly more than half (201, 50.9%) of respondents indicated that the IR should be marketed through frequently providing specialised workshops and trainings for UNISWA departments. Majority of other responses such as 135 (34.5%) favoured marketing the IR through periodically emailing users; and 99 (25.1%) indicated that librarians should frequently provide seminars and presentations to update users about the IR. Other respondents including 66 (16.7%) suggested marketing the IR through posters, pamphlets, brochure or leaflets; orienting new students and staff about the IR (63, 15.9%); incorporating the IR in student's information literacy and library skills

curriculum (37, 9.4%); using heads of departments, faculty representatives and faculty board meetings (34, 8.6%); social media (30, 7.6%); and requesting lecturers to encourage their students to use the IR (24, 6.1%). The findings further present strategies that are least favoured by respondents including (9, 2.3%) of faculty and staff who suggested the use of the UNISWA radio program; showing IR users examples from other departments and institutions where IRs have been effectively implemented (6, 1.5%); using audio CDs (3, 0.8%) using notification/ listserv (5, 1.3%); and word of mouth (2, 0.5%).

Similarly, librarians were asked to provide strategies that can be used to market the UNISWA IR effectively. Their responses are summarised and presented in Table 5.93.

Table 5.93: IR Marketing Strategies, Librarians' Responses (n=5) (Source: Field data, 2017)

Respondent	Strategy	Responses
Librarian #1	Workshops	*The library should frequently conduct workshops to sensitize users about the IR.*
	University support	*University administration should support the library by enforcing policies that will encourage but not force members to contribute their work in the IR.*
	Government support	*Government should be made aware of this initiative, and requested to encourage those with government funded research to submit copies of their work in the IR since UNISWA is also government deposit library.*
	Faculty meetings	*Librarians should ask for a slot in faculty and departmental meetings where they can market the IR through showing users success stories from other departments and institutions.*
	Outsource marketing	*Students can be employed to market and collect IR content around the university. This could ease the pressure from the short-staffed librarians. Obviously, this requires the university to allocate a budget for the running of the IR, which currently is not available.*
Librarian #3	Faculty meetings	*Frequently present the IR in faculty meetings. Those who could not attend the meetings can get updates from their peers.*
	Lecturer marketing	*Lecturers should encourage students to use the IR by assigning them to read specific works archived in the IR.*

	University support	*University administration should make it mandatory for publications submitted for promotions, and inclusion in the vice chancellors report, to be submitted in institution's IR.*
	Library skills classes	*Library skills classes should not just be offered in first year but in other years as well so that students can be familiar with library resources.*
	Orientation	*All new staff and students entering the system should undergo compulsory training to familiarise them with library resources.*
Librarian #4	University support	*University administration should actively support and ensure that publications submitted for promotions are submitted to the IR and made available for UNISWA scholars.*
	Library management	*Should effectively market the IR at senate level and encourage the university administration to come up with binding resolutions.*
	Success stories	*We should go back to the drawing board to see where we have failed and take into consideration success factors from departments and institutions that have managed to accumulate more content.*
Librarian #5	Workshops	*Workshops with stakeholders should be an ongoing exercise.*
	Faculty meetings	*Librarians and faculty representatives should continuously market the IR in their respective faculties and departments.*
	Success stories	*Librarians should show users how much content has been submitted by different departments. This way even those who were not aware of the IR will develop interests.*
	Outsource marketing	*Find people that will come up with aggressive marketing strategies and be able to think outside the box.*
	Word of mouth	*Ask active IR users to spread the word about the IR to new staff members and students. This could also help improve quality as well because if people know that their work will be widely accessed, they will improve it, and stick to producing work that is worth being viewed.*

Even though conducting frequent workshops was mostly favoured by 201 (50.9%) faculty and postgraduate students, only two out of the five interviewed librarians suggested this idea. When probed on this approach, Librarian #1 stated that:

"Even though workshops seem like a viable option, few workshops have been conducted by the UNISWA library because many users do not show up. This might be because the workshops are hosted during working hours where faculty claim they always have classes to teach and scripts to mark, and that it is difficult for them to ditch their jobs, to attend library workshops. During university vacation periods, it's even harder to get them since that is when most of them take their vacation leaves. Other institutions market their IRs through virtual which I doubt would work for UNISWA because some users hate going online, others lack computer skills, and even worse the internet connection is at times horrible".

Based on the findings it is not clear who is to blame for the ineffective promotion and usage of the UNISWA institutional repository. While many amongst faculty and postgraduate students think librarians are not doing a good job in marketing the repository, some librarians argue that the IR has been well marketed. They further argue that the poor usage is linked to other issues beyond marketing. Besides these issues librarians are optimistic about the future of the IR. Librarian #1 stated that, "*in future, I see the IR effectively marketed and well-populated. Now that we are starting to have studies on users' perception about this facility, we can be able apply the recommendations and craft our way forward".* Librarian #2 and Librarian #4 stated that, once well marketed and populated, user's perceptions and attitudes towards the IR will improve, and the IR will go forward. In contrast, Librarian #3 said, "*I do not foresee any changes to the UNISWA IR, unless we change the way it is currently managed. That is, we need more marketing, having people specifically responsible for managing the content, and getting more support from lecturers, and the university administration".*

5.9 Summary

The chapter dealt with data analysis and presentation of the findings. The presentation of findings was based on themes derived from the research questions and was as follows: service quality perceptions of faculty and postgraduate students; quality factors influencing UNISWA IRs usability; levels of usage of the UNISWA IR; challenges in the use of the IR; and the roles of librarians in promoting the institutional repository.

The study revealed that in all service categories, users' expectations exceeded their perceptions which resulted in negative scores from these service categories. This means that the IR did not meet user's service quality needs.

Furthermore, majority of the respondent's use of the IR was influenced by UTAUT constructs including: effort expectancy (ease of use), performance expectancy (perceived usefulness), and facilitating conditions. The social influence construct on the other hand did not influence faculty's use of the IR. On the contrary, this construct averagely influenced postgraduate students. Furthermore, majority of respondents indicated that they intend to increase their usage of the IR, and to encourage their colleagues, friends, and students about the IR.

The results further revealed that majority (136, 66.2%) of faculty agreed that they were aware of the UNISWA IR as compared to (69, 33.6%) of postgraduate students who gave a similar response. Even though many respondents knew about the IR, there were however many of those who stated that they had never used the IR. Many respondents also pointed out that they infrequently access the IR. Furthermore, majority of faculty indicated that their IR searching skills were low, and a few students had low levels of skills. Due to the low levels of skills, many amongst faculty, and an average number of postgraduate students pointed out that they needed to be trained on how to use the IR effectively. Respondents further pointed out that the library currently fails to provide adequate training on the IR's usage.

Further still, the findings revealed that users encounter various challenges that inhibit their use of the IR. These include slow internet, and lack of skills. These are cited by numerous respondents amongst faculty and postgraduate students as an impediment in the use of the IR. Only a few pointed out fear of copyright violations as a challenge in their use of the IR. Many amongst faculty indicated that lack of computer access was not likely to be an inhibiting factor, while students indicated that they were most likely to be affected by this factor from using the IR. This is probably because faculty have personal computers in their offices while students rely on shared computer labs while on campus. Furthermore, while many amongst postgraduate students indicated that lack of time is likely to inhibit their use of the IR, majority of faculty on the other hand indicated that this is not an issue.

The study further revealed that respondents thought the most effective ways of improving the IR could be through raising awareness about it, frequent update of the IR, continuously informing users about any latest content in their research areas, having adequate computers around campus, and improving the speed of the internet. Majority of IR users further,

pointed out that librarians should vigorously market this resource through providing specialised workshops, periodically emailing users, and improving seminars and workshops to sensitise users about the IR. Some librarians argued that there is nothing wrong with the current IR marketing efforts, users should just play their part and effectively utilise the IR as expected.

CHAPTER SIX

DISCUSSION OF FINDINGS

6.1 Introduction

This chapter interprets and discusses the findings of the study in the order in which they were presented in chapter five**.** According to Patton (2002, p. 434) data interpretation entails explaining research findings, answering the why questions, attaching significance to particular results, and putting patterns into an analytical framework. Kothari (2004, p. 344) defines interpretation as the task of drawing inferences from collected facts after an analytical or experimental study, with the intent to search for broader meanings from research findings. Polit and Beck (2004) on their part opine that the interpretation chapter of a thesis intends to make sense of research findings, and further examines their implications. Kothari (2004) asserts that interpretation establishes continuity in research through linking the results of a given study with findings obtained from other relevant studies. Kothari (2004) argues that the role of interpretation cannot be overemphasised since the usefulness and utility of research findings lies in their proper interpretation.

The study sought to investigate factors affecting the usability of the University of Swaziland (UNISWA's) Institutional Repository (IR) by faculty and postgraduate students. The following research questions were addressed: What are the perceptions of faculty and postgraduate students towards service quality in the use of the UNISWA IR? What quality factors influence the usability of UNISWA's institutional repository by faculty and postgraduate students at UNISWA? What is the level of usage of UNISWA's institutional repository by faculty and postgraduate students? What are the challenges of service quality facing faculty and postgraduate students in the use of UNISWA IR? What is the role of librarians in promoting service quality of the UNISWA IR? What recommendations can be delineated based on the findings of the study?

The framework used in organising this chapter is the study's research questions. The chapter is divided into several components, each of which is titled according to the study's research questions. These include: service quality expectations and perceptions of UNISWA faculty and postgraduate students; quality factors in the usability of the UNISWA IR; levels of usage of the UNISWA IR; service quality challenges in the use of the UNISWA IR; and librarians' roles in the promotion of the UNISWA IR.

6.2 Demographic Variables

The findings of the current study revealed that majority (124, 58%) of faculty were males, while there were fewer (91, 42%) females. These results demonstrate a slight imbalance between the surveyed males and females from UNISWA. A similar trend was observed from the University of Washington (2017) in their assessment of the distribution of faculty by gender. In the same vein, it was revealed that there were more male (2539, 59.8%) than female (1710, 40.2%) faculty. Similar findings were revealed by Grove (2013) who pointed out that the widest gender disparities are found: in Japan, where females comprise only 12.7% of faculty from top-rated institutions; in Taiwan with only 21.3% of female faculty from the nation's top seven Universities; and in UK with 35.9% females from 48 surveyed institutions. Other countries including: Sweden had 36.7%; Norway (31.7%); Denmark (31%); and Turkey (47.5%) of female faculty. Olaogun, Adebayo and Oluyeno (2015) reported that in commonwealth nations, the percentage of women in full time academic positions varies with the highest (50%) in Jamaica and the lowest (9.5%) in Ghana. Smaller percentages of females in academia were further observed in African countries including, Nigeria (13.6%), Tanzania (11.0%), and Zambia (10.9%). These findings glaringly show disparities in the ratio of males to females in academia, with more males than females.

The current study further showed that most (4, 80%) of the interviewed librarians were females, with only one male. On the same note, a survey of librarians from the United States of America conducted by Beveridge, Weber and Beveridge (2011) revealed that in the year 2009, majority (83%) of librarians were females, while in the 1880s men comprised 52% of librarians. Similar findings were observed at Trinity University in Dublin where women have constantly over-represented by male librarians, with 65%-67% of females from 2007-2015 (Crawford, 2016). In a study by Mpoeleng, Totolo and Jibril (2015), a sample of 30 librarians from the University of Botswana libraries likewise revealed that females dominated the workforce, with 22 (73.3%) females against only 8 (26.7%) males. Even though these studies were conducted from different contexts, and at varying periods, the results of the present study, and those by Beveridge, Weber and Beveridge (2011), Crawford (2016), and Mpoeleng, Totolo and Jibril (2015) suggest that the library profession is dominated by females.

The findings of the current study further revealed that majority (99, 55%) of postgraduate students were females, while 81 (45%) were males. These results show a slight gender

imbalance amongst the surveyed postgraduate students, with more females than males. Contradictory findings were nonetheless observed in Egypt, where 60% of postgraduate students were males compared to 40% of females (Information and Decision Support Centre, 2011). Similarly, in South Africa, 51 % of masters' students were males compared to fewer (49%) of their female counterparts, and 56% of doctoral students were males against fewer (44%) females (South African, Council of Higher Education, 2013). Contradicting findings were further observed from the University of Education, Winneba, in Ghana, where majority (70%) of masters' students were males compared to fewer (30%) females, and there was an equal representation of male and female doctoral students (Tettey, 2009). At Irish Universities, 13% of male respondents were doctoral students against 10% of their female counterparts. A higher proportion of females than males was however registered for taught masters' courses, with 13% of females against fewer (11%) males (Delaney et al., 2009). These results imply that there are generally more males than females enrolled for postgraduate studies.

Majority (64, 30%) of faculty were aged between 41-50 years, followed by those between 51-60 years (57, 26%), 31-40 years (50, 23%), with fewer faculty above 60 (32, 15%) years. Only 12 (6%) of faculty were aged between 20-30 years. These results indicate that the sampled UNISWA faculty were predominantly aged, with more respondents between 41 and 60 years. Tettey (2009) observed a similar trend from the University of KwaZulu-Natal, in 2006, where many academic staff members were between the 40-59 (56%) age group and there was a sharp decline with 4% as faculty approached 60 years and older. Similarly, in 2008, at the University of Education, Ghana, majority of respondents were aged between 40-49 (35%), and 50-59 years (40%). Very few (17%) amongst faculty were 60 years or older. On the other hand, Tettey (2009) further reported that at the University of Dar es Salaam, in Tanzania, there were more (41%) academic staff members who were less than 40 years, and fewer academic staff members who were between 40-49 (30%), 50-59 (26%), and 60 years or above (4%).

This study's findings further revealed that most (96, 53%) postgraduate students were between 31-40, followed by those aged between 41-50 years (44, 24%), 20-30 years (38, 21%), and very few (2, 1%) between 51-60 years. The findings show an increase in numbers of postgraduate students from 20 to 40 years, and a decline as age increased, particularly in 41-60 age categories. The South African Council of Higher Education (2009) observed similar trends, with a higher concentration (40%) of PhD students in the 30-39 years age

category, followed by a decline (29%) in PhD students in the 40-49 years range. A sharp decline was further observed between 50-59 age categories with only 14% PhD students, and in the 60 years or above age range with only 4 % PhD students. The South African Council of Higher Education (2009) further reported that there were more (39%) masters' students between the 30-39 years age category, followed by 37% of those who were younger than 30 years, and a sharp decline as age increased in categories including; 40-49 years (18%), 50-59 years (5%), and 60 years and older (1%).

Furthermore, most of the interviewed librarians were aged between 31-40 years (2, 40%), and 51-60 years (2, 40%). The remaining librarian was aged between 41-50 years (1, 20%). The results indicate that most (60%) of the interviewed librarians were aged between 41 to 60 years, followed by 40% between 31-40 years. Beveridge, Weber and Beveridge (2011) reported that in the 1950s, only 42% of librarians in the US were 45 years or older. By the year 2000, 64% of librarians were 45 years or older and 40% over 55 years. Similarly, American Library Association (2014) reported that by 2013, the estimated median age of librarians was 50.5 years, and that most members of the association were 48 years. Van der Walt and Du Plessis (2010) further revealed that in South Africa, most librarians were aged between 50-54 years (20.7%), followed by 55-59 years (17.1%), and 45-49 years (14.3%); fewer librarians who were 60 years or more, (12.9%), 30-34 years (6.4%), and 24-29 years (2.9%) categories. The results of the current study and those by Beveridge, Weber and Beveridge (2011), American Library Association (2014), and Van der Walt and Du Plessis (2010) suggest that the librarian workforce has aged over the years.

The current study further indicated that majority (149, 37.7%) of faculty were lecturers, followed by 31 (7.8%) of senior lecturers, 16 (4.1%) associate professors, and 11 (2.8%) full professors. The results revealed a decline in the number of faculty as academic status increased. There were also very few (8, 2.0%) respondents who were teaching assistants. This could be attributed to the fact that teaching assistantships are entry level jobs at the University of Swaziland, with fewer staff members compared to the rest of faculty. The same trend was observed from Makerere University where there were fewer (132) professors, and associate professors compared to the rest of faculty, including 194 senior lecturers, 421 lecturers and 634 of those who were below the lecturer rank. The same trend was observed in Tanzania, where there were 113 professors, 214 associate professors, 367 senior lecturers and 359 lecturers (Tettey, 2009).

The results of the present study which showed that a majority (169, 42.8%) of postgraduate students were masters, with only 11 (2.8%) PhD students were validated by those obtained from the University of KwaZulu-Natal in 2005, where 88% out of the total 790 postgraduate students were masters' students, and doctoral students comprised only 12%. On the same note, at the University of Ibadan, Nigeria, in 2006, out of the 2897 postgraduate students, 94% of them were masters' students, and only 6% were doctoral students. Similarly, at the University of Ghana, in 2006, majority (98%) of the 581 postgraduate students were masters' students, and there were very few (2%) PhD students (Tettey, 2009).

6.3 Service Quality Expectations and Perceptions

This section addressed the research question: *What are the perceptions of faculty and postgraduate students towards service quality in the use of the UNISWA IR?*

This part was based on the SERVQUAL model with dimensions including tangibles (the physical design/page layout), empathy (caring, individualised attention given to users), responsiveness (responses to users' requests), assurance (documents retrieved and trust over the site), and reliability (page visibility and error free documents). Ranking these service quality indicators according to levels of gaps between perceptions and expectations revealed that the top five services with narrower gaps included: documents can be quickly downloaded (tangibles); IR content is well organised (tangibles); IR page has a good appearance (tangibles); IR is easy to navigate (tangibles); IR is good in responding to users' requests (responsiveness); IR has error free documents (reliability). These services with narrower gaps, fairly satisfied users' service quality needs. Other services with the least gaps included the IR page is always available (reliability); IR is frequently updated (reliability); IR provides accurate resources (reliability); and IR contains relevant documents (reliability). These results clearly show that users were fairly satisfied with tangibles and reliability service dimensions.

The findings of the present study further revealed that the bottom five services with widest gaps, which UNISWA IR users were mostly dissatisfied with included: users are notified of new documents in their research areas (empathy); users can access the IR from anywhere and at any time (empathy); users' issues are addressed promptly (responsiveness); users' issues are addressed politely (responsiveness); IR suggests spelling to users (assurance); Documents are suggested to users based on past searches (empathy); IR has adequate security features (assurance); users trust the IR site (assurance); and users can email

librarians to lodge complaints (responsiveness). Other services which users were not impressed with included: IR enables users to save their search results (empathy); and IR provides quick and easy access to documents (empathy). The results glaringly show that IR users were mostly dissatisfied with the empathy, followed by assurance and responsiveness dimensions of service quality.

