

Awareness and Use of Open Access Resources by Researchers of  
the University of Zululand

By

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A dissertation submitted in partial fulfillment of the requirements for  
the award of a degree of Masters of Arts in Library and Information  
Science from the Department of Information Studies at the University  
of Zululand

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2018

## DECLARATION

I, CHIEDZA PAMELA MUNIKWA, declare that this dissertation is my original work, save for where proper citation and referencing signify otherwise in the text. The dissertation has not and will not be presented for the award of any degree at any other university.



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## DEDICATION

I dedicate this study to my family.

## ACKNOWLEDGEMENTS

I thank my supervisors- Professor Mostert and Mr. N. Nkomo for their scholarly motivation and guidance throughout the course of my studies. Special thanks go to my family members who encouraged me even when 'days seemed dark'. To my friends and family away from home - thank you for the encouragement! To my children, thank you for tolerating an absentee mother and understanding the meaning of 'studying' at such a tender age. I cannot begin to express the appreciation of having a friend who encouraged me and stayed up with me when I needed company to continue forging ahead - my best friend and husband – Prosper - you are one in a million! Without the Lord who gave you all to me, I would not be where I am today.

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## **ABSTRACT**

This study set out to investigate whether researchers at the University of Zululand were aware of scholarly open access resources available to them. This involved determining the strategies put in place by the University to promote open access databases and resources and the extent to which the researchers had incorporated these resources into their research. The study also aimed to assess the barriers against and factors in favour of adoption and use open access resources at the University of Zululand.

Open access resources are key to assisting institutions in strengthening their research and this study sought to investigate how the institution had progressed in doing this while acting as an awareness tool so that previously uninformed researchers could become knowledgeable about resources available to them.

This research was underpinned by the pragmatic paradigm, to effectively carry out mixed method research.

This study was conducted within the natural setting of the research problem and was guided by case study design using a qualitative approach to collect data that helped to understand the population under study in depth. Data was collected directly from the target population by way of questionnaires and focus groups targeted at the researcher population and semi-structured interviews with the information librarians. The questionnaires were used in a survey to gather both qualitative data from open-ended questions and quantitative data from closed-ended questions and the focus group discussion points were not restrictive. This meant that both qualitative and quantitative data were collected concurrently thus saving time. The data from the information librarians was qualitative and assisted in getting a view from the staff tasked with bringing about awareness and promotion of these resources.

The target populations for this study were researchers at the University of Zululand and information librarians. Included as researchers were postgraduate students of all faculties at the University of Zululand and academic staff. This brought the target population to 1515 (one thousand five hundred and fifteen) researchers and all four

information librarians were targeted. It must be noted that the researcher number also includes some members of the academic staff who are studying part-time.

The target population was stratified with the intention of getting respondents in proportion to their numbers at different academic levels and therefore achieve a measure of representivity in an effort to attain external validity. Stratified random sampling was employed across academic levels to sample respondents for participation in the questionnaire survey and the focus group discussions. This resulted in a total of one hundred and twenty-five (125) questionnaires being handed out. Of these, 96 were returned representing a response rate of 76.8%. The study held three focus group discussions with a total of fifteen (15) researchers participating.

The study found that not all researchers are aware of the OA resources at their disposal. Of those who are aware, some are not always willing to make use of them or make their own work openly accessible. Researchers expressing awareness could not all be drawn to provide specific named examples of OA databases they use. This suggests a lack of thorough knowledge as to what OA is, while at the same time showcasing the challenges that come from the pressure to “publish or perish”, particularly in the Department of Higher Education and Training-approved journals. Challenges highlighted to using open access resources by researchers included poor or inadequate university ICT infrastructure and lack of adequate information literacy skills.

While the university is not idle, there is need for further awareness and training activities to take place for researchers to realize the maximum potential of the open access movement. This will assist in challenging the negative perceptions attached to OA and at the same time promote them to those who are not familiar with these resources.

# **CHAPTER ONE**

## **INTRODUCTION AND BACKGROUND**

### **1.1 Introduction**

The ever increasing infrastructure of information and communication technologies (ICTs) has redefined the way in which information can be accessed, stored and disseminated. The principal impact has been in enabling remote access to data (or information) to researchers who previously had to manage with the limited resources at their disposal or wait for lengthy periods of time for the information they required to be shipped to them along the book supply chain.

Harle and Powell (2009:214) point out that high quality research is critical to international development and that the ability of developing countries to respond effectively to the complex and multi-layered challenges which they face will depend fundamentally on their ability to undertake rigorous high quality research. They emphasize that if research is crucial to development then information access is critical as the lifeblood which animates the scientific and scholarly endeavour and enables the higher education system to operate. They conclude by stating that strengthening developing country research therefore means strengthening the information and communication cycle.

Limited resources; both infrastructural and intellectual, result in information - poor communities. The limitations in access to current research output are caused by such factors as prohibitive proprietary publication costs, poverty and lack of adequate ICT infrastructure. It is prudent, notwithstanding the above factors, for communities to take advantage of ICT advances that now enable access to some of the best research at no charge other than internet access, through what is commonly termed open access. Open access (OA) publishing has significantly changed access to research resources for researchers who previously could not afford access to current, relevant, peer-reviewed, scholarly work; and it is all at the click of a button. Open access publishing

(OA) radically increases the resources at the disposal of many marginalised communities leading to the reduction of global disparities in so far as access and dissemination of information is concerned.

Libraries are in the forefront as promoters of access to information. Not only information that is purchased by the libraries themselves, but even that which is freely available for anyone with access to the internet. In an increasingly paperless world, libraries have co-evolved with technology to be considered as research tools, providing access to information in its various formats (Bosc and Harnad, 2005: 95). Libraries will do well to continue to lead as providers of research information, be it proprietary publications or open access resources. Below, open access is conceptualised.

#### **1.1.1 Open Access: an introduction**

The open access movement was born out of, among many other factors, a benevolent need to make research freely available to the scientific community. As journal prices increased, institutions were unable to keep up with subscriptions while others were forced to cut down on their library budgets. Restrictions with regards to download and reuse made many authors question the publishing system as well. All this resulted in a gap in the dissemination of information between researchers and the researcher community. Open access databases have evolved from this movement as institutions and some publishing houses have taken it upon themselves to challenge the traditional scholarly communication system by assisting authors to make their work open access – either through payment (gold open access) or deposit into repositories (green open access) (Prosser, 2003, Gilinsky, 2006, Cullen and Chawner, 2010, McKay, 2011, Suber, 2012). These routes are explored in Chapter 2.

Open access is generally understood to be the free and public access to research material as opposed to proprietary access wherein research publications are paid for. Prosser (2003:168) defines open access as the free and unrestricted access on the public internet to literature that scholars provide to the world without expectation of direct payment. McKay (2011:251) emphasises that open access publishing provides



free, immediate and permanent online access to the full text of an article, presenting researchers with easily accessible high quality scientific resources essential to the rapid and efficient global communication of research findings.

Through open access, current research is availed freely to researchers with access to the internet. The tools of OA include journals that are freely accessible online, subject repositories and most prominently institutional repositories. These tools tend to be institutionally or subject-defined and exist to share knowledge with peers and the public which funds research. Willinsky (2006: xii) states that “commitment to scholarly work carries with it a responsibility to circulate that work as widely as possible”. He sees that in the digital age, this responsibility includes exploring new publishing technologies and economic models to improve access to scholarly work and argues that OA benefits all, from the established and well-supported researcher to those struggling hard to find resources.

The Budapest Open Access Initiative (BOAI) of February 2002 (Chan et al., 2002) states:

There are many degrees and kinds of wider and easier access to this literature. By ‘open access’ to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, 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 other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors full control over the integrity of their work and the right to be properly acknowledged and cited.