The results of the present study are corroborated in a study by Asogwa et al. (2014) which applied the SERVQUAL model to investigate the quality of services offered to users from academic libraries in selected developing (Bangladesh, Iran, Pakistan and Nigeria), and developed countries. Asogwa et al. (2014) found that tangibility was the highest and most important dimension, while empathy was the least favoured dimension in developing countries. Reliability was likewise, the highest and most favoured dimension, while tangibility was the least favoured dimension in developed country contexts, which partly contradicts findings of the present study. A similar study was conducted by Mahmoodi, Salarzadeh and Paslari (2015), who evaluated service quality from Azad University library, in Iran. In the same vein, tangibility was the highest service quality dimension, while empathy was the lowest. The similarities in the results of the current study and those by Asogwa et al. (2014) and Mahmoodi, Salarzadeh and Paslari (2015) could be attributed to the fact that the studies were conducted from similar (academic library) contexts. Users from these libraries are thus likely to have the same research preferences. Asogwa et al. (2014) opines that the similarities in the research findings could suggest global commonalities in the way library patrons view service quality.

Findings of the present study were further validated in a study by Manjunatha and Shivalingaiah (2004) who investigated the quality of library services from eight academic libraries in India. On a similar note, the findings respectively revealed reliability and empathy as the most important and least important dimensions. Yet another study was conducted by Enayati, et al, (2013) to evaluate service quality of the Islamic Azad university, in Mazandaran, Iran. In the same vein, it was revealed that the tangibility dimension had the highest levels of service quality, while empathy had the lowest. Another SERVQUAL study was conducted by Bagherzadeh and Bagherzadeh (2010) to examine service quality from higher education centres in Tabriz, Iran. Contrary to findings of the current study, they found that assurance had the minimum service quality gap and thus satisfied users' needs. They likewise, discovered that empathy had the highest gap, meaning that users were dissatisfied with this aspect. Even though these studies were conducted from

different contexts (academic libraries and education), they revealed somehow similar findings. The results also suggest that the diverse geographical settings, where the studies were conducted, had less influence on users' service quality perceptions.

The results of the present study are further supported by Tan and Foo (1999) who assessed service quality in a special library in Singapore, the statutory board library. On the same note, Tan and Foo (1999) found that reliability was the most important dimension, while empathy was the least favoured. These authors further compared their findings to other types of libraries in Singapore based on studies by Mah (1994) and Chia (1997). The former assessed service quality in an academic library setting, the Hon Sui Sen library, and in the same vein, discovered that reliability and empathy were respectively the most and least important dimensions. Chia (1997) in a study conducted from a national library also discovered that tangibles was the most important dimension and empathy was the least important one. The similarities between the results of the current study and those by Tan and Foo (1999), Mah (1994) and Chia (1997) could be attributed to similarities in information and service needs of library users. Tan and Foo (1999) aver that users of special and academic libraries have similar needs, which include conducting in-depth research for their studies and projects, whereas users from public libraries have more general information needs. The findings thereby imply that the various library contexts did not influence users' service quality perceptions.

The findings of the present study revealed partly contradictory findings from those obtained in a study by Surithong (1997) who examined service quality from the perspective of library users from Thailand, with a major focus on service areas including the circulation, reference, and computer information services. This author found that while reliability was the most favoured dimension, tangibility was the least favoured dimension. A recent study by Datta and Vardhan (2017) conducted from the United Arab Emirates to assess the quality of education provided in management education also revealed partly contradictory findings from those of the current study. Datta and Vardhan (2017) discovered that the highest and lowest service quality gaps were respectively obtained in assurance and responsiveness service quality dimensions. Another study by Kiran (2010) which examined service quality perceptions of academic staff from the University of Malaya, in Malaysia revealed contradicting findings from those of the present study. It was revealed that responsiveness had the highest levels of service quality whereas reliability had the lowest.

The results of the current study further revealed variations within different groups of users regarding their expectations and perceptions of service quality. This is the sense that Faculty had higher perceptions and lower expectations compared to postgraduate students, who had higher expectations and lower perceptions. These results contradict those obtained by Simba (2006) in a study titled, user perceptions of the quality of service, at Iringa University College Library, Tumaini University, Tanzania. Simba (2006) discovered that academic staff had higher expectations and lower perceptions than postgraduate and undergraduate students. The discrepancy in the results of the current study and Simba's (2006) study could be attributed to the different research, and service quality needs of students and faculty.

The present study further revealed that users' expectations exceeded their perceptions of service quality in all service categories, which means that the IR failed to meet users' needs. Similar findings were obtained in service quality studies by Asogwa et al. (2014), Mahmoodi, Salarzadeh and Paslari (2015), and Enayati et al. (2013) whose studies also revealed higher expectations than perceptions, and thus negative gaps between these categories. According to Narit and Haruki (2003) the similarities in these results could be attributed to the fact that it is natural for people to wish for more than they have. Convergent findings were nonetheless, observed in a study by Paul (2014) who assessed service quality from three Warsaw multimedia libraries, in Poland. Unlike in the current study, the gaps between perceptions and expectations varied. In all three libraries, the gaps between perceptions and expectations in the empathy, tangibles, and assurance dimensions were positive. Paul (2014) avers that the positive gaps could be correlated to the thoughtful, deliberate, and careful hiring of employees with interpersonal skills and hard competencies. Paul (2014) further reported that the reliability dimension had a positive determinant gap in one of the surveyed libraries, the Start-Finish Media library, and slightly negative values in the other two libraries. The responsiveness dimension received negative gaps only in two libraries, the Book Stop and Nautilus.

6.4 Quality Factors in the Usability of the UNISWA IR

This section sought to address this study's second research question: *What quality factors influence the usability of UNISWA's institutional repository by faculty and postgraduate students at UNISWA?*

This section was examined based on constructs from the Unified Theory of Acceptance and Use of Technology (UTAUT), which is one of the theories underpinning this study. UTAUT

assesses users' intensions to use an information system, and subsequent behavioural intensions. The four critical UTAUT constructs which are direct determinants of usage and behaviour include performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh, Morris, Davis, & Davis, 2003). These authors defined Performance Expectancy (PE) as the degree to which individuals believe that using a specific system will enhance their job performance; Effort Expectancy (EE) as the degree of ease associated with the ease of using a specific system; Social Influence (SI) as the degree to which individuals perceive that people important to them believe they should use a specific system; and Facilitating Conditions (FC) as the degree to which individuals believe that organisational and technical infrastructure are available to support their use of specific technologies.

Findings of the present study revealed EE, PE, and FC influenced users' decisions to use and adopt the IR. Majority of faculty's usage intensions were not affected by SI, while postgraduate students were somehow influenced by this construct. This is expected since students are likely to move, or work in groups, and therefore may easily be influenced by the SI construct. Results from chi-square tests revealed significant differences ($0.000<0.05$, df=18) between postgraduate students and faculty's views in EE categories including: learning how to use the IR is easy ($X^2=53.850$); it's easy to become skilful with IR ($X^2=59.043$); comfortability with IR ($X^2=60.793$); ease of interaction with IR ($X^2=56.205$), and can do what I want with IR ($X^2=66.14$). Significant differences ($0.000<0.05$, df=18) were further observed from PE categories including: IR is a useful research tool ($X^2=78.513$); IR makes researching easier ($X^2=71.172$); increases research visibility ($X^2=72.229$); enables research sharing ($X^2=74.885$); preserves research ($X^2=74.885$); and contributes to career advancement ($X^2=70.389$). Chi-square tests further revealed significant differences ($0.000<0.05$), df=18) in SI categories including: important people think I should use IR ($X^2=70.646$), lecturers encourage IR usage ($X^2=94.332$), peers encourage usage ($X^2=88.500$), important researchers have copies in IR ($X^2=87.225$). Significant differences ($0.000<0.05$, df=18) were observed from FC dimensions including: availability of resources ($X^2=69.670$), necessary knowledge ($X^2=66.075$), software compatibility ($X^2=75.669$), and librarian's assistance with IR ($X^2=68.209$).

A similar study by Rempel & Mellinger (2015) explored how researchers from Oregon State University in the United States, adopted bibliographic management tools. Interviews and

journal reflections were used to collect qualitative data from respondents including students, staff, and faculty who actively used bibliographic management tools. The findings corroborated those obtained from UNISWA's faculty through revealing that PE, EE, and FC influence users' intensions to adopt and use bibliographic management tools while SI did not. Likewise, a similar study was conducted by Jackman (2014) who investigated factors influencing the acceptance of mobile learning amongst undergraduate students from the Cave Hill Campus of the University of the West Indies in Barbados, with data gathered through questionnaires. In the same vein, the findings revealed that PE, EE, and FC were major determinants of users' intentions to embrace mobile learning technologies. Social context did not have a significant effect even in the Caribbean context. Yet another UTAUT study was conducted from a developing country context by Moyo (2015) to assess factors influencing the use of electronic resources by students from the Institute of Chartered Accountants of Zimbabwe Information Centre. The study used a survey questionnaire to gather UTAUT data. The results indicated that PE, EE, and FC had a significant negative impact on the usage of electronic resources. SI was however, found to be an insignificant predictor of the usage of electronic resources. The results of these studies perhaps suggest that geographical context has no effect on SI.

Conflicting findings were nonetheless, obtained in a study by Orji, Ozkan, and Yasemin (2010) who applied the UTAUT theory to assess factors affecting the acceptance of the electronic library by national and international students. The study was conducted in Canada with data obtained from students using a self-administered online questionnaire. The results nevertheless, revealed that variables including, facilitating condition, effort expectancy, performance expectancy, and social influence (listed in decreasing order of relevance) are all critical factors influencing students' acceptance and use of the electronic library system. These factors had varying effects on the selected students. PE and SI were significant factors for international students, while EE and FC had the same effect for the two groups. Similarly, Chang (2013) assessed factors affecting undergraduate and postgraduate students' adoption and usage of library mobile applications in Eastern Taiwan's university libraries. This researcher integrated the UTAUT theory with task technology fit with data obtained through a survey. The results revealed that PE, EE, SI, FC, and task-technology fit determine users' intentions to adopt library mobile applications.

Furthermore, Santos-Feliscuzoa and Himang (2011) adopted the UTAUT theory to elicit responses on students intensions to accept the library's periodical indexing software. Data

was gathered from undergraduate and postgraduate students from the Cebu Institute of Technology in Philippines through a survey questionnaire. The results revealed that even in this context (developing country), all the four critical UTAUT constructs had a high significant effect on users' behavioural intension to use the library's periodical indexing software. Adeleke (2017) also conducted a UTAUT study from a developing country context to assess factors influencing the adoption and use of automated systems in public libraries from South West Nigeria. Data was obtained from library patrons and librarians respectively through survey questionnaires and focus group discussions. The findings revealed PE, EE, SI, and FC determined the acceptance and use of automated systems by librarians and patrons. Yet another study with conflicting findings from those of the current study was conducted by Wasitarini and Tritawirasta (2015) to investigate the degree of acceptance of the closed access library system, with data gathered using a questionnaire from patrons who visited the national library of Indonesia on the 2nd of October 2015. Wasitarini and Tritawirasta (2015) discovered that PE, EE, SI and FC all influenced usage intensions.

Dulle and Minish-Majanja (2011) examined the suitability of the UTAUT theory in the adoption of open access in six public universities from Tanzania, with data gathered through a survey questionnaire. They found that effort expectancy and performance expectancy were key determinants for the researchers' behavioural intentions of open access usage. Similarly, facilitating conditions and social influence were found to affect researchers' actual usage of open access significantly. Another study, conducted by Muhsin and Ahmad (2016) to investigate factors influencing students from Semarang State University in Indonesia's intentions to use e-journals conducted revealed that even though performance expectancy and social influence are positively related to students 'intentions to use e-journals, effort expectancy had no positive significant impact on behavioural intention. Muhsin and Ahmad (2016) further discovered that facilitating condition and behavioural intention are positively related to the actual use of e-journal. In a similar study, Awwad and Al-majali (2015) assessed the determinants of use behaviour regarding electronic library services with data obtained through a questionnaire from students in public universities from Jordan. The results revealed that students' intensions to use electronic library services were dependent on performance expectancy, effort expectancy, and social influence, while their use behaviour was dependent on facilitating conditions, and intention to use.

Donaldson (2011) examined the determinants of the behavioural intentions to use mobile learning by students from North Florida community college students, with data gathered through an online survey. The results revealed performance expectancy, social influence, perceived playfulness of learning, and voluntariness as significant predictors of behavioural intentions to use mobile learning, while effort expectancy and self-management were not significant predictors. A similar study by Ammarukleart (2017) was conducted from the Asian region to investigate factors affecting faculty's acceptance and use of Thailand's university-based institutional repositories. Data was gathered through a survey followed by semi-structured, one-to-one interviews. Ammarukleart (2017) found that PE, SI, and resistance to change were direct determinants of faculty members' intention to use institutional repositories. Behavioural intention and altruism were also found to be major determinants of actual usage behaviour. Yet another UTAUT study was conducted in the Asian region by Rahman (2012) to investigate factors expected to influence the willingness of postgraduate students to continue using the digital library. Data was gathered through questionnaires from students from Malaysian Intensive Research Universities. Rahman (2012) discovered that performance expectancy, effort expectancy and information quality were positively related to the continued use of the digital Library.

Contradictory findings were also observed in a study by Oye, Iahad, & Rahim (2012) who investigated the acceptance of information and communication technology by academic staff from the University of Port Harcourt in Nigeria, with data which was gathered using questionnaires. They found that effort expectancy is the most influential UTAUT construct influencing the behavioural intensions of academic staff and that attitudes towards the use of technologies significantly impacts on behavioural intension. Olasina and Mutula (2014) did a similar study from University of Ilorin, Nigeria to examine factors affecting users' preferences and patterns towards the use of e-books, with data collected through a survey questionnaire from faculty, librarians, and researchers. They discovered that faculty member's position, e-book availability, attitudes, behavioural intention, relative advantages and peer pressure, influenced the acceptance and use of e-books. These results contradict the theory by Venkatesh et al. (2003) which postulated that attitude does not have a significant effect on behavioural intension. This probably suggests the need to conduct more UTAUT studies from various contexts to further test the impact of this variable on individual's technology acceptance behaviour.

Different findings were further observed from Lwoga and Questier (2014) who examined the adoption and use of open access in Tanzanian health sciences universities, with data collected through a questionnaire from faculty. They found that facilitating conditions, extrinsic benefits (professional recognition), behavioural intention, and individual characteristics (professional rank, technical skills and number of publications) predicted the actual use of open access. They also further discovered that contextual factors (attitude, and open access culture), and extrinsic benefits (academic reward, accessibility and preservation) determined behavioural intention to use open access. Moreover, fear to violate publisher's copyright policies and effort expectancy de-motivated faculty from adopting OA, while copyright concerns inhibited faculty's actual usage of open access. Conflicting findings were also obtained in results from a study by Singeh, Abrizah, and Karim (2013) who evaluated Malaysian authors' readiness to self-archive in OA repositories. A web-based survey was used to gather data from authors from five research intensive universities in Malaysia. They found that PE, EE, EE, and FC all did not influence authors' behavioural intention to self-archive.

6.4.1 Future IR Usage Intensions

Majority of UNISWA respondents revealed that they intend to increase their usage of the IR, and to encourage their friends, colleagues, and students to use the IR. On the same note, a study by Koulouris et al. (2013) who assessed the launching of IRs in the Greek context revealed that almost all (97.18%) faculty members were willing to start using and submitting their work in the Technological Education (TEI) of Athens's repository. Contradictory findings were however, observed in a study by Mpoeleng, Totolo and Jibril (2015) which assessed librarians' perceptions, and willingness to use web 2.0 technologies to enhance library services. These authors found that majority of librarians from the University of Botswana neither agreed nor disagreed on their intensions to use web 2.0 technologies in the near future. The similarities between the results of the present study and Koulouris et al. (2013) study could be attributed to the fact that both studies were conducted from an institutional repository context. On the other hand, the differences (between findings of the current study and that of Mpoeleng, Totolo and Jibril (2015) could be attributed to the fact that these studies were conducted from diverse contexts, based on different information technologies (institutional repository and web 2.0).

6.5 Levels of Usage of the UNISWA IR

This segment addressed the study's third research objective: *What is the level of usage of UNISWA's institutional repository by faculty and postgraduate students?*

To gain a deeper understanding on the IRs usage, respondents were asked to indicate their: awareness of the IR; knowledge about its benefits; levels of computer skills, IR training needs; frequency of usage, and levels of submissions to the UNISWA IR.

6.5.1 Awareness Levels

Obuh and Bozimo (2012) aver that awareness raises consciousness and knowledge about specific technologies, and the benefits (personal or social) of using that technology. Owolabi and Atama (2007) and Nwosu and Ogbomo (2013) assert that awareness is a crucial requirement to the subsequent usage of open access publications, unless an individual uses it unknowingly. Dulle, Minish-Majanja and Cloete (2010) concur with this view, and assert that in Open Access (OA) environments, awareness has been recognised as a vital component determining the usage of new technologies.

Findings from the current study revealed that majority (136, 66.2%) of faculty, against 69 (33.6%) postgraduate students, agreed to being aware of the IR. In contrast, very few (21, 22.4%) amongst faculty were not aware of the IR, as compared to a considerable proportion of students (73, 77.7%) who gave a similar response. Other respondents including (58, 60.4%) of faculty, against fewer (38, 39.6%) postgraduate students, stated that they viewed the IR site after being sensitised by the researcher about its existence. Based on these findings it is apparent that majority of faculty knew about the IR, while many postgraduate students were not aware of the UNISWA IR. Results from the chi-square test of independence ($N=395$, $X^2=61.263$, $df=12$, $p=0.000$) as presented in Table 5.50 revealed a significant difference between faculty and postgraduate students in their levels of awareness about the UNISWA IR. UNISWA librarians however demonstrated mixed feelings regarding users' awareness levels. Two librarians pointed out that users were aware of the IR, while two of their colleagues were not sure of users' awareness levels. The remaining librarian stated that faculty and postgraduate students were not aware of the IR.

Findings from the current study are validated by Dolan (2011) who assessed West Virginia University (WVU) faculty's awareness of the institution's repository, and open access principles. Likewise, Dolan (2011) discovered that awareness amongst faculty was high,

with 94% of respondents who were aware of the WVU IR. Similar findings were revealed in a study by Shukla and Khan (2014) who investigated levels of awareness about IRs amongst research scholars and faculty from a minority university in India. They also found that most (279, 93%) research scholars and faculty (233, 96.28%) were aware of the IR concept. Very few (21, 7.0%) research scholars and 9 (3.7%) faculty were not aware of IRs. Findings of the current study were further confirmed in a study by Ogbomo (2015), who examined the levels of awareness and the perceived benefits of IRs amongst lecturers from federal Universities in the South zone of Nigeria. Ogbomo (2015) found that lecturers were aware of IRs and their benefits. These findings are buttressed by the study's overall mean statistic of 3.35, which was above the acceptance point of 2.50. The high IR awareness levels amongst faculty could be because of the internet revolution in Universities, and the frequent use of the internet for academic activities (Emojorho, Oghenetega, & Onoriode, 2012). Muneja (2009) asserts that faculty are more likely to know about IRs since they use it to access and disseminate academic materials.