The Bethesda Statement on Open Access Publishing (Suber et al., 2003) released June 20, 2003 is a result of discussions to encourage the biomedical research community to rapidly adopt the open access publishing model. From the discussions it was concluded:

An OA publication is one that meets the following two conditions

1. the author (s) and right holder (s) of such contributions grant (s) to all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship (community standards rather than copyright law will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work, as they do now), as well as the right to make small numbers of printed copies for their personal use.
2. a complete version of the work and all supplemental materials, including a copy of the permission stated above, in an appropriate standard electronic format is deposited immediately upon initial publication in at least one online repository that is supported by an academic institution, scholarly society, government agency, or other well-established organisation that seeks to enable open access, unrestricted distribution, inter-operability, and long-term archiving (for the biomedical sciences, PubMed Central is such a repository) (Suber et al., 2006; Xia 2012).

The Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities of 22 October 2003 (Bullinger et al 2003), agrees with the Bethesda statement on the conditions that an OA contribution must meet. It asserts that OA contributions include original scientific research results, raw data and metadata, source materials, digital representations of pictorial and graphical materials and scholarly multimedia material.

The Budapest Open Access Initiative, released in 2002, acknowledges that OA will 'accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, making literature as useful as it can be and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge' (Chan et al., 2002). Prosser (2003:168) agrees with this assertion and adds that OA enhances returns made on investment in research. With such benefits, it would appear conclusive that all scientists and researchers would rush to adopt and implement

activities and projects that promote OA so that they and their funding bodies (institutions) can showcase their research on a much wider global scale than ever before. After all, the end goal of research is to disseminate findings and enhance knowledge.

Although OA is changing the manner in which research output can be disseminated and accessed, a lack of awareness, lack of knowledge and general disregard of free research data and results associated with OA has resulted in minimal usage and adoption. This is noted in Van Westrienen and Lynch's (2005:n.p) observations of the bottlenecks for establishing, filling, and maintaining IRs, for example, which include the difficulty to promote to faculty the value of IRs as well as its contribution towards content and the myth that IR material is of low quality. Thus it can be presumed that if faculty themselves are not convinced then they will evidently not promote these resources to their students who are researchers in the making.

Misconceptions around the quality of OA resources have prevented researchers from moving from traditional publishing houses or journal names to the open access model of publishing. Researchers are generally encouraged by their institutions to publish in the higher-impact factor journals as this altmetric measure is presumed to define the importance of a journal within a particular field (Kurmish 2003:2449). Yet the impact factor of the journal is determined by the quality of its content not the other way round. This implies that researchers tend to publish not to make their work known but rather to become known because of having published in a particular journal.

Xia (2012:73) lays the case for OA acceptance and use. He argues that the groundwork has been done when he writes,

“to achieve open access, necessary infrastructure has been created in the form of OA journals and OA repositories (both institutional and disciplinary based). Scholars participate in the OA movement by making contributions to these

digital mechanisms through publishing freely accessible articles in OA journals and by self-archiving their research outcomes in OA repositories. Scholars' participation in OA can also be demonstrated by their searching, reading and citation of OA materials. The above-listed areas of OA practice are tangible and can be measured".

However, Xia fails to note that regardless of what benefit an innovation has, if that benefit is not perceived by those for whom the innovation is meant, then it will go unused. Kwake and Ocholla (2006:108) sum it up well when they argue that the benefits of ICTs are difficult to gauge in many African countries, particularly in the wake of pressing problems such as poverty, hunger and disease. So, in effect, though the innovation might exist to overcome these problems, if it is not perceived in the right context, through the right communication channels and by the appropriate promoters, the innovation is as good as non-existent. An innovation's consequences may create uncertainty which is why adoption might not be as rapid as expected. For Rogers' (2003:177), adoption is a decision of 'full use of an innovation as the best course of action available' and rejection is a decision 'not to adopt an innovation'. This research therefore set to investigate whether open access resources fall into the adoption or rejection segment in relation to how researchers at University of Zululand make use of them.

Researchers do not exist within a vacuum, and neither should the research they produce. As ICTs continue to spread and evolve, so too does the information landscape in which researchers exist. The changes in ICT have meant cheaper and more efficient ways to communicate research with limited hindrances.