The results of the current study further revealed that majority (73, 77.7%) of postgraduate students were not aware of the UNISWA IR. These findings are buttressed by Stanton and Liew (2011) who examined Massey University's doctoral students' awareness of open access and IRs. They found that less than half (117, 48%) of the surveyed respondents were aware of the concept of repositories. Stanton and Liew (2011) further interviewed eight respondents and found that while six of them were aware of the concept of IRs, only five of them were aware of the existence of the Massey IR. These authors argued that while levels of awareness seemed high amongst interviewees, they lacked deeper knowledge on the concept of IRs. Another study by Muneja (2009) assessed the University of Dar es Salaam (UDSM), Tanzania's library users' levels of awareness about IRs and their interests in the establishment of an IR. Muneja (2009) discovered that only 65 (34%) out of the 190 surveyed respondents knew about IRs. The lower levels of awareness could be attributed to the fact that research output is not a key determinant in the academic growth and progression of students (Vlachaki & Urquhart, 2010).

Contrary findings from those of the current study were further observed in a study Kim (2010) which was conducted from 17 institutions classified as Carnegie doctorate Universities, to assess factors affecting faculty's self-archiving preferences. It was revealed that out of the 684 surveyed professors, many (400, 58.5%) were not aware of IRs in their universities. Only 274 (40.1%) were aware and 10 (1.5%) did not answer. A similar study

by Dutta and Paul (2014) further investigated IR awareness levels and the willingness to participate in IRs, amongst faculty from the University of Calcutta, in India. They also discovered that awareness levels were not satisfactory, with only 24 (51.04%) respondents who were aware of the IR. Yet another study by Alemayehu (2010) investigated researcher's attitudes and their willingness to contribute to the University of Oslo's IR. The findings revealed that out of the 45 surveyed respondents, 31 of them were unaware of the IR concept, and 18 of them were not aware of the existence of an IR at Oslo University. According to Stanton and Liew (2011) awareness levels falling between 45%-55% despite marketing and advocacy campaigns, are considered as low. Dutta and Paul (2014) aver that low awareness and poor participation in IRs is a common phenomenon world over, and a major issue impeding the success of IRs. Muneja (2009) argues that many researchers often indicate that they are not aware of IRs, when they unknowingly use IR materials retrieved through google and other search engines.

6.5.2 Awareness by Faculty Affiliation

Further analysis was conducted to determine IR awareness levels by faculties of respondents. The results revealed that out of the 395 respondents, 70 (34.1%) postgraduate students from the institute of post graduate studies were aware of the UNISWA IR, while 73 (77.7%) of them were not. Faculties with the awareness levels ranging from highest to the lowest, included; Agriculture and Consumer Sciences, with 35 (17.1%) respondents who were aware of the IR and only 1 (1.1%) respondent who was not; Science and Engineering with 26 (12.7%) aware and 5 (5.3%) unaware; Social Sciences with 19 (19.3%) aware and 3 (3.2%) unaware; Education with 16 (7.8%) aware and 2 (2.1%) unaware; Humanities with 14 (6.8%) aware and 5 (5.3%) not aware; Institute of Distance Education with 7 (3.4%) aware and 1 (1.1%) unaware; and Commerce with 4 (2.0%) aware and 2 (2.1%) unaware.

These findings are confirmed by Abrizah (2009) who investigated the use of OA repositories by academics from a research-intensive university in Malaysia. Abrizah (2009) found that lecturers from the sciences including medicine (6 out of 15 people), engineering (9 out of 11 people), science (17 out of 35 people) and computer science (7 out of 23 people) were aware of IRs, and in favour of depositing of their research work in repositories. Similarly, Bamigbola (2014) in a study assessing awareness levels, and challenges faced by faculty from the agriculture discipline in the Federal University of Technology in Nigeria, discovered that the agricultural faculty were adequately aware of

IRs. Yet another study by Allen (2005) which examined attitudes of academic staff towards depositing their research in IRs also revealed that open access, and IR awareness levels were lower amongst humanities academics, compared to their counterparts from science, and Technical and Medical (STM) disciplines. In the same vein, Stanton and Liew (2011) found that awareness levels were higher, with 86 (72.3%) respondents from the college of science. The high IR awareness levels from the sciences is unsurprising considering the existence of subject based repositories (including arXiv and Cogprints) in the scientific community (Swan & Brown, 2005).

A study by Manjunatha and Thandavamoorthy (2011) which explored awareness levels of researchers from universities in Karnataka State, in India, nonetheless, revealed somewhat different findings. Contrary to results of the current study with higher levels of awareness in social sciences and humanities, Manjunatha and Thandavamoorthy (2011) reported that social sciences and humanities had the lowest IR awareness levels. This study partly confirmed findings of the current study through revealing that majority of scholars from the science and technology were aware of IRs. Contradictory findings were further observed in study by Ammarukleart (2017) which explored factors affecting faculty from Thailand's acceptance and use of institutional repositories. Ammarukleart (2017) found that majority of those who were aware of IRs were from humanities and social sciences, followed by those from science and technology fields. The disparities in awareness levels could be attributed the poor availability of technologies for accessing the IR in the different academic programs.

6.5.3 IR Awareness Sources

The results of the current study further revealed that besides the 185 (46.8%) respondents who were not aware of the UNISWA IR, others became aware of it through: hearing from colleagues (132, 33.4%); emails from the institution (21, 6.3%); seminars and workshops (19, 4.8%); websites (8, 2%); library committee meetings (8, 2%); lecturers (8, 2%); figured it on their own (4, 1%); library staff (4, 1%); orientation (3, 0.8%); library skills classes (2, 0.5%); and grapevines (1, 0.3%). Based on these findings it is apparent that the most popular IR awareness source is through hearing from colleagues, followed by emails from the institution, and seminars and workshops. The least popular approaches include finding the IR on their own, hearing from library staff, orientation, library skills classes, and grapevines.

In the same vein, Bamigbola (2014) indicated that majority of faculty from agricultural disciplines in Nigeria were informed about IRs through their colleagues. Unlike in the current study, Bamigbola (2014) indicated that a bulk of faculty also learnt about the IR through the university library. The findings of the current study were further validated by Nwosu and Ogbomo (2013) who reported that most lecturers from the South-South Federal Universities in Nigeria heard about IRs through academic staff /colleagues and others through internet browsing. Halder and Chandra (2012) also confirmed that the most popular IR awareness source amongst IR users from Jadavpur University, India was through colleagues, teachers/lecturers and the library website. Likewise, the least popular approaches were through the internet and bulletin boards. Fewer lecturers from South-South Federal Universities became aware of the IR through workshops, and others through bulletins, and flyers.

Abrizah (2009) further indicated that most academics from research intensive institutions in Malaysia learnt about IRs through results of a web search engine, and others through working in a field with established subject based archives, and following OA debates. Abrizah (2009) further confirmed the findings of the present study by also reporting that few of the Malaysian academics were informed about IRs through the university library website, postgraduate students, information provided at faculty or department meetings, and from other academic staff/colleagues. Unlike in the current study, Dutta and Paul (2014) revealed that most faculty members from the University of Calcutta heard about IRs through the internet, while very few users heard about the IR through librarians. The variations in the preferred IR awareness sources could be attributed to librarians and users' different information processing habits.

6.5.4 Benefits of Using Institutional Repositories

To determine IR users' understanding of IRs, respondents were asked to comment on the benefits of the UNISWA IR. When asked if they think the repository makes their research available to a worldwide audience, majority of respondents including, 70 (62%) of faculty disagreed, while few, 43 (38.1%) post graduate students also disagreed. Surprisingly, many (68, 72.3%) from faculty also agreed that the IR makes research available world over, compared to less than half (26, 27.6%) of students who gave a similar response. Results from the chi-square test of independence revealed a significant difference between faculty and postgraduate students ($N=395$, $X^2=42.127$, $df=12$, $p=0.000$) in their views that the

UNISWA IR makes their research available worldwide. These results indicate that many IR users from both groups of the surveyed respondents thought the UNISWA IR did not disseminate their research to scholars across the world.

These results contradict an assertion by Gorogh et al. (2013) who indicated that IRs provide access to research and thereby increasing the visibility of researchers, and their host institutions. The visibility of an institution is closely connected to the reputation of researchers and their institutions; in the sense once scholars know and value research from that institution, they give it more prestige. Contradictory findings from those of the current study were observed in Greece, in a study by Koulouris et al. (2013) who assessed the effectiveness, ease of use, effectiveness, and levels of understanding of the Technological Educational Institute of Athen's IR by Greek users. They discovered that majority (81.69%) of the respondents agreed that the benefits of IRs include promoting the dissemination of research, while many other users (77.46%) indicated that IRs encourage publication and author recognition. Very few users gave negative responses on the benefits of IRs. These included IRs decrease the value of publications (7.04%), and IRs destroy the publication process (1.41%). The contrast in the results of these studies (current study, and Koulouris et al., 2013) could be attributed to IR users' varying knowledge levels about the benefits of IRs.

The results of the present study further indicated that many (71, 72.5%) amongst faculty agreed that the IR makes their research available faster than the traditional publishing process. Few (27, 27.6%) postgraduate students agreed to the same statement. Those amongst faculty who disagreed were 67 (61.4%), compared to, 42 (38.5%) of their counterparts. Results from the chi-square test revealed a significant difference (N=395, X^2=35.943, df=12, 0.000<0.05) between faculty and postgraduate students in their views that the IR distributes their work faster than the traditional publishing process. Similar findings were observed in a study by Stanton and Liew (2011) who examined the awareness, and attitudes of OA publishing by doctoral students from Massey University in New Zealand. They discovered that many doctoral students thought IRs enhance the exposure of their work by making it available through google. These results are supported by 141 (61.08%) of doctoral students who agreed, 3 (1.3%) who disagreed, and 89 (39%) who neither agreed nor disagreed to the issue at hand. Most of the PhD students also agreed (136, 60.7%) that the IR enables them to publish their research findings very quickly, while very few doctoral students disagreed (13, 5.8%), and 75 (33.5%) gave neutral responses.

Faculty and postgraduate students were further asked to comment on the role of the IR in providing long term preservation of digital research materials. Majority (97, 66.9%) of faculty against 48 (33.1%) postgraduate students agreed on the issue at hand. Few respondents, including 41 (66%) amongst faculty disagreed as compared to even fewer (21, 33.9%) postgraduate students who also disagreed. Results from the chi-square test of independence showed a significant difference (N=395, X^2=33.663, df=12, 0.001<0.05) between faculty and postgraduate students in their views that the IR provides long term preservation of their work. These findings glaringly indicate that many users thought the UNISWA IR provides long-term preservation of their research.

These results are buttressed in the study by Stanton and Liew (2011) conducted from Massey University where many (168, 74%) of doctoral students agreed that the IR preserves their digital research, as compared to very few, who either disagreed (13, 5.7%) or gave a neutral (46, 20.3%) response. Similarly, a study by Li and Banach (2011) which examined digital preservation practices employed by members of the American Research Libraries revealed that a vast majority (97.4%) of respondents indicated that preservation was part of the mission of the IR while only 2.6% of respondents reported that preservation was not part of their mission. Amollo (2011) avers that even though libraries world over are establishing IRs and digitisation of their collections, the long-term preservation of the digital research materials is often overlooked by library administration. Baro (2010) asserts that this is because digital preservation has not been embedded as an integral part of IRs workflow, and the absence of specific preservation guidelines.

The results further revealed that majority (108, 65.8%) of faculty agreed that the IR preserves research in a convenient and central place, against a few (56, 34.1%) postgraduate students who gave a similar response. Others amongst faculty who disagreed on the issue at hand include 30 (69.9%), against even fewer (13, 30.2%) postgraduate students. Results from the chi-square test revealed a significant difference ((N=395, X^2=33.945, df=12, and 0.01<0.05) between faculty and post-graduate students in their views that the IR preserves university work in a central and convenient place for future use. These findings are in line with an assertion by Casey (2012) who indicated that faculty contribute to IRs, their written works including journal articles and unpublished works which are assigned descriptors to enable their efficient discovery, and thereafter made available in one place on the internet

where they are displayed as search results by search engines such as google. Russell (2009) avers that IRs play a vital role in storing university's research in a central location instead of being scattered in thousands of journals where it cannot be accessed by scholars.

The results further indicated that many (105, 63.2%) amongst faculty agreed that the IR allows them to search for recent findings by their colleagues, compared to (61, 36.7%) students who also agreed. Very few (33, 80.4%) of faculty, against even fewer (8, 19.5%) postgraduate students disagreed on the issue at hand. Results of the chi-square test showed a significant difference (N=395, X^2=36.855, df=12, and 0.000<0.05) between faculty and students in their views that the IR allows them to search for recent research generated by their colleagues. These findings conform with an assertion by Giesecke (2011) who pointed out that a repository is a new collection development strategy which expands librarian's roles from the identification and purchasing of published materials, to the gathering and dissemination of research works generated by faculty. The findings of the present study are further buttressed by Molteno (2016) who asserts that the availability of research through IRs will enable researchers to find scholars who have conducted similar research, and increase chances of establishing future research networks. Molteno (2016) further opines that as the number of theses/dissertations in African IRs grows so will the total sum of accessible empirical information, analytical information, and conclusions about Africa.

6.5.5 Levels of Skills

To gain a deeper understanding of respondent's computer competencies, and thereby their likelihood of successfully utilising the IR, they were asked to rate their levels of skills in searching and retrieving documents from the repository. Majority (60, 73.2%) of faculty who were aware of the UNISWA IR indicated that their levels of skills were low, compared to a few (22, 26.8%) postgraduate students who also had low skills. On the other hand, few (32, 63.2%) of faculty had high levels of computer skills, against even fewer (19, 37.2%) postgraduate students who indicated that their levels of skills were higher. Other respondents including (46, 61.3%) of faculty against (29, 26.8%) of their counterparts were non-committal on the issue at hand. Results from the chi-square test of independence revealed a significant difference between faculty and postgraduate students (N=395, X^2=46.446, df=18, p=0.000) in their levels of skills in searching and retrieving documents from the repository.

The results are buttressed by Safahieh and Asemi (2008) who assessed the computer literacy skills of librarians from the Isfahan university in Iran. In the same vein, majority (28, 68.3%) of librarians considered their level of computing skills as either fair or low. Likewise, very few (13, 31.7%) respondents perceived their computing skills as good. Another study by Ebele, Ejedafiru and Oghenetega (2013) assessed information literacy skills amongst librarians from Madonna University in Nigeria. It was likewise revealed that, 3 (27.27%) librarians had moderate skills; 3 (27.27%) had low levels of skills, while only a few respondents (2, 18.15%) had very high, and very low (1, 18.1%) skills. These results show that librarians from Madonna University had poor information/ICT literacy skills, which conforms to results of the current study. Even though these studies (the current study, and those of Safahieh & Asemi, 2008; and Ebele, Ejedafiru, & Oghenetega, 2013) assessed separate groups of respondents (faculty, postgraduate students, and librarians); similar findings were revealed in terms of low levels of computer skills from respondents. These studies show that librarians and end users have poor computer skills. This suggests the need for continuous training programmes for both librarians and end-users regarding the effective utilisation of electronic information resources (Peiris & Peiris, 2012).

Different findings were obtained in a study by Adeleke and Emeahara (2016) who examined the relationship between information literacy and the use of information resources by postgraduate students from the university of Ibadan in Nigeria. They discovered that many, (240, 80%) students had high to very high skills in accessing electronic information resources, while only a few (60, 20%) had skills ranging from low to very low. Another study by Hassan (2002) investigated library users' perceptions regarding the use of electronic information resources from selected public libraries in Malaysia. When students and academic staff were asked about their previous IT and information/library skills, majority (78%) of the respondents indicated that they had sufficient computer skills, while only 46% had information/library skills, and one third (32%) of the respondents had internet skills. The discrepancies in the findings of the present study and those by Adeleke and Emeahara (2016) and Hassan (2002) could be caused by the fact that these studies were conducted from different contexts, and the diverse levels of training provided for the respondents. Omotunde (2017) asserts that end user training is essential as it boosts users' searching skills, morals, and overall usage of library resources.

When faculty and postgraduate students who were aware of the IR were asked if they needed to be trained on how to use the repository effectively, results showed that majority (95, 65%) of the faculty indicated that they needed to be trained as compared to 51 (34.9%) of postgraduate students who gave a similar response. On the other hand, very few (43, 71.7%) of faculty against even fewer (17, 28.4%) postgraduate students did not require training. Results from the chi-square test of independence revealed a significant difference between faculty and postgraduate students (N=395, X^2=42,917, df=12, p=0.000) in their needs to be trained on how to effectively utilise the UNISWA institutional repository.

Similar findings were obtained in a study by Bhatti and Nadeem (2014) who investigated Library and Information Science professionals' perceptions regarding training needs in University libraries from Pakistan. Likewise, it was revealed that almost all respondents were eager to be trained on using library ICT technologies compared to a few (13, 10.3%) out of the 126 who were competent in using ICTs, and thus did not require training. On the same note, a study by Omotunde (2017) which investigated ICT training needs of academic staff from Tanzania revealed that majority (5, 71.4%) of professors, 8 (66.3%) of PhD holders, and 3 (75%) of bachelor degrees students likewise, affirmed the need to be trained. On the contrary, majority of master's holders believed they had sufficient ICT skills and therefore declined the need to be trained. Baro, Eze and Nkanu (2013) aver that institutions, non-governmental organisations, and library associations need to organise workshops and seminars to enable librarians to upgrade their ICT skills. Failure to do so means they cannot be able to train library users on various ICT aspects effectively.

Moreover, when respondents were asked if the UNISWA library currently provides enough training to enable the effective usage of the IR, most (69, 60%) of faculty disagreed, and 46 (40%) postgraduate students disagreed. Very few (23, 71.8%) of faculty, and only 9 (28.1%) postgraduate students agreed regarding the sufficiency of training provided by UNISWA librarians. Other respondents including 46 (76.6%) of faculty against 14 (23.4%) neither agreed nor disagreed on the issue at hand. Results from the chi-square test of independence revealed a significant difference between faculty and postgraduate students (N=395, X^2=46.802, df=18, p=0.000) in their views regarding the adequacy of training provided by the UNISWA library on the IRs usage.

Related results were observed in a study by Okite-amughoro, Makgahlela and Bopape (2014) who assessed the usage of electronic information resources for academic research by postgraduate students from Delta University in Nigeria. Okite-amughoro, Makgahlela and Bopape (2014) reported that postgraduate students failed to retrieve relevant information from electronic resources due to lack of training. This assertion is supported by 107 out of the 150 surveyed respondents who stated that they did not receive any training on the use of ICTs. The results of the current study are further buttressed in a study by Namugera (2014) which investigated user's awareness, perceptions and usage of Makerere university library's services. It was revealed that a considerable number (73.7%) of respondents were not aware of library user training services when this is included in the university's orientation program for new students every academic year. Only 25 (26.5%) out of the 94 respondents were aware of the library user training service. Namugera (2014) asserts that the poor attendance and awareness about library training programs could be because the training schedules often coincide with lectures and student's work plans. Musoke and Mwesigwa (2012) opine that this issue could be solved through increasing the frequency of training programs.