Adcock and Fottrell (2008:n.p) contend that the ability of researchers from resource-poor countries to fully participate in global academia has been limited by the relative scarcity of information, expertise, equipment and financial resources. They believe that the academic publishing industry faces increasing risks from reduced library spending, demands to digitize content, and dissent from authors, librarians and academics

regarding increasing subscription costs, which have led to falling revenue and, as a result, an escalation in demand for OA journals. Adcock and Fottrell (2008:n.p) observe that institutional libraries in the poorest parts of the world often rely on donations of printed periodicals rather than direct subscriptions, resulting in second-hand, outdated titles, irrelevant publications and inappropriate foreign language materials. As a result, research quality, or the research resource base, does not improve, even though the collection presumably grows in number. What is needed then, are current, relevant and language-appropriate resources that are easily accessible with minimum protocols commonly provided through OA initiatives.

Interestingly, it is not just poorly resourced institutions that are faced with a lack of sufficient resource material to conduct satisfactory research. As Prosser (2003:167) notes, even the wealthiest institutions cannot afford to purchase access to all the information that all their researchers require. He says that though a consortium may buy a site licence to a large package of data, if prices then increase by more than the rate of budget increases, the problems will return, and the amount of information that people have access to will again contract. Prosser (2003:167) adds that unfortunately many publishers are charging an additional fee for access to online journals, which is further squeezing the budget of libraries; hence the current model is not a satisfactory one.

At a glance, developing nations are the ones who stand to benefit the most from OA resources because they will be able to retrieve research information speedily and, at the same time, enable access to their own research for the global audience. Yet it is not only developing country researchers who stand to benefit. OA is a global initiative that benefits global researchers. As the discussions by various scholars are put forward, it will be interesting to note how the situation at the University of Zululand compares especially in light of the fact that new initiatives are not necessarily always adopted by their intended beneficiaries.

Xia (2012:86,87) asserts that while the invention and popularity of the Internet provided the necessary basis for OA development, the lack of ICT infrastructure has restricted open access from spreading to some areas during the diffusion process. Whether it is only lack of ICT infrastructure that hampered the spread or reluctance by researchers to adopt open access resources will be discussed in chapters to follow.

Potential users of an innovation must be aware of its existence before they can make use of it. In a study conducted across two Tanzanian universities - one private and the other public - Okendo and Mligite (2014:4) , found that of the 45 respondents, 16 (34%) had heard of open access prior to participating in their survey yet 23 (51%) respondents had made use of freely available literature authored by staff members. This vagueness amongst researchers on what the term 'open access' means is corroborated in research done amongst graduate students at the University of Ghana; Borteye and Dadzie (2015: 56) revealed a moderate level of awareness of the nature of open access journals among respondents in four follow-up statements. It was only for the statement "open access means free access" that more than half of the respondents affirmed their awareness of the statement. There were low levels of awareness for the rest of the listed items. For instance, 37.8% were aware that open access material was free from copyright at the point of use; 37.2% were aware that open access journals are peer reviewed, and only 33.9% were aware of the DOAJ. This implies that libraries and librarians need to be more proactive about creating awareness of the nature, existence, usage and usefulness of open access journals among graduate students. This leads to the observation that while researchers might not be aware of the term 'open access', they could still be making use of open access resources. This study investigated the awareness of scholarly open access (OA) resources at the University of Zululand by researchers by seeking to identify whether researchers incorporated them into their reservoir of research resources.

Strategies to promote open access fall into three broad categories - policy-oriented, advocacy-based and infrastructure development (Swan, 2012: 41). Several research bodies have taken up the initiative of encouraging researchers and institutions they fund to proactively publish in open access mediums as a tool of compliance with their

funding agreement. These include for example, the Wellcome Trust, The National Institutes of Health, The Research Councils UK and many others across the globe at either national or international level (Swan 2012).

Advocacy-based strategies include work of not only organizations but also individual institutions and individuals proactively involved in promoting the benefits of open access as a tool to encourage researchers to publish or use open access material. Ideally positioned at the forefront of this are academic libraries in their capacity of being the main resource-base for emerging researchers (Bosc and Harnad, 2005; Willinsky, 2006; Jain, 2014).