Furthermore, when faculty and postgraduate students were asked if they had ever used IRs across the world, majority (265, 67.1%) of the respondents disagreed, while less than half (130, 32.9%) of the respondents had used repositories world over. The latter group pointed out that they used IRs for research purposes (117, 29.6%); to fulfil graduation requirements (11, 29.6%), and to track their work (2, 0.5%). When asked how frequently they accessed the UNISWA IR majority of the respondents indicated that they never use it (215, 54.4%); infrequently accessed (119, 30.1%); accessed several times a week (23, 5.8%), once a month (21, 5.3%); once a week (15, 3.8%), and on daily basis (2, 0.5%). Contradictory findings from the current study were nevertheless observed in a study by Bagudu and Sadiq (2013) who examined postgraduate student's perceptions towards digital library services in the International Islamic University in Malaysia. Unlike in the UNISWA case, they discovered that most (42, 25.6%) respondents used the digital library weekly, followed by those who used it two to three times a week (30, 18.3%); and daily (21, 12.8%). Some (29, 17.7%) students also reported that they rarely used the digital library. Fewer students used the digital library monthly (18, 11.0%); fortnightly (12, 7.3%); and twice a semester (12, 7.3%). The varying usage levels observed from these studies could be caused by respondent's diverse levels of awareness and skills required to use digital collections effectively.

UNISWA faculty and postgraduate students stated that they infrequently used the local IR due to lack of awareness (193, 48.9%); no time due to hectic work load (42, 10.6%); not well informed about the IR (31, 7.8%); no relevant information for my research area (30, 7.6%); preference for other web sources (25, 6.3%); lack of skills for searching the IR (20, 5.1%); discouraged from using the IR by slow internet (11, 2.8%); and preference for reputable journals (3, 0.8%). On the other hand, respondents frequently use the IR for research purposes (42, 10.6%); and to share their research with their peers (3, 0.8%). In the same vein, students from the International Islamic University in Malaysia, reported that they used the digital library for research (44.5%), supplementary reading (21.3%), and for assignment purposes (21.3%) (Bagudu, 2013). Similar results were obtained from a survey of scholars from nine scientific disciplines from colleges in the United States and Canada which was conducted by Lawal (2002) to determine the use and non-use of e-print archives by faculty. It was revealed that likewise, faculty used e-print archives to disseminate their research results, and to increase visibility of their work. Reasons for poor participation included restrictive publisher policies, technological constraints, and the absence of documents relevant to their fields of study.

Similar findings were further obtained in a study by Davis and Connolly (2007) which evaluated the reasons for the poor or non-usage of Cornell's Dspace. They discovered that the IR was largely underpopulated and underused by faculty due to less knowledge or motivation to use the IR. Faculty as a result preferred using alternatives to IRs including personal webpages and disciplinary repositories. In the UNISWA case however, fewer respondents (25, 6.3%) preferred web sources over IRs. Other reasons cited by Cornell include the IRs redundancy with other modes of information dissemination, confusion regarding copyright and publishing requirements, fear of plagiarism, and associating IRs with inadequate quality work. Comparable results for the infrequent usage repositories were obtained in a study by Swan and Brown (2005) who examined OA self-archiving behaviour. They reported that author's reluctance to archive their work was due to technical difficulties encountered and the perceived time required using digital repositories. In the same vein, Akpokodje and Akpokodje (2015) cited reasons for poor usage of IRs including no technical skills, frustrating internet, inadequate time, lack of awareness about the existence of the IR or its functionalities.

Faculty and postgraduate students were further asked if they submit their research in the IR. Many (313, 79.2%) of faculty and postgraduate students revealed that they do not contribute their work in the repository, followed by 72 (18.2%) who infrequently contributed, and even fewer (10, 2.5%) who frequently contributed content to the IR. Even though majority of respondents had indicated that they were aware of the IR (see Table 5.49), very few amongst them contribute their research to the local IR. Comparable results were observed in a study by Bamigbola (2014) who reported that likewise, very few (4, 7.8%) of faculty from the Federal University of Technology in Nigeria, had submitted their research in their university IR or used it as a source of information. Most respondents (30, 58.8%) had not submitted their scholarly works in their university IRs but used it to search for information, while fewer respondents (17, 33.4%) neither submitted their research nor searched for information from the IR. The similarities in the IR contribution trends observed from these studies which were conducted from diverse contexts could be attributed to challenges including amongst others the lack of time, lack of skills or training on IRs usage, as well as poor internet connections from these developing countries.

Reasons cited by many of UNISWA faculty and postgraduate students for the infrequent or no submissions to the repository included lack of awareness (104, 26.3%); few or no publications (119,30.1%); not well informed (55, 13.9%); and no time to access the IR due to heavy work load (37, 9.4%). Other respondents reported that they preferred scholarly journals (12, 3.0%); lack of skills (12, 3.0%); no one requested for their publications (9, 2.3%); discouraged by slow internet (9, 2.3%); have not considered sharing my work (8, 2.0%); and do not own copyright (6, 1.5%). Very few respondents cited reasons such as, not finding the IR useful (4, 1.0%); not sure if IR is properly managed (2, 0.5%); IR submissions are not mandatory (2, 0.5%); no options to upload one's work (2, 0.5%); contribute research to own department (1, 0.3%). The reason cited by those (13, 3.3%) who frequently used the IR was to share their research for easy access by colleagues.

Similarly, Foster and Gibbons (2005) examined factors encouraging or impeding professors' IR submissions. They likewise discovered that faculty's contributions were driven by the need to enable their colleagues to find, use, and cite their work. Foster and Gibbons (2005) identified other factors such as fear of copyright infringements, and the lack of time for the additional work required during the document submission processes. In the same vein, Dubinsky (2014) cites reasons for the reluctance to contribute to IRs, including concerns

about copyright infringements, lack of peer review, and doubts about the inherent value of IRs. Likewise, Davis and Connolly (2007) identified reasons for poor submissions including lack of awareness, IR being redundant with other modes of research dissemination, copyright fears, plagiarism concerns, and preference for submitting research in disciplinary repositories. On the same note, Creaser (2010) in a survey of 3000 scholars across Europe cited reasons including faculty's lack of knowledge on how to deposit research materials in IRs, and the unwillingness to mix their research output with work that has not been peer reviewed. The results show that the reasons cited by faculty and students for the usage/ non-usage, and contributing, or failure to contribute to IRs are similar.

Faculty and postgraduate students were thereafter asked to state their preferred method of submitting their research outputs in the UNISWA IR. Most (279, 70.6%) respondents preferred submitting their work through librarians in charge of the IR, while fewer (111, 28.1%) respondents preferred self-archiving their work. Very few (5, 1.3%) amongst faculty and postgraduate students preferred having both options available. Similar findings were observed in a study by Dubinsky (2014) which examined 214 academic institutions using the digital commons IR software and discovered that fifty-four (54%) of respondents pointed out that their research is submitted through library staff, while the remaining respondents indicated that their IRs are populated through a combination of mediated deposits (submissions through librarians), and self-archiving. The results of the current study, and Dubinsky's (2014) study clearly show that majority of respondents preferred submitting to IRs through librarians. This could be because they do not have time to self-archive their research output, or lack the necessary IR navigation, or submission skills. Contradictory results were nonetheless observed in Greece from a study conducted by Koulouris et al. (2013) who revealed that most faculty members chose to self-archive their research once they received clear instructions from library staff.

UNISWA respondents were thereafter asked to state reasons for their preferred IR submission method. They indicated that they preferred submitting through librarians because of their expertise in knowledge organisation, (153, 38.7%); respondent's lack of skills in using the IR (75, 19%); no time to deposit documents on their own (38, 9.6%); and trust that librarians can ensure that no information is lost during the document submission process (14, 3.5%). Other respondents preferred submitting research to the IR on their own: because it is more convenient (49, 12.4%); would enable them to better understand the

UNISWA IR system (37, 9.4%); they have the technical skills know how (20, 5.1%), and this can put them at ease since they don't trust anyone to handle their scholarly work (2, 0.5%). The remaining respondents preferred having both options available as this would: make the submission process faster and easier (4, 1%); and assure them researchers that copyright laws are not violated (1, 0.3%).

Singeh, Abrizah and Karim (2013) in the same vein cited factors affecting the archival of research output by faculty, such as no time to: enter arduous and complicated bibliographic data in metadata forms, investigating publisher's permission policies, and digitising paper documents. Dubinsky (2014) reported that fifty-three (53%) of IR administrators pointed out that they did not allow faculty to self-archive research outputs due to concerns about the consistency and quality of the submitted metadata, appropriateness of content, and copyright permissions. Dubinsky (2014) further reported that almost one third of IR administrators indicated that they do not allow faculty self-archiving because they observed that faculty lacked interest, willingness, or time for IR submissions. Faculty members also claim to be too busy to submit research to IRs, and even those who have time do not want to be bothered, and fail to spare time to be properly trained on how to upload documents to IRs.

6.6 Challenges in the Use of the IR

UNISWA faculty were further asked to comment on potential challenges and concerns likely to inhibit their use of the IR. This was to address the research question: *What are the challenges of service quality facing faculty and postgraduate students in the use of UNISWA IR?*

6.6.1 Slow Internet Connection

The results of the study indicated that majority (156, 54%) of faculty were likely to be inhibited by slow internet from using the UNISWA IR, while 133 (46%) of postgraduate students were not likely to be affected by this factor. Those that were not likely to be affected by slow internet included 26 (57.1%) of faculty against 19 (42.2%) postgraduate students. Other respondents including 33 (54.1%) of faculty against 28 (45.9%) postgraduate students were neither likely nor unlikely to be affected by the issue at hand. These results indicate that slow internet is a barrier to the effective utilisation of the IR by faculty and postgraduate students. The results of the chi-square test of independence

revealed that there was no significant difference between faculty and postgraduate students (N=395, X^2 =7.871, df=12, p=0.795) in their likelihood of being inhibited by slow internet from using the UNISWA IR. In the same vein, UNISWA librarians agreed that slow, or no internet is indeed an impediment to the usage of the IR.

Nyambi and Maynard (2012) in their study which examined the status of OA institutional repositories from seven state universities in Zimbabwe reported that even though the development of IRs requires fast and reliable internet, most interviewees expressed concerns with the universities' slow internet connection. Nyambi and Maynard (2012) further stated that students and staff from the Zimbabwean Universities often resort to using commercial internet cafes from the city with faster and more reliable computers, and internet connections to enable them to download their research materials. Similarly, Christian (2008) in a study titled, issues and challenges to the development of open access institutional repositories in academic and research institutions in Nigeria, reported that most students and staff from the University of Lagos in Nigeria use internet cafes which costs them approximately $1 per hour. Even though this looks cheap, the internet connection is very slow such that it may take about 15 min to access a yahoo email account. The similarities in the results of the current study and those by Nyambi and Maynard (2012) and Christian (2008) could be attributed to the fact that the issue of low bandwidth is a common problem facing countries in the Sub-Saharan region. This is due to the use of satellite bandwidth as opposed to much cheaper optic fibre infrastructure (Christian, 2008). The high costs of bandwidth in developing countries make it difficult for academic institutions to afford adequate bandwidth to host IRs.

6.6.2 Lack of Computer Access

Findings of the current study further indicated that majority (115, 72.7%) of faculty were not likely to be inhibited by the lack of computer access from using the IR, as compared to 43 (27.2%) postgraduate students who gave a similar response. Those who were very likely to be affected by lack of computer access included 39 (32.8%) of faculty, against 80 (67.2%) post graduate students. The remaining respondents including 61 (51.6%) amongst faculty against 57 (48.3%) postgraduate students were neither very likely nor unlikely to be inhibited by the issue at hand. The results glaringly indicate that faculty is less likely to be affected by the lack of computers, while students are very likely to be affected. This is probably because majority of faculty have computers in their offices when students have to

rely on computers from shared computer labs while on campus. The results of the chi-square tests showed a significant difference between faculty and postgraduate students (N=395, X^2=56.440, df=12, p=0.000) in their likelihood of being affected by lack of computer access from using the IR.

Similar results were observed in a study by Mawindo (2005) which evaluated students' usage of print and electronic resources at the University of Malawi, College of Medicine. It was in the same vein, revealed that the issue of limited access to computer terminals was a major impediment to the use of electronic resources. This assertion is supported by 46 (95.8%) of respondents who agreed to the issue at hand. Mawindo (2005) states librarians responded to this challenge by limiting the time allocated for students' computer usage. Different findings were however revealed by Christian (2008) who reported that at the University of Lagos in Nigeria some of the University's local area networks available for academic staff are often plagued with technical issues, which forces staff to resort to other forms of computer and internet access. Contradictory results were further observed in Malone, Levrault, & Miller' s (2006) in a paper titled factors influencing the number of computers in libraries: an exploratory white paper. They reported that many students from the American Colleges and Research Libraries (ACRL) had personal computers, which eased pressure on libraries to provide additional computers. It was further revealed that ACRL college libraries further indicated that they do not intend to increase their number of computer work stations, since they have diverse network jacks and wireless access for laptop users. Their priority is adding more electrical outlets for laptop users. The variation in the findings could be attributed to the different priorities in terms of budget allocations for information technologies in the different universities.

6.6.3 Lack of Skills

The results further indicated that majority (79, 68.6%) of faculty were not likely to be inhibited by lack of skills from using the IR, compared to less than half (36, 31.3%) of their counterparts who gave a similar response. Surprisingly many faculty (73, 43.5%) were also very likely to be inhibited by lack of skills from using the IR compared to many (95, 56.6%) of their counterparts who gave a similar response. The remaining respondents including 63 (56.3%) of faculty against 49 (43.8%) postgraduate students were neutral on the issue at hand. These findings therefore suggest that lack of skills is likely to impede the effective usage of the IR particularly post-graduate students. These results are in line with those

presented in chapter 5, Table 5.61 where many postgraduate students indicated that their levels of skills ranged from low to average. Results from chi-square tests for independence revealed a significant difference between faculty and postgraduate students (n=395, X^2=33.098, df=12, p=0.001) in the likelihood of being inhibited by lack of skills from using the IR. These findings were buttressed by librarians who pointed out that lack of skills particularly amongst postgraduate students indeed affects the usage of the IR.

Similar results were observed in a study by Sasikala and Dhanraju (2010) who examined the levels of information literacy skills amongst science students from Andra University. They found that majority of students' levels of skills in searching and retrieving information from the library catalogue was low. Another study by Safahieh and Asemi (2008) which assessed the levels of computer skills and computer experiences amongst librarians from the University of Isfahan in Iran, in the same vein, revealed that majority (28, 68.3%) of respondents considered their levels of skills as fair or low. On the other hand, only a few (13, 31.7%) considered their levels of computing competencies as good. Okello-Obura and Magara (2008) in a study which investigated the levels of computer utilisation skills by Library and Information Science students from Makerere University in Uganda revealed that limited access was cited by majority (171, 90.0%) of students as the main barrier impeding access to e-resources. Many other respondents cited the lack of time (97, 51.1%), lack of IT skills (76, 40.0%) and too much information retrieved (76, 40.0%) as barriers to the effective use of e-resources. Okello-Obura and Magara (2008) assert that all these factors can be viewed as a result of ineffective information retrieval skills because effective retrieval skills should result in the retrieval of manageable amounts of information and an efficient use of time.

6.6.4 Lack of Awareness

The results of the current study revealed that majority (117, 50.4%) of postgraduate students compared to (115, 49.5%) of faculty indicated that lack of awareness was very likely to be a barrier in their use of the IR. On the other hand, less than half (26, 37.6%) of post graduate students against (43, 62.2%) of faculty were likely to be affected by lack of awareness from using the IR. The remaining respondents including (37, 39.4%) of postgraduate students compared to (57, 60.7%) of faculty were non-committal on the issue at hand. These results glaringly show that lack of awareness is a major impediment in the use of the IR. These results are surprising and contradictory since many of faculty had earlier on indicated (as

shown in Table 5.49) that they were aware of the UNISWA IR. This could be because they probably generalised lack of awareness as a barrier in the use of the IR, not as it specifically applies to them. The results of the chi-square test of independence revealed that there is no significant difference between faculty and postgraduate students (N=395, X^2=19.411, df=12, p=0.079) in their likelihood of being inhibited by lack of awareness from using the IR.

These findings are validated by Christian (2008) who reported that majority (49, 74.3%) of respondents from Nigerian Universities were completely unfamiliar with the concept of OA IRs, while very few (2, 3%) were very familiar with IRs, and the remaining (15, 22.7%) of respondents knew very little about repositories. Christian (2008) asserts that the issue of lack of awareness is not peculiar to Nigerian universities, but is common in most institutions particularly developing countries. This issue is thus a major impediment in the effective development of IRs in developing countries. Yang and Li (2015) similarly cite the lack of awareness of the Texas A & M University repository's as barrier which results in low IR participation levels amongst faculty. Yang and Li (2015) pointed out that faculty's lack of awareness about the IR affected their searching behaviour which resulted in the IR being ranked last as a method of finding articles, while Google and Google scholar were ranked first. The similarities in awareness levels could be due to the fact that the librarians in charge of the IRs are not effectively marketing the institutional repositories to the target audiences.

6.6.5 Fear of Copyright Violations

The results further revealed that majority (151, 70.5%) of faculty against (63, 29.4%) post graduate students indicated that the fear of copyright violations is not likely to inhibit them from using the IR. Fewer respondents including (26, 32.7%) amongst faculty against 54 (67.6%) postgraduate students were likely to be affected by the issue at hand. The remaining 38 (37.7%) from faculty compared to, 63 (62.4%) postgraduate students were neither not likely nor very likely to be inhibited by the fear of copyright violations from using the UNISWA IR. The results thereby glaringly show that the fear of copyright infringements is not a challenge in the use of the UNISWA IR. Results from the chi-square tests of independence showed a significant difference between faculty and postgraduate students (N=395, X^2=64.511, df=12, p=0.000) in their likelihood of being hindered from using the IR by fears of violating copyright policies. Librarians on the contrary, pointed out that the issue

of copyright has affected their acquisition of IR research particularly because some publishers prohibit the inclusion of their work in IRs.

Dutta and Paul (2014) in their study conducted from the University of Calcutta, India, nevertheless, pointed out that fear of violating copyright policies was the most influential factor which determined users' willingness to contribute to IRs. They further discovered that only one fourth (9, 19.5%) of respondents from the University of Calcutta were aware of dual copyright issues, while the remaining (38, 80.8%) were not. These authors defined dual copyright as authors control over the content, but this right is transferred to the publisher with the consent for publication using any publication channel. Dual copyright allows authors to retain the copyright of their work. Covey (2011) in a study conducted from the Carnegie Mellon University to examine factors motivating faculty to self- archive on a website or disciplinary repository, discovered that copyright concerns and the fear of violating publisher policies were mostly cited by faculty as barriers to the submission of their research in IRs. Yet another study by Campbell-Meier (2011) which comparatively analysed IRs in Canada revealed that copyright concerns is one of the biggest barriers to the acquisition of IR content by librarians. Campbell-Meier (2011) stated that after digitising paper-based content, Canadian IR developers are mandated to seek permission from individual authors before their work can be archived in IRs. Not only is permission required from document authors, but in some cases permission from the quoted authors is also required.

6.6.6 No Time to Access IR

The findings indicated that majority of faculty (82, 71.9%) against less than half (32, 25.4%) of post graduate students were not likely to be hindered by the lack of time from using the IR. Surprisingly many (68, 47.2%) amongst faculty against (76, 52.8%) of postgraduate students indicated that they were very likely to be affected by the issue at hand. The remaining 65 (47.4%) of faculty against 72 (52.6%) were neutral on the issue at hand. Results from chi-square tests of independence showed a significant difference between faculty and students ($n=395$, $X^{22}=23.354$, $df=12$, $p=0.025$) in their likelihood of being impeded by lack of time from using the IR. These results contradict findings presented by UNISWA librarians who pointed out that many of faculty and postgraduate students often complain that they have no time to neither use nor contribute research to the IR. According to Covey (2011) saving time and investing it wisely are high priorities for faculty. Similarly,

Singeh, Abrizah and Karim (2013) in their study which evaluated Malaysian authors' readiness to self-archive in OA repositories reported that time consumption is a major impediment to self-archiving, particularly since researchers consider the entering of extra bibliographic data to be arduous and complicated. Harnad (2005) in a study titled, maximising the return on UK's investment in research revealed that contrary to researcher's fears self-archiving is less time consuming since this can be done in less than ten minutes. The variations regarding the availability of faculty and student's time for accessing the IRs could be attributed to their different workloads.

Respondents were further asked to state the concerns regarding submitting their publications in an institutional repository. Their responses were based on concerns including: I worry this might constitute prior publication; I am hesitant to assign the distribution rights of my work to the university; I am concerned that works submitted to IRs will not have citation value; and I would be worried about the patentability of my ideas.

6.6.7 Worry this Might Constitute Prior Publication

The results indicated that majority (77, 59.3%) of faculty compared to 53 (40.8%) postgraduate students who were not at all concerned that archiving their work in an IR will be regarded as prior publication. Slightly less than half (52, 49.6%) of faculty against (53, 50.5%) of their counterparts were somewhat concerned about the issue at hand, while 21 (34.4%) of faculty compared to 40 (65.5%) postgraduate students were slightly concerned; 24 (77.4%) postgraduate students against 7 (22.26%) of their counterparts were moderately concerned; and 41 (60.3%) of faculty compared to 27 (39.7%) of postgraduate students were extremely concerned that submitting their work in the IR will be regarded as prior publishing. These results show that many UNISWA IR users are not at all concerned about the issue at hand. Results from the chi-square test of independence showed a significant difference between faculty and postgraduate students ($N=395$, $X^2=50.701$, $df=24$, $p=0.001$) in their views that IR submissions may be regarded as prior publishing and thereby preclude future submissions to scholarly journals.

Contrary to findings of the present study, Hertenstein (2014) in a study which assessed student scholarship in IRs reported that some departments do not support the submission of their student's theses in IRs because they fear for their future publishing opportunities. Contradictory results were observed from a study conducted by Ramirez et al. (2013) in a

study titled, “do open access electronic theses and dissertations diminish publishing opportunities in the social sciences and humanities”, reported that some graduate students were warned by their advisors or threatened by publishers that allowing open access to their work will preclude future publication of their content in certain scholarly journals. Ramirez et al. (2013) further nonetheless, revealed that majority (82.8%) of journal editors indicated that they would consider manuscripts derived from an openly accessible Electronic Thesis/Dissertation (ETD); 65.7% of journal editors indicated that such manuscripts are always welcome for submission, 17.1% indicated that the manuscripts/ ETD would be considered on a case by case basis, while only 2.9% of journal editors stated that the manuscripts would not be considered under any circumstances.

6.6.8 Hesitant to Assign Distribution Rights of My Work to the University

The findings of the current study showed that majority (98, 63.3%) of faculty against 57 (36.7%) postgraduate students were not at all hesitant to assign the distribution rights of their work to UNISWA. Other respondents were moderately concerned (20, 60.6%) of faculty against 13 (39.4%) postgraduate students; slightly concerned (30, 43.4%) of faculty against 39 (56.5%) postgraduate students; somewhat concerned (33, 40.3%) faculty against 49 (59.6%) postgraduate students; and extremely concerned (34, 60.7%) faculty against 22 (39.3%) postgraduate students. These results therefore indicate that majority of UNISWA respondents were not hesitant to assign the distribution rights for their work to the University. The results from the chi-square test of independence showed a significant difference between faculty and postgraduate students ($N=395$, $X^2=45.422$, $df=24$, $p=0.005$) in their hesitancy to assign the distribution rights for their work to UNISWA.

Hertenstein (2014) in a study which focused on student’s scholarship in institutional repositories reported that students are willing to post their work in repositories once the benefits of availing their research online are clearly explained to them. These results are further confirmed by Markey et al. (2008) who indicated that undergraduate students at baccalaureate and masters’ granting institutions were also as likely as academic staff to post their materials in IRs. Passehl-stoddart and Monge (2014) in a study titled “from freshman to graduate: making the case for student-centric institutional repositories”, reported that students were typically excited to share their work with colleagues from their campuses and world over. They further reported that after seeing the benefits of having students’ work available in IRs, many of faculty and instructors have been enthusiastic to continue

archiving their future student's work in the IR. Dubinsky (2014) opined that even though individual scholars and researchers have shown less enthusiasm towards archiving their research in IRs, the growing number of repositories indicates that academic institutions have accepted IRs, and institutions roles in disseminating scholarly output.

6.6.9 Concerned about Citation Value

The findings indicated that majority (97, 63%) of faculty against 57 (37%) of postgraduate students were not at all concerned about the citation value of work archived in IRs. Others were moderately concerned, 23 (59%) of faculty against 16 (41%) of postgraduate students; slightly concerned 28 (44.5%) faculty against 35 (55.6%) postgraduate students; somewhat concerned 38 (49.4%) faculty against 39 (50.7%) postgraduate students; and extremely concerned 29 (46.7%) faculty against 33 (53.2%) post graduate students. These results clearly indicate that majority of respondents are not concerned about the citation value of work archived in IRs. Results from the chi-square test of independence revealed a significant difference between faculty and postgraduate students ($N=395$, $X^2=31.354$, $df=24$, $p=0.144$) in their concerns that works submitted to IRs will not have citation value.

Swan (2010) in a study titled, "the OA citation advantage: studies and results to date", compiled results from 31 studies which focused on the citation effects of OA. The findings revealed that 27 of these studies reported a positive open access citation advantage. The remaining 4 studies revealed the lack of an open access citation advantage nor disadvantage. Herb (2010) asserts that the restrictions and scope of databases used to calculate journal impact factors have resulted in OA publications with great scientific value failing to feature any citation-based impact scores since they are not indexed by these databases. This particularly applies to documents that are self-archived in OA repositories and not published in OA journals. Herb (2010) thereby cites the lack of tools and indicators to measure impact factor as barriers to publishing and archiving work in open access platforms.

6.6.10 Worried about Patentability of Ideas

The results of the study showed that majority (87, 58.1%) of faculty against 63 (42%) of postgraduate students were not at all concerned about the patentability of their ideas. A few respondents (24, 60%) against 16 (40.0%) were moderate on this issue. Others were slightly concerned (26, 41.3%) of faculty compared to (37, 58.8%) postgraduate students; somewhat concerned (42, 55.9%) against 33 (44%); and extremely concerned (36, 53.8%) of faculty

compared to 31 (46.3%) of their counterparts. These results indicate that most respondents were not worried about losing the patentability of their ideas. The results of the chi-square test indicate that there is no significant difference between faculty and postgraduate students (N=395, X^2=32.226, df=24, p=0.121) in their concerns about the patentability of works archived in institutional repositories.

The results of the present study contradict Stern's (2014) assertion which indicates that in some instances placing research in an IR may be a disadvantage for students and faculty in the sense that privileged information might be released to the public before such work is ready for publishing. Stern (2014) further avers that most researchers do not want to freely release their ideas before their research efforts are publicly recognised through presentations at professional conferences, with proceedings published as a means of both communicating their results and claiming their authorship rights before the formal peer review recognition occurs. The peer review publication process not only guarantees quality but it is the most common way of claiming and protecting authors' ideas and rights. The divergence in the results of the current study and Stern's (2014) study could be attributed to faculty and students' different levels of understandings regarding IRs and the implications of submitting their research in IRs.

6.7 Librarians Roles in IRs Promotion

This section addressed sections where the IR needs to be improved for it to be effectively utilised by users. This section sought to address the research question: *What is the role of librarians in promoting service quality of the UNISWA IR?*

6.7.1 Enhancing IRs Effectiveness

When asked to indicate how the IR should be improved to make it an effective research and information resource tool, many respondents stated that awareness should be raised (270, 68.4%); documents should be frequently updated with users continuously updated on recent changes (96, 24.3%); and the speed of the internet should be improved, and more computers provided for users (69, 17.5%). Other users suggested the use of advanced/user friendly IR software (39, 9.9%); continuous training of IR users (38, 9.6%); hiring IR specialists (37, 9.4%); continuous request of research output by librarians (26, 6.6%); providing IR user guides in print and online (21, 5.3%); increase IRs visibility in library webpage with more descriptive details (18, 4.6%); developing mandatory submission policy (12, 3%); providing incentives for IR contributions (8, 2%); monitor and evaluate IRs usage (8, 2%); quality

assurance (6, 1.5%); and providing clarity on copyright (3, 0.8%). UNISWA librarians suggested IR improvement areas including raising awareness, enforcing quality control measures, copyright workshops, mandatory submission policies, allowing self-uploads, adding more documents, having IR specialists, and continuously requesting for research output.

The findings contradict those obtained by Ferreira et al. (2008) in a study conducted from the University of Minho in Portugal which examined and tackled the issue of the slow adoption and low deposit rates in their IR. They tackled these issues by opening their IR to the public, introducing an IR promotion plan, implementing a mandatory IR submissions policy and financial incentives, and implementing usage statistics add-ons. Ferreira et al. (2008) discovered that the mandatory archiving policy combined with financial incentives were the most effective measures since they increased self-archiving levels by approximately 71%. This was unlike in the UNISWA case where the implementation of mandates was favoured by a few respondents. The differences between the results of the current study and the one by Ferreira et al. (2008) could be due to librarians and users' different levels of understanding about mandates and the benefits of having such policies in place. None of the other measures used at the University of Minho were suggested by UNISWA faculty and postgraduate students.

Similar findings were observed in a study by Ye and Li (2015) who investigated Texas A&M University faculty's awareness, attitudes towards open access publishing, and their willingness to contribute research to IRs. Likewise, Texas A&M faculty recommended that information about the IR should be frequently disseminated to raise awareness about the resource. They suggested this to be done quarterly or biannually either through emails, newsletters, seminars, and workshops to educate and remind them about the IR. Ye and Li (2015) further suggested training sessions on OA publishing and repository services, copyright and data management, seminars on how to effectively make research available to other scholars through the IR, and sending bi-weekly newsletters with user guides for library databases, and any new tools including the IR. Likewise, Buehler and Boateng (2005) suggested the training of librarians on the IR's features, policies and procedures; and creating a comprehensive IR documentation which clearly stipulates the IR submission process, best practices for the promotion of the IR, copyright guidelines, and benefits of archiving institutional output in IRs.

The findings are further confirmed by Ferreira et al. (2008) who also pointed out that as the number of items in an IR increases, the overall number of downloads is bound to also increase at an even higher rate. Adding more documents in the IR was also suggested by many (96, 24.3%) UNISWA IR users. Jager (2011) opines that the content of an institutional repository is the most important factor which shows its success to organisations, funders and relevant stakeholders. Repositories with more content have more chances of being visible to outside communities, which increases the likelihood of its usage, and increases in the citation of researchers works. Likewise, Mark and Shearer (2006) supported the need to allow users to self-archive their content in IRs, and stated that this does not require a lot of time once authors become familiar with the process. They also suggested the offering of mediated services for faculty who don't have time to self-archive. This option enables users to email their content to library staff who later deposit content to the IR on their behalf.

Finnie et al. (2013) stated that to implement IRs successfully, it is essential to know an institutions' culture and the wishes of faculty. Nicholas et al. (2013) assert that librarians should begin to develop their programs only after assessing the scholarly communications landscape in their institutions. This can be done through using surveys to assess awareness levels and potential opprtunities for outreach at individual institutions. Finnie et al. (2013) likewise, further highlighted the need to have librarians who are specifically in charge of repositories. The roles of these librarians should include amongst others sharing information and knowledge about the IR; absorbing and synthesising diverse points of views about the IR; upholding policies selected by faculty; responding to questions about the IR and OA policies; and assisting in the interpretation copyright policies. Finnie et al. (2013) suggested that OA implementation should generally be managed by those with at least 25 percent of their responsibilities assigned to scholarly communications.

UNISWA users also suggested improving the IR through solving the slow internet problem. Christian (2008) suggested achieving this through a short-term solution such as using support initiatives for instance forming bandwidth consortiums with the intent of subsidising and sharing the costs of internet bandwidth in universities. Christian (2008) also suggested a long-term solution such as increased backing for international optic fibre infrastructure, and an OA policy to the project to provide equal access to all bandwidth providers. Jensen (2006) avers that unless interventions are made to reduce the costs of international fibre

links or to develop new fibre infrastructure quickly, the continent will be prevented from tapping its latent potential, and this will further widen the gap of the digital divide. The similarities in these studies could be attributed to the fact that the studies were conducted from similar contexts (African countries) with poor bandwidth which results in slow internet connections.

Abrizah, Noorhidawati,and Kiran (2010) also highlighted essential factors in the IRs development including amongst others increasing visibility and citation of research work, the friendliness and ease of use of the IR, and offering additional services through the IR such as search and citation indexes. Barton (2004) also emphasised the importance of having an attractive, user friendly, and a well-documented IR interface to encourage users to be comfortable in using IRs. Kiran and Chia (2009) pointed out that an IR should further provide a link back to the library's main page. This is important as it ensures that users realise that the IR is part of the library which helps them to gain trust over the service. Kiran and Chia (2009) further assert that there should also be a link from the library's homepage to the IR with clear headings.

6.7.2 Sufficiency of IR Promotion Efforts

Respondents were thereafter requested to rank UNISWA's librarians' efforts in marketing the institutional repository to users. Most (222, 56.2%) respondents stated that librarian's efforts are poor, while a minority (79, 20%) of respondents stated that the IR was well marketed; 94 (23.8%) of the respondents were neutral on the issue at hand. The findings thereby show that librarians are not doing well in marketing the IR. When librarians were asked to comment on their current IR marketing efforts, three out of the five interviewed librarians thought the IR had not been effectively marketed, since its effectiveness is negligible compared to the number of faculty who have shown interest in the IR project. The remaining two librarians nevertheless, stated that the IR was effectively marketed to target audiences.

Similarly, Kamraninia and Abrizah (2010) who examined the roles of librarians in recruiting IR content from eight universities in Malaysia reported that librarians failed to promote the IRs as sources of research information for stakeholders. The results of the current study also correspond with an assertion by Hazzard and Towery (2017) who indicated that libraries have not done a thorough job in marketing repositories. Chan (2004) in the same vein

asserts that librarians have failed to emphasise the intent, purpose, and benefits of submitting content to IRs, which is why many users lack awareness. Mark and Shearer (2006) also concur with the results of the current study, and argue that librarians tend to talk about metadata and open source software, when faculty respond better to concepts related to the visibility and impact of their research. Mark and Shearer (2006) opine that IR implementers would be more successful in marketing IRs if they spoke the same language as researchers. Yang and Li (2015) on the contrary, argue that despite librarian's good efforts in marketing IRs, and other library services, users have remained unaware of these resources. Finnie et al. (2013) adds that the growing number of institutions with open access policies in the United States suggests that librarians are doing a highly relevant and important job in helping faculty redress imbalances in the scholarly publishing system.

6.7.3 Effective Marketing of the IR

Respondents were thereafter asked to suggest strategies to be used to market the IR effectively. Majority of faculty and postgraduate students suggested marketing the IR through specialised departmental workshops (201, 50.9%); periodically emailing users (135, 34.5%); seminars and presentations (99, 25.1%); posters, brochures and leaflets (66, 16.7%); and orienting new students and staff (63, 15.9%). Some respondents suggested marketing the IR in information literacy and library skills classes (37, 9.4%); through heads of departments, faculty representatives and faculty board meetings (34, 8.6%); social media (30, 7.6%); and requesting lecturers to market the IR to their students (24, 6.1%). Fewer respondents suggested using the UNISWA radio program (9, 2.3%); showing users IR success stories (6, 1.5%); using CDs (3, 0.8%); listservs (5, 1.3%); and word of mouth (2, 0.5%). The interviewed UNISWA librarians on the same note, suggested effective IR marketing strategies including workshops, marketing of the IR by lecturers, orienting new students and staff, marketing in library skills classes, sharing IR success stories with users, outsourcing IRs marketing, providing incentives for IRs usage by university administration and research funding bodies, and marketing the IR at faculty or departmental meetings.

The results of the current study are validated by Dubinsky (2014) who likewise observed that the most effective IR marketing methods were through personal interactions such as one on one conversations, or individual or group emails, faculty meetings, and face to face presentations. The results are also in line with an assertion by Mark and Shearer (2006) who indicated that most institutions use IR marketing strategies including passing out brochures, faculty recommendations, and conducting presentation to faculty committees. Mark and

Shearer's assertions of publishing articles about the IRs success in the library or campus newsletter or newspapers was however, suggested by a few UNISWA respondents, and the idea of formally launching the repository was not mentioned in the current study. Ramirez and Mills (2011) aver that marketing strategies should change as the IR project matures. In early stages, focus should be on marketing the mechanics of the IR such as software, policies, benefits, and processes for getting started with the service. As the IR gains acceptance, IR managers should gather and incorporate anecdote, quotes, and stories that directly illustrate how the IR has benefited faculty or solved their research problems.

Similar IR marketing strategies were used in US academic libraries including Macalester College in Minnesota. Librarians from this college mainly used in person presentations, workshops and customised email messages. In the same vein, at the University of Michigan, Ann Arbor, postcards, and pamphlets were used, and these were distributed by liaisons and displayed at library service points. As their IR matured, marketing strategies used by University of Michigan librarians shifted to including presentations and workshops on topics including copyright and scholarly communication (Ramirez and Mills, 2011). The results of the present study are further buttressed in a study by Nyambi and Maynard (2012) which examined the current state of institutional repositories in Zimbabwe. It was likewise, revealed that librarians marketed the IRs through pamphlets, posters, bookmarks, in faculties and departments, seminars, orientation of new students, and through library information literacy programs, public relations and exhibitions. The similarities in the IR marketing strategies used by librarians could be attributed to their preference for cost effective IR marketing strategies which easily facilitate the dissemination of information to users.