To secure adequate infrastructure development for the expansion of activities is a task that requires support from not just academic stakeholders but nations at large. In a study carried out in sub-Saharan Africa by Shibanda (2006:3) to discover the nature and magnitude of the issues affecting or preventing effective use of e-journals and open access resources listed amongst others, the following as playing a prominent role: national telecommunications infrastructure policy; telecommunications infrastructure availability, and electricity reliability. These factors, as relevant today as they were at the time of Shibanda's study over ten years ago, significantly determine the amount of time one can spend researching on the internet and subsequently accessing and downloading relevant resources.

From these discussions one can draw the conclusion that while access to the literature is a challenge, there are still underlying difficulties that could prevent researchers from gaining access to that which is freely available. The challenge of ICT infrastructure can only be adequately met at a national or global level, and while strides have been made to improve internet connectivity there is still the need to ensure that there are adequately trained staff members. Staff members required are not only for troubleshooting, but also to adequately train researchers in the use of electronic resources.

### 1.1.2 Institutional background

The University of Zululand, also known as UNIZULU, is one of twenty-three (23) public universities in South Africa. It is located in rural KwaZulu-Natal (KZN) approximately 142 km North of Durban on the national toll road - the N2. It is dual-campused. The main campus is at KwaDlangezwa about 20 km south of the town of Empangeni while the satellite campus is in Richards Bay.

UNIZULU is a comprehensive tertiary educational institution, providing technikon (university of technology) /vocational programmes as well as traditional/theory-based programmes. This role is divided between the two campuses with KwaDlangezwa campus offering largely the theory component and Richards Bay the technikon component. It has four faculties: Humanities and Social Sciences (formerly Arts); Commerce, Administration and Law; Education; and Science and Agriculture (University of Zululand website 2015).

The data for this study was collected in 2014 and as of the 29<sup>th</sup> May 2014, the student enrolment stood at sixteen thousand, five hundred and eighty-two (16582) (registration.unizulu.ac.za), with an academic staff complement of two hundred and eighty-seven (287). Of the total student enrolment, one thousand seven hundred and seventy-five (1775) were enrolled for postgraduate study.

The University of Zululand has a functional Institutional Repository (IR) named UZSpace, hosted by the library. As at the 5<sup>th</sup> of May 2014, one thousand, two hundred and forty four (1244) documents primarily consisting of thesis and dissertations (mainly masters and doctoral) made up the bulk of the repository (uzspace.unizulu.ac.za).

The library website ([http://oldsite.unizulu.ac.za/lib\\_databases.php](http://oldsite.unizulu.ac.za/lib_databases.php)) also provides links to several OA databases, and can be accessed on-campus without need of a password or off-campus with the use of a username and pin available on request.

As at the 17<sup>th</sup> of June 2013, when this research commenced, the University had several computer laboratories with the ICT Computer Training Centre Statistics indicating a total computer complement of eight hundred and ninety six (896)



machines. Internet can be accessed through Wi-Fi over most of the main campus and hostels thus ideally enabling researchers with personal laptops to have constant access to the Internet. Information librarians are available on request to train researchers on accessing all electronic resources – both OA and subscription-based publications.

## **1.2 Motivation and problem statement**

Open access, as was explained above, has the potential of providing optimal access to quality research resources needed in academia. It was also noted that libraries play a pivotal and frontline role in the promotion, access and thus ultimate utilisation of OA resources by the academic community. The researcher do not, however, know the extent of the University of Zululand scholars' and researchers' awareness of OA; how the institution through the library promotes OA and whether such awareness and promotion leads to utilisation. From observation during previous years of employment in another institution, the researcher discerned that postgraduate researchers seem to be ignorant of what an OA source is and heavily relied upon the not-always accessible subscription databases. This ignorance overlapped onto in-house OA sources such as institutional repositories (IRs) as, other than researchers not being always aware of what they are and how to access them, they also do not use them to self-archive their work, therefore losing out on making their work available to the research community at large. It was therefore important that the situation on the UniZulu campus be investigated so that the full extent of awareness, use, challenges with access and use and the promotion of OA resources by the library, could be established and the situation be addressed to the benefit of all. The focus on UNIZULU was born from an observation that the institution has a functional institutional repository (UZSpace) which can be the first port of call for open access resources, and has created an ICT infrastructure base that provides easy access to the internet and subsequently to broader online resources. The University of Zululand subscribes to several subscription databases for which access is provided through a hyperlinked collated list on the library website. In turn, some departments such as the Department of Information Studies provide their publications freely through their website. However, these resources do not cover the broad spectrum of subjects covered by the universities curriculum and it was important that an investigation be carried out to

establish whether, in an era of limited financial resources, researchers are making full use of peer-reviewed resources that are readily available on the internet. There was, at the time of conducting the study, no identifiable research conducted on OA awareness and use at UNIZULU.

This investigation is necessary for, among other issues, bringing to light the current state of awareness by researchers of the openly available scholarly literature in the various disciplines at the University of Zululand. It will also assist policy makers to formulate strategies on how to increase awareness and use of these resources so that the quality of research output is enhanced and not compromised as a result of the proverbial cry of 'lack of resources'.

### **1.3 Aim of the study**

The aim of the study was to investigate the awareness and use of open access resources by researchers at the University of Zululand.

### **1.4 Study objectives**

The objectives of the study were:

1. To determine the level of awareness of scholarly open access resources at the University of Zululand,
2. To determine the extent of use of scholarly open access resources by researchers at the University of Zululand
3. To determine the strategies in place to bring about open access awareness.
4. To determine the barriers against and factors in favour of open access at the University of Zululand.

### **1.5 Research questions**

The following research questions were posed:

1. Are researchers at the University of Zululand aware of open access resources at their disposal?
2. Are the open access resources used and valued?
3. What strategies does the University have in place to bring about awareness of open access resources?

4. What are the challenges and opportunities faced by researchers regarding the use of open access resources?

### **1.6 Significance of the study**

Understanding the current state of awareness of resources at their clients' disposal (in this case open access resources) is of great interest to information service providers. It is vital to determine user awareness so as to analyse the gaps that need filling as well as to maximize on the current state of knowledge, hence improving knowledge and use of these information resources. Researchers tend to have established information resources that they use and some of these are as a result of when and who exposed them to these resources. In using the theory of adoption and innovation as a determinant of the adoption of OA resource use, the study sought to indicate that it is crucial that the system within which an innovation is introduced, as well as the introducer, not be taken lightly. The manner in which researchers accept an innovation is crucial in preparing the promotional material and selecting resource people to carry out that promotion.

The open access movement emerged as a measure of assisting resource-strained researchers and researchers at the University of Zululand are reasonably placed to make use of these freely available resources. The study sought to investigate the awareness by researchers of these resources and how best current knowledge and use can be increased. The challenges raised by the respondents will assist in the creation of appropriate training material geared towards debunking myths and establishing better understanding of OA resources from a practical and not just theoretical point of view.

This research project was intended to add to the knowledge of the state of awareness of UNIZULU researchers so as to be able to assist stakeholders in maximising the use of these free resources. The study is likewise important to library professionals who are tasked with enhancing information literacy skills as it provides a South African perspective to the research questions asked (discussed in the chapters following) as well as offering a closer introspection on how the current situation can be improved.

### **1.7 Scope and limitations**

This study was limited to researchers of the University of Zululand's KwaDlangezwa Campus. The Richards Bay Campus does not support postgraduate studies and for this reason was not included. Due to the difficulty in accessing respondents from across departments, snowball sampling was adopted. This resulted in bias towards certain departments, faculties and research study levels. In addition, there was difficulty in getting required respondents (from department, faculties and study levels) to participate in focus groups at planned times partly because they were not regularly available on campus as some are part – time and others claimed to be busy. Participants tended to be from similar study levels and faculties. The issues raised are acknowledged as limitations.