In Dubinsky's (2014) study none of the respondents thought instructional technologies such as tutorials or videos were effective in enhancing faculty participation in IRs. Similarly, the results of the current study revealed that technologies such as audio CDs and media such as the radio were less favoured by the UNISWA IRs users. Dubinsky (2014) pointed out that instructional technologies were less favoured by IR administrators because they felt they were not ideal for faculty who may not have time to view such materials, and that the deposition of scholarship to IRs is not an appropriate topic for instructional technologies. Dubinsky (2014) further pointed out that technologies may be less utilised due to librarian's lack of knowledge on how to develop such materials, no technologists, or specialists to

assist in the development of the relevant instructional materials, and the lack of access to the required technologies.

The results of the current study further revealed that marketing the IR through social media was favoured by a few UNISWA respondents. This is in sharp contrast with findings presented by Ferreira et al. (2008) in a study conducted from the University of Minho in Portugal to examine and tackle the problems of slow adoption and low deposit rates often seen in recently created institutional repositories. Web 2.0 tools including statistics (for usage and download reports), and web of communications add-ons (to draw an interconnected network of all the items and users in the repository) were introduced to enhance the IRs usage. Ferreira et al., (2008) discovered that sometimes the best way to reach target audiences is not to aim the marketing discourse directly to them but to "flood the surroundings channels that nourish their information needs". Web 2.0 technologies or social networking tools such as RSS feeds, commenting, tag clouds, and Facebook were successfully used by the Leeds Metropolitan University to address their low IR participation levels (Luker & Sheppard, 2009). The variations in these results could be attributed to the fact that these studies were conducted from different contexts, in countries with distinct levels of technological advancements.

Abrizah, Noorhidawati and Kiran (2010) in their paper which highlighted the current state of IRs, on the same note highlighted the importance of government support in the effective implementation and promotion of IRs. Abrizah, Noorhidawati, and Kiran (2010) stated that the very high (84.2%) rate of IRs implemented in 39 Australian Universities was due to governments' support of OA through providing funding and establishing policies promoting easy access to research output. According to Mark and Shearer (2006) promoting IRs on campus is essential as this raises awareness about its existence. Barton and Waters (2004) argue that marketing an institution's IRs is not a once off activity. Academics need to hear about the IR service many times, over a period, and from several sources, either in print, online or in person. Barton and Waters (2004) further state that a good rule of thumb is that users should be exposed to a service at least seven times before they become fully aware of it. Madsen and Oleen (2013) concur with this view and aver that continuously marketing IRs to faculty is vital as it results in its continuous growth.

6.8 Summary and Conclusion

This chapter discussed, and interpreted the research findings presented in chapter five. The discussions and interpretations were based on the study's research questions, research problem, related literature review, and the theories underpinning the study. The study sought to investigate factors affecting the usability of the University of Swaziland (UNISWA)'s Institutional Repository (IR) by faculty and postgraduate students. The following research questions were addressed: What are the perceptions of faculty and postgraduate students towards service quality in the use of the UNISWA IR? What quality factors influence the usability of UNISWA's institutional repository by faculty and postgraduate students at UNISWA? What is the level of usage of UNISWA's institutional repository by faculty and postgraduate students? What are the challenges of service quality facing faculty and postgraduate students in the use of UNISWA IR? What is the role of librarians in promoting service quality of the UNISWA IR? What recommendations can be delineated based on the findings of the study?

The study revealed that UNISWA IR users were fairly satisfied with the tangibles and reliability service quality dimensions, and dissatisfied with empathy, assurance, and responsiveness dimensions. The results also showed that faculty had higher perceptions and lower service quality expectations than students who had higher service quality expectations and lower perceptions. The study further revealed that user's expectations exceeded their perceptions in all service quality categories, which resulted in negative gaps from these service categories. This means that the UNISWA IR service failed to meet user's service quality needs.

Findings further revealed that faculty and postgraduate students were influenced by effort expectancy, performance expectancy, and facilitating conditions' constructs to adopt and use the institutional repository. While majority of faculty's usage and adoption of the IR was not influenced by the social influence constructs, the findings revealed that postgraduate students were somehow influenced by this construct. This trend is expected since students are more likely to work in groups, and therefore may easily be influenced by the usage of the IR and other technologies by their colleagues and friends.

The study further demonstrated that majority of faculty were aware of the IR, while many postgraduate students were not. Many respondents heard about the repository from their colleagues, emails from the institution, and seminars and workshops. Others knew about the

IR through finding it on their own, hearing from library staff, student orientation, library skills classes, and grapevines. Even though majority of faculty knew about the IR, slightly more than half of the respondents stated that they had never used the IR, followed by those who infrequently accessed it. Very few respondents used the IR on weekly or daily basis. The reasons cited for the infrequent usage included: lack of awareness, no time, not well informed, no relevant information, preference for other web sources, lack of skills, discouraged by slow internet, and preference for reputable journals. Other respondents used the IR for research purposes, as well as share their research with peers and colleagues. Respondents similarly, pointed out that they do not submit their research to the IR due to: lack of awareness, few or no publications to contribute, not well informed, no time, preference for scholarly journals, lack of skills, no one requested their publications, discouraged by slow internet, not considered sharing their work, do not own copyright, do not find the IR useful, not sure if IR is properly managed, IR submissions not mandatory, no option for self-uploads, and contribute research to own department. The remaining users submitted their work in the IR to share their research for easy access by colleagues.

The study further similarly, revealed that faculty and postgraduate students were likely to be impeded from using the IR by challenges including slow internet, lack of skills, and lack of awareness. Christian (2008) pointed out that the issue of lack of awareness about IRs is common particularly in developing countries. The findings further showed that faculty is less likely to be affected by the lack of computers from using the IR while students are very likely to be affected. The results of the study also indicated that the fear of copyright infringement is not likely to impede UNISWA users from using the repository.

Respondents indicated that the IR should be improved through strategies such as, raising awareness, frequently updating IR documents, improving the speed of the internet, adopting a user-friendly IR software, user training, hiring IR specialists, continuous requests of documents, providing user guidelines, increasing the IRs visibility on the library's page, developing mandatory submission policies, providing incentives for contributors, monitoring and evaluation of IRs usage, ensuring quality assurance, and clarifying copyright policies. Majority of respondents indicated that librarians were not doing well in marketing the IR, and suggested that they use strategies including: specialised departmental workshops, periodically emailing users, seminars and presentations, posters, brochures and leaflets, orienting new staff and students, library skills classes, heads of departments, faculty board meetings, social media, media, and word of mouth.

CHAPTER SEVEN

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

The summary and concluding sections of a thesis should compare thesis chapters, pulling together their themes and connecting their different key messages (Dunleavy, 2003). In the same vein, Denscombe (2007) asserts that summary and concluding chapters aim to draw together different threads of a research in order to reach a general conclusion, and further suggest a way forward in addressing the research problem.

This study sought to investigate factors affecting the usability of the University of Swaziland (UNISWA's) Institutional Repository (IR) by faculty and postgraduate students. The study addressed the following research questions: What are the perceptions of faculty and postgraduate students towards service quality in the use of the UNISWA IR? What quality factors influence the usability of UNISWA's institutional repository by faculty and postgraduate students at UNISWA? What is the level of usage of UNISWA's institutional repository by faculty and postgraduate students? What are the challenges of service quality facing faculty and postgraduate students in the use of UNISWA IR? What is the role of librarians in promoting service quality of the UNISWA IR? What recommendations can be delineated based on the findings of the study?

The study was underpinned by the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003), and the Service Quality Model (SERVQUAL) by Parasuraman, Zeithaml and Berry (1985). These theories examined technology acceptance and service quality factors influencing the use of UNISWA's IR by targeted users. The pragmatic research paradigm was used to guide the study using mixed methods where both quantitative and qualitative approaches were adopted to understand the research problem better. The mixed methods approach enabled the researcher to compare results from quantitative and qualitative data. The study adopted a survey design within a case study to gain an in-depth understanding of usability issues affecting the use of UNISWA's IR. Data was collected from faculty and postgraduate students using self-administered survey questionnaires and interviews. Quantitative data was analysed using SPSS and presented

using descriptive and inferential statistics, while qualitative data was thematically analysed and presented through narrative descriptions and tables.

This chapter is organised according to the study's research questions, under key headings including: the overall summary of research findings, conclusions, recommendations, originality, and contributions of the study, and limitations and suggestions for future research.

7.2 Overall Summary of Research Findings

This section provides a summary of the findings which are presented in the order of the research themes/questions. These include service quality expectations and perceptions; service quality factors in the usability of the IR; levels of usage of the IR; service quality challenges in the use of the IR; and librarian's roles in the promotion of the UNISWA IR.

7.2.1. Service Quality Expectations and Perceptions

The study's first research question examined the perceptions and expectations of faculty and postgraduate students towards service quality in the use of UNISWA's IR. The findings revealed that the ranking of SERVQUAL models' dimensions revealed that reliability, and tangible dimensions had low/narrow gap scores between users' perception and expectations of service quality. Empathy, assurance, and responsiveness dimensions nevertheless had higher/broader gap scores. The results further revealed that faculty had higher perceptions and lower service quality expectations compared to students who had higher service quality expectations and lower perceptions. The findings further indicated that the gap scores between users' perceptions and expectations of service quality were negative in all service categories which indicate that the IR failed to meet users' expectations.

7.2.2. Quality Factors in the Usability of the UNISWA IR

The second research question assessed service quality factors influencing the usability of UNISWA's IR by faculty and postgraduate students. The results revealed that the adoption and use of the institutional repository by UNISWA faculty and postgraduate students was influenced by UTAUT's constructs including performance expectancy, effort expectancy, and facilitating conditions. Majority of faculty's usage of the IR was however, not influenced by the social influence construct, whereas postgraduate students were somehow affected. These findings partly conform with Venkatesh et al.'s (2003) theory which postulates that users' intensions to use and adopt technologies are influenced by the

performance expectancy, effort expectancy, facilitating conditions and social influence constructs.

7.2.3. Levels of Usage of the UNISWA IR

The section examined the study's third research question which investigated the levels of usage of the UNISWA repository by faculty and postgraduate students. To gain more clarity on individuals' usage patterns, respondents were asked to indicate their levels of awareness about the IR, knowledge about its benefits, levels of computer skills, IR training needs, frequency of usage, and levels of submissions to the IR. The findings showed that majority (136, 66.2%) of faculty against 69 (33.6%) postgraduate students were aware of the UNISWA IR, while fewer (21, 22.4%) faculty against many (73, 77.7%) postgraduate students were not aware of the IR. These results indicate that while faculty knew about the IR, many students were unaware. When awareness was analysed by faculties of respondents, it was revealed that awareness levels were higher from faculties including agriculture (35, 17.1%), science and engineering (26, 12.7%), and social sciences (19, 19.3%). Faculties with lower awareness rates included: education (16, 7.8%), humanities (14, 6.8%), Institute of Distance Education (7, 3.4%), and commerce (4, 2.0%). These results indicate that IR awareness levels are higher in the sciences and social sciences.

To gain deeper knowledge on respondents' understanding of IRs, they were asked to indicate the benefits of using the UNISWA IR. Majority (70, 62%) of faculty against 43 (38.1%) postgraduate students disagreed that the UNISWA IR makes their research available worldwide. On the other hand, majority (68, 72.7%) of faculty against 26 (27.6%) postgraduate students agreed to the issue at hand. Majority (71, 72.5%) of faculty against 27 (27.6%) postgraduate students agreed that the IR avails research faster than the traditional publishing process. On the other hand, 67 (61.4%) faculty against 42 (38.5%) of their counterparts, disagreed to the issue at hand. Majority (97, 66.9%) of faculty against 48 (66%) postgraduate students agreed that the IR provides long term preservation, while fewer (41, 33.1%) faculty and postgraduate students (21, 33.9%) disagreed. Majority (108, 65.8%) of faculty against 56 (34.1%) postgraduate students agreed that the IR preserve research in a convenient and central location, while 30 (69.9%) of faculty and 13 (30.2%) of their counterparts disagreed. Furthermore, many (105, 63.2%) amongst faculty against (61, 36.7%) of their counterparts agreed that the IR enables them to access recent findings by

their colleagues. On the other hand, very few (33, 80.4%) of faculty against only 8 (19.5%) of their counterparts disagreed on the issue at hand.

The findings further revealed that majority (60, 73.2%) of faculty against 22 (26.8%) postgraduate students had low levels of skills in searching and retrieving documents from the IR, while fewer (32, 63.2%) faculty and postgraduate students (19, 37.2%) had high levels of skills. Many (95, 65%) of faculty compared to 51 (34.9%) postgraduate students indicated that they did not require to be trained on using the IR, while few users including 43 (71.7%) of faculty against 17 (28.4%) postgraduate students required training on how to search and retrieve documents from the IR. Majority (69, 60%) of faculty against 46 (40%) postgraduate students indicated that the IR training currently provided by UNISWA librarians is not sufficient. On the other hand, only 23 (71.8%) of faculty compared to 9 (28.1%) postgraduate students indicated that UNISWA librarians provide adequate training.

Even though IR awareness levels were high especially amongst faculty, majority (215, 54.4%) of respondents infrequently accessed the IR followed by those who accessed it several times a week (23, 5.8%), and once a month (21, 5.3%). Very few users accessed the IR once a week (15, 3.8%), and on daily basis (2, 0.5%). The respondents infrequently used the IR due to reasons including, lack of awareness (193, 48.9%), no time (42, 10.6%), not well informed (31, 7.8%) and no relevant information (30, 7.6%). Fewer respondents infrequently accessed the IR due to preference for web sources (25, 6.3%), lack of skills (20, 5.1%), slow internet (11, 2.8%), and preference for reputable journals (3, 0.8%). Other respondents frequently used the IR for research purposes (42, 10.6%), and to share their research with other scholars (3, 0.8%).

The findings also revealed that besides high IR awareness levels, majority (313, 79.2%) of respondents do not contribute their research to the IR, followed by 72 (18.2%) who infrequently contributed, and even fewer (10, 2.5%) respondents who frequently contributed their research to the IR. They likewise cited reasons for the infrequent submissions to the IR including lack of awareness (104, 26.3%), few or no publications (119, 30.1%), not well informed (55, 13.9%), and no time (37, 9.4%). Fewer respondents cited reasons including, preference for scholarly journals (12, 3.0%), lack of skills (12, 3.0%), no one requested for my publications (9, 2.3%), discouraged by slow internet (9, 2.3%), have not considered sharing my work (8, 2.0%), do not own copyright for my work (6, 1.5%), don't find the IR useful (4, 1.0%), not sure if IR is properly managed (2, 0.5%), IR submissions not

mandatory (2, 0.5%), no options to upload my work (2, 0.5%), and contribute research to own department. Other respondents (13, 3.3%) frequently used the IR to share their research with peers and colleagues.

7.2.4. Service Quality Challenges in the Use of the UNISWA IR

This section addressed this study's fourth research question which examined service quality challenges facing faculty and postgraduate students in their use of the IR. Results revealed that majority (156, 54%) of faculty against (133, 46%) postgraduate students were very likely to be inhibited by slow internet from using the IR. Majority (115, 72.7%) of faculty against few (43, 27.2%) postgraduate students were not likely to be inhibited by lack of computer access, while fewer (39, 32.8%) faculty against many (80, 67.2%) postgraduate students were very likely to be affected. Many (79, 68.6%) amongst faculty against fewer, (36, 31.3%) postgraduate students were not likely to be inhibited by lack of skills, while 73 (43.5%) of faculty against 95 (56.6%) of their counterparts were very likely to be inhibited by the issue at hand. Majority (117, 50.4%) of postgraduate students against 115 (49.5%) faculty were very likely to be affected by lack of awareness. Majority (151, 70.5%) of faculty against 63 (29.4%) post graduate students were not likely to be inhibited by fear of copyright violations from using the IR. Most (82, 71.9%) of faculty against fewer (32, 25.4%) postgraduate students were not likely to be hindered by lack of time from using the IR, while many (68, 47.2%) of faculty against 76 (52.8%) of their counterparts were very likely to be affected by the issue at hand.

7.2.5. Librarian's Roles in the Promotion of the UNISWA IR

This section addresses the study's fifth research question which assessed the role of librarians in promoting service quality of the UNISWA IR? Respondents indicated that the repository could be improved to make it a better research and information resource tool through raising awareness (270, 68.4%); frequent document updates (96, 24.3%); improving internet speed (69, 17.5%); procurement of user friendly IR software (39, 9.9%); continuous user training (38, 9.6%); and employing an IR specialist (37, 9.4%). Very few respondents indicated that the IR could be improved through developing a mandatory IR submission policy (12, 3%); providing incentives for IR contributors (8, 2%); monitoring and evaluating the IRs usage across UNISWA departments (8, 2%); strengthening the quality of archived publications (6, 1.5%), and clarifying copyright issues (3, 0.8%).

UNISWA faculty and postgraduate students stated that librarians were not doing well in marketing the IR. While three of the interviewed librarians indicated that the effectiveness of the current IR marketing efforts is minimal, the remaining two librarians nevertheless stated that the repository was well marketed. Librarians suggested effective IR marketing strategies including word of mouth, marketing the IR in library skills classes, presenting the IR concept in respective faculties, and outsourcing the IRs marketing. Faculty and postgraduate students on their part suggested effective IR marketing strategies including amongst others: frequent specialised workshops (201, 50.1%); periodically emailing users to update them about the IR (135, 34.5%); and providing seminars and presentations (99, 25.1%). Very few respondents suggested strategies including using marketing the IR through the UNISWA radio broadcasting program (2.3%); showing IR success stories to users; using audio CDs (3, 0.8%); student notification/ listserv (5, 1.3%); and word of mouth (2, 0.5%).

7.3 Conclusions

This section provided conclusions based on the study's major findings. The conclusions reached are based on the study's research themes including: service quality expectations and perceptions; quality factors in the usability of the IR; levels of usage of the IR; service quality challenges in the use of the IR; and librarian's roles in the promotion of the IR.

7.3.1 Service Quality Expectations and Perceptions

The overall findings revealed that ranking service quality dimensions according to the levels of gaps between users' perceptions and expectations showed that tangibles and reliability dimensions had the lowest/narrowest levels of gaps while empathy, assurance, and responsiveness had higher/broader gaps. The study further revealed that all service categories had negative gap scores between users' perceptions and expectations of service quality.

The conclusion drawn from these findings is that faculty and postgraduate students were fairly satisfied with tangibles and reliability service quality dimensions, and dissatisfied with empathy, assurance, and responsiveness dimensions. This means that while users were fairly satisfied with service areas such as physical design/ page layout of the IR, accuracy, and visibility of the IR page, they were nonetheless dissatisfied with individualised customer care, effective retrieval of documents, and the IRs responsiveness to users' requests. These findings are in-line with Bahrainizadeh's (2013) assertion which indicates that the larger the

service gap, the more serious the service quality shortfall. These results are consistent with studies by Asogwa et al. (2014), Mahmoodi, Salarzadeh and Paslari (2015), and Manjunatha and Shivalingaiah (2004) where tangibility and reliability were the most favoured dimensions, while empathy was less favoured. It is further concluded that the negative gap scores between users' perceptions and expectations from all service categories imply that service quality expectations of faculty and postgraduate students were not met/satisfied by the UNISWA institutional repository service.

7.3.2 Quality Factors in the Usability of the IR

The findings revealed that performance expectancy, effort expectancy, and facilitating conditions enhanced faculty and postgraduate students' intensions to use the IR. The respondents thought it was easy to learn, interact, be skilful, and comfortable with using the IR. They also thought the IR was useful for their work, for instance, it made researching easier, made research accessible to scholars across the world, enabled the sharing of research with peers, preserved research for future use, and contributed towards career advancement. Respondents also had the resources, knowledge, and support from library staff, to enhance their usage of the IR. The results further found that faculty's decisions to use and adopt the IR were not influenced by the social influence construct, while postgraduate students were somehow influenced by this construct. This suggests that postgraduate students' intensions to use IRs were influenced by the usage of the IR by their peers, colleagues, friends, and researchers who are important to them.

These results suggest the need for librarians in charge of the UNISWA IR to work closely with IR users, and focus on improving the social influence aspect. This is in-line with an assertion by Ammarukleart (2017) which indicates that it is essential for IR developers to work closely with individuals (such as senior faculty or faculty research committee members) who have worked closely with faculty members in promoting their research as these parties are in a better position to influence and encourage faculty to engage in university based IRs. Ammarukleart (2017) asserts that establishing trust with these groups of faculty members, and persuading them to change their minds about the importance of IRs would yield beneficial results. Rempel and Mellinger (2015) aver that social influence is only significant in mandatory settings where rewards or punishments are introduced for using or failure to use specific technologies. These authors further opine that social influence goes beyond the influence of a single mentor or peer interaction, but also include

institutional support. This therefore means that the effects of the social influence construct as a barrier to the usage of the UNISWA IR could be enhanced through a joint effort from librarians, faculty, students, and the university administration.

7.3.3 Levels of Usage of the UNISWA IR

The results revealed that majority of faculty were aware of the UNISWA IR while many postgraduate students were not. Awareness levels were high from faculties including agriculture and consumer sciences, science and engineering and social sciences. Faculties with the lower awareness levels included education, humanities, IDE, and commerce. The findings further uncovered that many users infrequently accessed the repository. They cited reasons for poor usage including lack of awareness, no time, not well informed, no relevant information, preference for web resources/ scholarly journals, lack of skills, and slow internet. The findings further indicated that majority of respondents do not contribute their work to the IR. They similarly cited reasons including lack of awareness, few or no publications, not well informed, no time, no one asked for my publications, discouraged by slow internet, have not considered sharing my work, do not own the copyright, do not find the IR useful, not sure if IR is properly managed, submissions are not mandatory, no option to self-upload, and prefer contributing research to my own department.

The conclusion that could be drawn from these findings is that even though IR awareness levels were high especially amongst faculty, users did not effectively use or contribute their research to the institutional repository. This conclusion is in-line with an assertion by Ammarukleart (2017) who stated that the high rates of faculty awareness about IRs, and their understanding of the importance of IRs, did guarantee their participation. The findings of the present study therefore suggest the need for librarians to address the obstacles cited by IR users for poor usage, and submissions to the institutional repository diligently. The results further suggest the need for librarians to increase their marketing efforts in faculties and departments with lower IR awareness levels.

The findings also indicated that majority of faculty and postgraduate students disagreed that the UNISWA repository avails their research world over. Many of faculty disagreed that the IR avails their research faster than the traditional publishing process, while many postgraduate students agreed to the issue at hand. Majority of both faculty and postgraduate students agreed that the UNISWA IR provides long-term preservation for the work, preserves their research in a convenient and central place, and enables access to recent

research findings by other scholars. These results suggest that users understand the IR concept, and the benefits of archiving their research in an institutional repository.

The results further uncovered that majority of respondents had low levels of skills in searching and retrieving documents from the IR. Besides respondent's low levels of skills, and insufficient IR training, majority of faculty and postgraduate students surprisingly declined the need to be trained on how to effectively search and retrieve documents from the IR. These findings play a pivotal role in assisting librarians to channel their efforts on services required by the targeted UNISWA IR users.

7.3.4 Service Quality Challenges in the Use of the IR

The findings also revealed that majority of faculty and postgraduate students were very likely to be inhibited by slow internet, and lack of awareness from using the IR. Majority of faculty and postgraduate students were however not likely to be inhibited by the fear of copyright violations. Mixed responses were obtained regarding the lack of computer access as an impediment in the use of the IR, with majority of faculty not likely to be affected by the issue at hand, while postgraduate students were very likely to be inhibited by lack of computer access. This is expected since most students rely on computers from shared computer labs while on campus. The results similarly uncovered that many amongst faculty were very likely to be inhibited by lack of skills, while this was not the case with postgraduate students. Furthermore, majority of faculty were not likely to be hindered by the lack of time from using the IR, while most students were very likely to be affected by the issue at hand. Based on these findings one can conclude that slow internet and lack of awareness about the IR are major impediments to the effective use of the IR by both groups of respondents.

7.3.5 Librarian's Roles in the Promotion of the IR

The results revealed that many respondents suggested improving the IR through raising awareness, frequently adding documents, improving internet speed, procuring user friendly IR software, continuously training users, and employing an IR specialist. Fewer respondents suggested the introduction of mandatory IR submission policies, providing incentives for IR contributors, monitoring and evaluating the IRs usage, quality assurance, and clarifying copyright issues. UNISWA faculty and postgraduate students further revealed that librarians were not doing well in marketing the IR. Most respondents thereby suggested IR promotion strategies including, using specialised workshops, periodically emailing users and seminars

and presentations. Few respondents favoured strategies such as using the UNISWA radio program, sharing IR success stories, audio CDs, student notification listserv, and word of mouth. These results imply that UNISWA IR users are not content with the current marketing efforts. Librarians should therefore prioritise applying the IR enhancement and promotion strategies which were favoured by most respondents as these are more likely to market the IR effectively.

7.4 Recommendations and Suggestions

Recommendations are proffered based on the findings of the study and conclusions adduced above. These recommendations are essential for libraries, librarians, IR managers, university administration, and other institutions that are planning to implement IR projects in the near future. This section is organised according to the study's research themes.

7.4.1. Recommendation 1: Service Quality Perceptions and Expectation

The study findings revealed that faculty and postgraduate students' expectations were not met by the UNISWA IR service, particularly in empathy, assurance, and responsiveness service quality dimensions. The study recommends the need for library administrators to conduct regular service quality assessments in order to listen to the voices of users, library staff, and the parent institution effectively. This enables libraries to ensure they understand the expectations and needs of users, library staff, the parent institution and all stakeholders, and thus be in a better position to continuously improve the quality of services (Simba, 2006). Understanding users' needs and expectations is on its own useless if there are no proper mechanisms to implement the results from the assessments. It is therefore crucial to have viable mechanisms to enhance strategic and operational plans for the improvement of library services, as well as feasible mechanisms for monitoring and sustaining the improvements (Simba, 2006).

7.4.2. Recommendation 2: Quality Factors in the Usability of the IR

The results of the study revealed that UNISWA faculty and postgraduate students' intensions to use and adopt the IR were influenced by technology acceptance factors including effort expectancy, performance expectancy and facilitating conditions. Social influence had no effect on faculty but influenced students' intensions to use the IR. Ammarukleart (2017) recommends that libraries should conduct needs assessments and usability testing in order to understand users' needs clearly. Ammarukleart (2017) suggests

an evaluation framework which assesses the content deposition process, and IR functionalities (such as the browse system and the user-interface design). Kim and Kim (2008) on the same note recommend that the usability evaluation of digital institutional repositories should cover areas such as user satisfaction, system supportiveness, usefulness, and effectiveness. Ammarukleart (2017) asserts that conducting IR user studies could provide invaluable information which is essential not only in improving the existing IR service but also in launching new IR related services which are tailored based on users' needs.

7.4.3. Recommendation: Levels of Usage of the IR

The findings revealed that faculty were aware of the existence of UNISWA IR, while postgraduate students were not. Both groups of respondents however, understood the IR concept and benefits of archiving their research in IRs. The findings further revealed that besides the high IR awareness levels especially amongst faculty, the levels of usage and submissions to the institutional repository were low. The results also revealed that users' levels of skills in searching and retrieving documents from the IR were low, and that the current IR training offered by librarians was insufficient.

7.4.3.1. Recommendation 3: IR Awareness

This study recommends the need to raise awareness through advocacy campaigns. Macha and Jager (2011) assert that advocacy deals with establishing an informed awareness for which a core message and ethos are essential. IR administrators need to create a communication plan for advocacy campaigns in order to ensure that open access messages and the benefits of establishing and managing IRs are effectively disseminated to target audiences. COAR (2013) avers that advocacy is an essential component of any institutional repository operation, and that information related to open access advocacy abounds with ideas, events, and practices that are tailored for specific types of audiences and institutions. COAR (2013) in their report of sustainable practices for populating IRs revealed that at the Open University in UK, advocacy efforts led to the capturing of approximately 60% of peer reviewed journal outputs, and a significant increase in full text items.

7.4.3.2. Recommendation 4: User Training

The study recommends the frequent training of users to guide them on how to archive research in IRs, and to effectively search and retrieve information from institutional repositories. The training sessions should be provided for all potential IR users particularly

new members of staff and students. This fuels the need for IR administrators with adequate training and skills to manage IR projects. Safahieh and Asemi (2008) assert that in-house and continuous training programs are essential to enable librarians to keep up with information technology innovations including IRs. Training librarians ensures that the library resources spent on information technologies acquisition are not wasted through inappropriate use or underuse by unskilled librarians.

7.4.3.3. Recommendation 5: Content Recruitment and Usage Statistics

Macha and Jager (2011) aver that content must be secured in order for an institutional repository to be considered as successful by organisations, funders and other stakeholders. This study recommends that UNISWA IR administrators should gather content from various subject areas so that the IR can be considered as a viable source of research information by target users. IR administrators should further provide usage information for the research articles archived in the institutional repository. Mark and Shearer (2006) opine that the usage statistics supplied by repository services can be very impressive and act as strong incentives for researchers to contribute their publications in IRs. The commonly used institutional repository usage metrics include article downloads and top referrals. The IR system should automatically track the content usage patterns on daily, monthly, or yearly basis.

7.4.3.4. Recommendation 6: Mandatory Policies

The study recommends the introduction of open access mandates to encourage faculty and researchers to deposit their research in IRs. Macha and Jager (2011) opine that mandates can be implemented in numerous ways including top-down institutional mandates where policies are initiated by an institution's administration, or bottom-up mandates where policies are developed, voted on, and passed by faculty governing boards such as the university senate. According to COAR (2013) institutional mandates or policies have proven to be a successful way of increasing research deposits into IRs. COAR (2013) further asserts that mandates alone are not sufficient for filling an institutional repository, they need to be accompanied by advocacy efforts and support for researchers to deposit the work in IRs.

7.4.3.5. Recommendation 7: Institutional Support

The study recommends the need for universities, and grant awarding institutes (either government or non-governmental) to establish policies that enhance open access. This could be achieved through making it compulsory for all grant recipients to archive their research

output in open access institutional repositories (Singeh, Abrizah & Karim, 2013). The university administration should also make it mandatory for research output that is submitted for promotions to be archived in the institution's repository before being considered by the promotions committee. The study further recommends university support through providing financial incentives for departments and faculties with the highest number of IR deposits.

7.4.4 Recommendation: Service Quality Challenges in the Use of the IR

The findings revealed that majority of faculty and postgraduate students were likely to be inhibited by slow internet and lack of awareness from using the IR. Respondents were nevertheless not likely to be hindered from using the IR by the fear of copyright infringements. Moreover, faculty was not likely to be affected by the lack of computer access while students were likely to be affected. Faculty was also likely to be affected by the lack of skills whereas this was not the case with postgraduate students. Majority of faculty also indicated that they were not likely to be hindered by the lack of time from using the IR, while most postgraduate students were likely to be affected by the issue at hand.

7.4.4.1. Recommendation 8: Policy Formulation

To clarify any misconceptions about the institutional repository and guide its operation, the study recommends the formulation of an institutional repository policy. Issues such as what content to accept or decline, copyright issues, self or librarian mediated archiving, metadata, submissions and withdrawal policies, types of materials to accept, minimum grades accepted, and other issues governing the operation of the IR should be clarified by the policy. Such issues should be discussed and agreed upon by institutional repository committees and all relevant stakeholders (Macha & Jager, 2011). The policy should not only exist in paper but be implemented in the IRs day to day operations and functions, and be made available to all stakeholders (Makori et al., 2015).

7.4.4.2. Recommendation 9: Document Deposits

The study recommends assisting authors with depositing their research to minimise the challenges they come across when self-depositing their articles in IRs. Librarians can thus assist researchers with content recruitment, rights checking, and even depositing research outputs in IRs on behalf of the researchers (COAR, 2013). Librarians should allow IR users to use both the self-archival and the librarian mediated approach for depositing their content in the institutional repository.

7.4.4.3. Recommendation 10: Slow Internet

As a way out of the slow internet quagmire Jensen (2006) recommends the: increased backing by policy makers and regulatory agencies in Africa to implement policy changes and regulations that allow open access to international fibre; offering support to local associations of bandwidth providers to establish shared fibre gateways; and the increased backing for international fibre projects with the intension to provide equal access to all bandwidth providers. Christian (2008) asserts that even though the development of additional optic fibre and open access to the infrastructure could provide a permanent solution to the high cost of internet bandwidth particularly in sub Saharan Africa, this approach is capital intensive and would take a long time to materialise. Christian (2008) suggests the need for donor agencies and international organisations to intervene through subsidising the cost of bandwidth in the African region.

7.4.5 Recommendation: Librarian's Roles in the Promotion of the IR

The results uncovered that majority of respondents suggested improving the IR through raising awareness, adding more documents, improving internet speed, procuring user friendly IR software, user training, and hiring an IR specialist. Few respondents favoured improving the institutional repository through implementing mandates, providing incentives, monitoring and evaluating IRs usage, quality assurance and clarifying copyright concerns. The findings further revealed that librarians were not doing well in marketing the IR. Most respondents thus suggested effective IR marketing strategies including workshops, emailing IR users, seminars, and presentations. Few respondents suggested strategies including using IR success stories, UNISWA radio program, audio CDs, student notification listservs, and word of mouth.

7.4.5.1. Recommendation 11: IR Promotion

It may be beneficial for IR administrators to use a combination of methods to promote the IR, particularly those that were favoured by most respondents. It is also crucial for librarians to collaborate with IR users in order to promote the benefits of IRs to faculty, students, and other relevant stakeholders effectively. Ammarukleart (2017) states that through collaborating with IR users, librarians may gain their trust and support which may result in users' willingness to participate and contribute their work in IRs.

7.4.5.2. Recommendation 12: Collaboration

Macha and Jager (2011) assert that institutional repositories are encouraged to collaborate with other IRs in order to demonstrate their success. If an IR works in isolation, this might indicate its failure to promote the sharing and transfer of knowledge amongst scholars. This study therefore recommends that the UNISWA IR should collaborate with repositories from neighbouring countries for resource sharing purposes. IR administrators should also partner with research institutes within the University (such as UNISWA research centre, and the Swaziland Institute for Research in Traditional Medicine, Medicinal, and Indigenous Food Plants) for content recruitment purposes.

7.5 Originality and Contributions of the Study

This study is the first study to address factors affecting the usability of the institutional repository by faculty and postgraduate students in the UNISWA context. The study revealed service quality and technology acceptance factors underlying the adoption and usage of the University of Swaziland's institutional repository. The study therefore contributes to the small body of empirical research on the acceptance and usage of IRs in Swaziland and other parts of Africa. The mixed methods approach adopted for the study enabled the researcher to gain a better understanding of faculty, postgraduate students, and librarian's views on the acceptance and usage of the UNISWA IR.

The study was underpinned by the UTAUT theory and the SERVQUAL model. Even though latter has been widely applied in information systems environments to assess users' expectations and perceptions of service quality, this has not been the case in library contexts. This study effectively applied the SERVQUAL model in an institutional repository context to examine users' expectations and perceptions of service quality. UTAUT on the other hand, assessed technology acceptance factors influencing the adoption and usage of the UNISWA IR. This study contributes to the available body of theory and literature on service quality, and technology acceptance factors influencing the adoption and usage of information technologies in library contexts.

The study established the importance of factors including policies formulation, awareness, user training, institutional support, collaborations, and content recruitment in the effective implementation of institutional repositories in a developing country context. The study therefore contributes to the Library and Information Science practice, and policy through

sensitising policy makers on the need to develop policies to guide IR content recruitment procedures, and the overall operation of institutional repositories.

7.6 Limitations and Suggestions for Future Research

The study was limited to the University of Swaziland's three campuses at Luyengo, Kwaluseni and Mbabane because UNISWA is the only institution of higher learning in the country with an institutional repository. This makes it difficult to generalise the results of the present study for other universities in Swaziland. Future research can focus on all Swazi universities once they implement their IRs.

The current study also focused on service quality and technology acceptance factors inhibiting the use of the UNISWA IR. Further studies can be conducted to examine other aspects including the role of IRs in managing research data. The study was limited to faculty and postgraduate students, while future studies could engage other IR stakeholders including completing students who are engaged in research and staff from the University's research centres who are engaged in research. Gathering data from all stakeholders will enable researchers to obtain a comprehensive view on the development and implementation of IRs.

The results of the study further uncovered that there were disciplinary differences in IR awareness levels amongst UNISWA faculty and postgraduate students. The findings revealed that IR awareness levels were high in agriculture and consumer sciences, science and engineering, and social science faculties, and lower in faculties of education, humanities, IDE, and commerce. Such disciplinary differences are crucial in assisting librarians to identify disciplines where they need to strengthen their IR promotion efforts. Future studies can examine each of the UNISWA disciplines in detail to compare factors influencing the use and acceptance of the IR and other library technologies by scholars.

7.7 Summary

This chapter presented the summary of the research findings, conclusions drawn from findings, recommendations and suggestions based on the findings of the study, originality and contributions of the study, as well as limitations and suggestions for future research.

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APPENDICES

Appendix 1: Informed Consent

Dear Participant,

My name is **Nokuphila Rene Saulus** **(*Student No: 214584336*),** a PhD candidate at the University of KwaZulu-Natal, Pietermaritzburg Campus. I am conducting this study as part of the requirements for the Doctoral degree. The title of my research is: ***Usability of the Institutional Repository (IR) by Faculty and Postgraduate Students from the University of Swaziland (UNISWA)***. The study aims to assess if users are satisfied with the service offered through the IR. Service quality is assessed based on users' needs/expectations of service quality, and their technology acceptance requirements. The study applies the Service Quality model (SERVQUAL), and the Unified Theory of Acceptance and Use of Technology (UTAUT) to examine factors likely to influence user's decisions to accept or reject the IR. I am therefore interested in collecting data from you to obtain your experiences and observations on the above mentioned subject matter. The questions should take no longer than 10-15 minutes to complete. The findings of the study will assist your UNISWA librarians to identify areas where the institutional repository could be improved. The questionnaire will not require any personal identification. Information solicited will only be used for the purpose of the research.

If there are any questions or comments, you can contact the researcher at: 214584336@stu.ukzn.ac.za or nrsaulus@gmail.com. Alternatively, you may contact the supervisor, Professor Stephen Mutula at: mutulas@ukzn.ac.za.

Thank you in advance for your participation in this study.

Regards,

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DECLARATION

I…… *(full names of participant*) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire. I understand the intention of the research. I hereby agree to participate.

I consent / do not consent to have this interview recorded (if applicable)

SIGNATURE OF PARTICIPANT DATE

……

Appendix 2: Questionnaire for Faculty and Post-Graduate Students

1. Respondents' background information.

1.1 Gender: Male [ ] Female [ ]

1.2 Age category: Please tick (✓) where appropriate.

Below 20 [ ] 21-30 [ ] 31-40 [ ] 41-50 [ ] 51-60 [ ] Above 60 [ ]

1.3 Academic Status: Please tick (✓) where appropriate.

Teaching Assistant [ ] Lecturer [ ] Senior Lecturer [ ] Associate Professor [ ]
Masters' student [ ] PhD student [ ] Others (Please specify)_____

1.4 Faculty affiliation: Please tick (✓) where appropriate.

Institute of Post Graduate Studies [ ] Agriculture & Consumer Sciences [ ]
Education [ ] Health Sciences [ ] Institute of Distance Education [ ]
Science & Engineering [ ] Social Science [ ] Commerce [ ] Humanities [ ]

2. Awareness and Skills

2.1 Are you aware that UNISWA has an Institutional Repository (IR) ? Yes [ ] No [ ]

2.2 If your answer to **Q 2.1** is **No**, please proceed to **Q 3.2**. If it's **Yes**, where did you hear about the UNISWA IR? (Please tick the most applicable).

Colleagues [ ] Emails from the institution [ ] Seminars/Workshops [ ]
Brochures/Leaflets [ ] Others (specify)_____

2.3 At which stage of the IRs development were you involved?

Planning [ ] Implementation [ ] I was not involved [ ]

2.4 How would you rate your level of skills in searching and retrieving documents from the IR?

Very Low [ ] Low [ ] Average [ ] High [ ] Very High [ ]

2.5 Do you feel you need some training on how to use the UNISWA IR? Yes [ ] NO [ ]

2.6 Using the Likert scale below, please provide your opinion on the following statement: The UNISWA library provides adequate training on how to use the IR?

Strongly Agree (5)	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**

2.7 What in your opinion are the benefits of the UNISWA IR? (tick (✓) all relevant statements)**.**

Make my research available to a worldwide audience [ ]
Make my research available faster than the traditional publishing process [ ]
Provide long term preservation of my digital research materials [ ]
Preserve the research work of the university in a convenient and central place [ ]
Allows me to search for current findings of my colleagues throughout the university …….[ ]

3. IR Usage and challenges to postgraduate students and faculty

3.1 How often do you access and use the IR? (Please tick (✓) one option).

Daily [ ] Once a week [ ] Several times a week [ ] Once a month [ ]
Very infrequently [ ] Other (Specify)_____

3.2 Please justify the choice selected in Q 3.1 above.

_____

3.3 On a scale of 1-3 **(ranging from 1=Not likely, 2=somewhat likely, and 3=Very likely),** please rate the following factors as to their likelihood of being barriers limiting you from using the IR.

Factors	**1**	**2**	**3**
Slow internet connection			
Lack of computer access			
Lack of skills for access the IR			
Lack of Awareness about the IR			
Fear of copyright violations			
No time to access the IR			
Others (Please specify):……			

3.4 On a scale of 1 to 5 (ranging from least to extremely concerned), how would you rate your concerns regarding submitting your publications to an institutional repository?

Concerns	**1**	**2**	**3**	**4**	**5**
I worry this might constitute prior publication and prevent me from submitting my work to journals					
I am hesitant to assign distribution rights of my works to the university					
Am concerned that works submitted to an IR will not have					

citation value					
I would be worried about the patentability of my ideas.					
Others (State)……					

3.5 How frequently do you contribute your scholarly publications to the UNISWA IR?

Frequently [ ] infrequently [ ] Not at all [ ]

3.6 Please provide an explanation for the response provided in Q3.4 above?

_____

_____

3.7 On a scale of 1 to 3 **(ranging from 1=Not likely, 2=somewhat likely, and 3=Very likely),** please rate your likelihood to submit the following materials in an IR.

Resources	**1**	**2**	**3**
Scholarly articles			
Books			
Thesis/Dissertations			
Course materials			
Photographs, Images, Slides			
Technical papers			
Conference proceedings			
Others (Please specify) …….			

3.8 Would you prefer self-archiving/ depositing your documents in an IR or having librarians do this for you? [ ] Self-archiving [ ] Librarian's Assistance

3.9 Please justify your response to Q3.7 above.

_____

_____

3.10 Based on the platforms provided below, where would you prefer to archive your scholarly publications? **(Scale ranges from 1 being weak to 3 being strong preference).**

1. UNISWA IR 1 [ ] 2 [ ] 3 [ ]
2. Personal webpage 1 [ ] 2 [ ] 3 [ ] .
3. Department website 1 [ ] 2 [ ] 3 [ ] …
4. Other (…….....)1 [ ] 2 [ ] 3 [ ]

3.11 Please provide a justification for your choice provided in Q 3.9above?

_____

_____

3.12 Have you ever used any other IRs from other institutions across the world? (Please tick the most appropriate). [ ] Yes [ ] No

3.13 If yes to Q 3.11. What was the reason for using the IR?

_____

_____

4. Unified Theory of Acceptance and Use of Technology (UTAUT) Factors in the IR's Usability

4.1 Based on the categories provided below, please indicate on a scale of 1-5 how well you find the following statements to reflect your opinions. 5=strongly agree, 4=Agree, 3=Neutral, 2=Disagree, and 1=Strongly disagree. (Please tick the most appropriate)

Effort Expectancy (Ease of Use)	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**
Learning how to use the IR is easy					
It's easy to become skilful in using IR					
Am comfortable using the IR on my own.					
It's easy to interact with the IR's features					
I can do what I want with the IR.					

4.2 Based on the categories provided below, please indicate on a scale of 1-5 how well you find the following statements to reflect your opinions. 5=strongly agree, 4=Agree, 3=Neutral, 2=Disagree, and 1=Strongly disagree. (Please tick the most appropriate)

Performance Expectancy (Perceived Usefulness)	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**
I find the IR Useful					
The IR makes my researching easier					
The IR increases the visibility of my research.					
The IR is a fast way of communicating and sharing my research with my peers.					
The IR ensures that my research is preserved for future use.					
The IR will contribute towards my career advancement.					

4.3 Based on the categories provided below, please indicate on a scale of 1-5 how well you find the following statements to reflect your opinions. 5=strongly agree, 4=Agree, 3=Neutral, 2=Disagree, and 1=Strongly disagree. (Please tick the most appropriate)

Social Influence	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**
People who are important to me think that I should use the IR.					
My lecturers have encouraged me to use the IR.					
My peers have encouraged me to use the IR					
Researchers that are important to me have their copies in the IR.					

4.4 Based on the categories provided below, please indicate on a scale of 1-5 how well you find the following statements to reflect your opinions. 5=strongly agree, 4=Agree, 3=Neutral, 2=Disagree, and 1= Strongly disagree. (Please tick the most appropriate)

Facilitating Conditions	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**
I have resources (financial/or equipment) to supporting my use of the IR.					
I have the required knowledge to enable me to use the IR.					
The UNISWA IR is compatible with the university's software installed in my computer.					
Library staff members are available to assist with difficulties while using the IR.					

4.5 Based on the categories provided below, please indicate on a scale of 1-5 how well you find the following statements to reflect your opinions. 5= strongly agree, 4= Agree, 3=Neutral, 2=Disagree, and 1= Strongly disagree. (Please tick the most appropriate)

Intension to Use	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**
Assuming I can access it, I intend to use the IR in future.					
I will increase my usage in future.					
I will encourage my colleagues,					

friends and students to use the IR.					

5. Service Quality (SERVQUAL) Factors in the IR's usability

5. 1 Based on the categories provided below (1= strongly disagree, 2= Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree), what are your comments on the Tangibles dimension of the SERVQUAL model. **Expectations (E) is the service users expect or wish to get from an IR versus Perceptions (P), the actual service received**. **(Tick the most appropriate for both P and E)**

	EXPECTATIONS (E)					**PERCEPTIONS (P)**				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
It's easy to navigate the IR										
The IR content is well organized										
The page has a good appearance										
Documents can be quickly downloaded.										

5. 2 Based on the categories provided below (1= strongly disagree, 2= Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree), select statements that apply to you with regard to the Empathy dimension of the SERVQUAL model. **Expectations (E) is the service users expect or wish to get from an IR versus Perceptions (P), the actual service received**. **(Tick the most appropriate for both P and E)**

	EXPECTATIONS (E)					**PERCEPTIONS (P)**				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
Users can access the IR from anywhere and at any time.										
The IR provides quick and easy access to documents										
Enables users to save their search results and access them later.										
The IR suggests documents to users based on their past searches.										
Users are notified of new documents in their research areas.										

5. 3 Based on the categories provided below (1= strongly disagree, 2= Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree), state your opinion on the Responsiveness dimension of the SERVQUAL model. **Perceptions (P) is the actual service versus Expectations (E) which is the service users expect to get from an IR**. **(Please tick the most appropriate for both P and E)**

	EXPECTATIONS					**PERCEPTIONS**				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
The IR site is good in responding to user's requests.										
Users can email librarians if they have any complains.										
User's issues are addressed promptly by IR librarians.										
User's issues are addressed in a polite manner.										

5. 4 Based on the categories provided below (1= strongly disagree, 2= Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree), what are your comments on the Assurance dimension of the SERVQUAL model. **Perceptions (P) is the actual service versus Expectations (E) which is the service users expect to get from an IR**. **(Please tick the most appropriate for both P and E)**

	EXPECTATIONS					**PERCEPTIONS**				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
The IR effectively retrieves the searched documents										
The system provides spelling suggestions.										
The IR has adequate security features										
Users trust the site										

5. 5 Based on the categories provided below (1= strongly disagree, 2= Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree), what are your comments on the Reliability dimension of the SERVQUAL model. **Expectations (E) is the service users expect or wish to get from an IR versus Perceptions (P), the actual service received**. **(Tick the most appropriate for both P and E)**

	EXPECTATIONS					**PERCEPTIONS**				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
The IR page is always available										
The IR has error free documents										
The IR is frequently updated										
The IR contains relevant documents										

The IR provides accurate resources										

5.6. Based on the categories provided below (ranging from 1 very poor to 5 Excellent), how would you rate the following SERVQUAL dimensions (Please tick the most appropriate option).

Dimensions	**Very poor (1)**	**Poor (2)**	**Neutral (3)**	**Good (4)**	**Excellent (5)**
Tangible (Physical design/page layout)					
Empathy (Individualized customer care)					
Responsiveness (Responses to user's requests)					
Assurance (Documents retrieved & trust of site)					
Reliability (Page visible & error free)					

6. Areas of Improvement

6.1 How do you think the UNISWA IR should be improved to make it a better research and information resource tool?_____

6.2 Please indicate on the Likert scale below, how you would rank UNISWA librarian's efforts to promote the use of IR? (Please tick (✓) the most applicable one).

5	**4**	**3**	**2**	**1**
Excellent	**Good**	**Neutral**	**Poor**	**Very Poor**

6.3. Which strategies do you think can be used to effectively market the IR to the UNISWA community?

a._____
_____

b._____
_____

c._____
_____

Thank you very much for your time and participation in this study.

Appendix 3: Interview Schedule for Librarians

A. Background Information

1. Gender: [ ] Male [ ] Female

2. Age Group

Below 20	
20-30	
31-40	
41-50	
51-60	
Above 60	

3. Qualification (Please tick the most appropriate)

Post Graduate Certificate in LIS	
Diploma LIS	
Degree LIS	
Masters LIS	
PhD LIS	
Other (Please specify)	

4. What is your job designation in the UNISWA library?

_____

5. How long have you been in that post?

_____

B. IR Establishment

6. When was the UNISWA IR established

_____

_____

7. What infrastructure was required to establish an IR?

_____

8. Could you summarize the steps that were followed when establishing the UNISWA IR?

_____

_____

9. In your view, do you think UNISWA has the appropriate infrastructure to support user's access to the IR? Please support your view.

_____

_____

C. User Awareness and IR promotion

10. Were postgraduate students and faculty involved during the establishment of the IR? If yes, please elaborate on the extent of their involvement?

_____

_____

11. What strategies did you employ to ensure that your stakeholders are aware and accept the institutional repository idea?

_____

_____

12. In your view, to what extent have the strategies outlined above been successful?

_____

_____

13. Do you think stakeholders (UNISWA postgraduate students and faculty) from most departments across UNISWA are now aware of the existence of the IR?

[ ] Yes

[ ] No

[ ] Not Sure

D. Attitudes and perceptions of postgraduate students and faculty towards UNISWA IR

14. In your opinion, to what extent are postgraduate students and faculty supportive of the UNISWA IR?

[ ] Supportive

[ ] Very supportive

[ ] Not supportive

[ ] Lukewarm

15. In your view, what factors influence postgraduate students and faculty attitudes and perceptions towards IRs?

_____

_____

16. How important will it be to you that the UNISWA repository is networked and cross searchable with other institutional repositories?

[ ] Most important

[ ] Important

[ ] Not important

E. IR usage and Challenges populating the IR

17. To what extent is UNISWA IR used by postgraduate students and faculty?

[ ] Most frequently used

[ ] Frequently used

[ ] Not frequently used

[ ] Not used

[ ] Not sure

18. What challenges if any do you face in your endeavour to enhance the use of the UNISWA IR by postgraduate students and faculty?

_____

_____

19. What in your own opinion are the hindrances to using the UNISWA IR by postgraduate students and faculty

_____

_____

20. How can the hindrances identified above be addressed?

_____

_____

21. Based on your observations or usage statistics amongst the users, who are the most frequent users the UNISWA IR?

_____

_____

22. Where do you see the UNISWA IR in the next five years from now?

_____

_____

F. Additional Comments

23. Is there anything else you would like to add regarding the IR at UNISWA?

_____

_____

Thank your time and participation

Appendix 4: Letter of Introduction

Information Studies
School of Social Sciences
University of KwaZulu-Natal
Private Bag X01
Scottsville 3209, South Africa
Tel: +27 (0) 33 2605571
Fax: +27 (0) 33 2605092
mutulas@ukzn.ac.za

10th February 2016

The Librarian
University of Swaziland
Private Bag 4
Kwaluseni, M201
Swaziland

Dear Sir/Madam,

RE: APPLICATION FOR RESEARCH DATA COLLECTION

Reference is made to the above subject.

Ms Nokuphila Saulus is a duly registered PhD student in the Information Studies Program at the University of KwaZulu-Natal, in South Africa. As part of the requirement for the award of the doctoral degree, she is undertaking a study on the usability of the University of Swaziland's institutional repository. The study targets faculty, postgraduate students, and librarians from the University of Swaziland's three campuses.

The purpose of this letter is to kindly request written permission from your office to enable her collect data from the institution. Possible dates for data collection are flexible within November 2016 to May 2017. The data will be collected through survey questionnaires, and interviews. Your authorization to this request will be highly appreciated.

Yours sincerely,

Professor Stephen Mutula
Dean & Head: School of Social Sciences

Appendix 5: Gate Keeper Letter (University of Swaziland)

UNIVERSITY OF SWAZILAND

Private Bag No.4 Kwaluseni M201, Swaziland
Tel. (+268) 25185886 Fax (+268) 2517 0001
E-mail: mmavuso@uniswa.sz

LIBRARIAN
Ms. M.R. Mavuso, B.A. + CCE (UBLS), PDL, M.Lib. (Wales)

The University of Swaziland
Private Bag 4
Kwaluseni
Swaziland

02 March, 2016

The University of KwaZulu-Natal
Pietermaritzburg
Private Bag X01
Scottsville, 3209

Dear Sir/Madam

Re: Granting permission to undertake research.

This letter seeks to inform the University of KwaZulu-Natal, School of Social Science that Ms Nokuphila Rene Saulus (214584336) who is a PhD student in the department of Information Studies has been granted permission to conduct her study on the University of Swaziland's institutional repository. The institution will support her with all necessary information required for the research. Ms Saulus is expected to collect data between September to November 2016 from Faculty members and Post graduate students who are active users of the IR.

The study titled "Service quality and technology acceptance factors in the usability of UNISWA's IR" is expected to immensely benefit the university of Swaziland libraries through investigating the various factors likely to impact on users' intentions to adopt or reject the IR. The research will therefore play a vital role in enabling librarians to identify areas of best practice as well as those requiring improvements.

For further information please contact the University Librarian.

UNIVERSITY OF SWAZILAND
30 MAR 2016
LIBRARIAN

Yours Faithfully

M Mavuso

Appendix 6: Ethical Clearance Letter

07 November 2016

Ms Nokuphila Saulus 214584336
School of Social Sciences
Pietermaritzburg Campus

Dear Mr Saulus

Protocol reference number: HSS/1782/016D
Project title: Service quality and technology acceptance factors in the usability of the Institutional Repository (IR) by Faculty and Postgraduate Students at the University of Swaziland (UNISWA).

Expedited Approval

In response to your application dated 20 October 2016, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Dr Shamila Naidoo (Deputy Chair)

/px

cc Supervisor: Dr Stephen Mutula
cc Academic Leader Research: Prof Maheshvari Naidu
cc School Administrator: Ms Nancy Mudau & Ms Lukong Shulika

Humanities & Social Sciences Research Ethics Committee
Dr Shenuka Singh (Chair)
Westville Campus, Govan Mbeki Building
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Website: www.ukzn.ac.za

Appendix 7: Editor's Letter

Professional EDITORS Guild

Barbara Mutula
Associate Member

Membership number: MUT001
Membership year: March 2017 to February 2018

078 643 9029
kabangebarbara@gmail.com

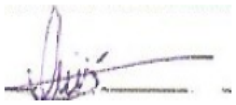
www.editors.org.za

30 December 2017

TO WHOM IT MAY CONCERN

This is to confirm that the dissertation written by Mrs Nokuphila Rene Saulus, titled **'Usability of the Institutional Repository by Faculty and Postgraduate Students at the University of Swaziland'** was copy edited for layout (including numbering, pagination, heading format, justification of figures and tables), grammar, spelling and punctuation by the undersigned. The document was subsequently proofread and a number of additional corrections were advised.

The undersigned takes no responsibility for corrections/amendments not carried out in the final copy submitted for examination purposes.



Mrs. Barbara L. Mutula-Kabange

Copy Editor, Proof reader
BEd (UBotswana), BSSc Hons Psychology,
MEd Educational Psychology (UKZN)