### **1.8 Theoretical framework**

The study sought to investigate the University of Zululand research community's (researchers as defined at the end of this chapter) response to and uptake of OA resources after awareness. Sahin (2006:14) asserts that Rogers' Diffusion of Innovations Theory (DOI) is the most appropriate theory for investigating the adoption of technology in higher education and educational environments. This study thus adopted DOI in investigating the awareness and use of open access resources at the University of Zululand. Diffusion is defined as "the process by which an innovation is communicated through certain channels over time among members of a social system" (Rogers, 1983:5). In the context of this study, the innovation referred to are the OA e-resources and the University of Zululand is the social system. This is explained in Chapter 2.

### **1.9 Research methodology**

This study was designed as a case study and used both quantitative and qualitative methods of collecting data to gain a fuller understanding of the research problem. Mixed methodology was used to collect data using several instruments so as to triangulate the data collected. The instruments used were questionnaires, interviews and focus group discussions. The questionnaires and focus group discussions targeted all researchers while the interviews were limited to the library staff. Library

staff were interviewed to ascertain what strategies are in place to assist researchers to identify OA databases and resources. Leedy and Ormrod (2013: 255) attest to the fact that many research problems have both qualitative and quantitative dimensions and to fully address them, the researcher must use both qualitative and quantitative techniques. The collection of both qualitative and quantitative data enabled the researcher to triangulate data, so that the convergence of data collected by these methods added to the credibility of the research findings. It also assisted in fortifying and enriching the study's conclusions, making them more acceptable to advocates of both qualitative and quantitative methods (Hesse-Biber, 2010:3).

Stratified, convenience and snowball sampling techniques were used to identify and approach the research participants for completing the questionnaires and taking part in focus group discussions. Richards and Morse (2013:221) explain that in purposeful (non-probability) sampling a researcher selects participants because of their characteristics e.g. they know information required, are willing to reflect on the phenomenon under study, have the time and are willing to participate. The methodology and research participants will be explored in depth in Chapter 3.

### **1.10 Definition of terms**

This section provides the working definitions of terms used during the study. Some are the researcher's interpretations specific to this study, while others have been taken from previous, peer-reviewed studies.

**Awareness** – a deliberate and working understanding of the exact nature of what open access resources are and an ability to accurately identify examples of such (Okendo and Mligite, 2014; Borteye and Dadzie 2015).

**Institutional repository** - a database of scholarly digital content produced by an institution (students and faculty) that is web-based, institutionally defined, cumulative

and perpetual, open and interoperable and so collects, stores and disseminates (Ware, 2004; Carpenter, 2008).

**Open access database** - a collection of freely accessible books, journals, articles, datasets and theses and dissertations (Carpenter, 2008; Swan, 2006; Suber, 2006).

**Open access resource:** An open access resource is digital, online, free of charge and free of most copyright and licensing restrictions. It removes price barriers (subscriptions, licensing fees, pay per view fees) and permission barriers (most copyright and licensing restrictions) in essence, OA can be summarised as promoting free availability and unrestricted use of literature (Suber, 2012:4). Open access resources include theses and dissertations, articles, article databases, journal databases and various other educational, peer-reviewed literature formats.

**Peer review:** A process by which new research is certified by substantive experts in the field. Peer review covers a significant range of activities including review by both editors and external referees of articles submitted to scholarly journals, evaluation of book proposals, and rating of papers and posters submitted to conferences by program committee chairs and members. (Smith et al., 2007; Lee et al, 2013).

**Promotion:** the various efforts and strategies by a relevant party, for example, university library or research office, to educate researchers on the existence and benefits of open access resources. This could be by way of training workshops, fliers or other effective medium of communication to guarantee widespread understanding of the breadth and depth of resources (Cosby, 2008; Jain, 2014; Swan, 2012).

**Researcher:** Either a postgraduate student engaged in postgraduate research study, and registered as such at the University of Zululand, or a member of the academic staff

**Self-archive:** The depositing of peer-reviewed research output (in addition to its publication in a journal) by an author of his or her work in a publicly accessible repository (Singeh, Abrizah and Karim, 2013:25). The repository can be institutional, subject-specific, national or personal (website).

**Subject repository:** This is a database/ repository that collects and provides access to the literature of a single subject or a set of related subjects (Adamick and Reznick-Zellen, 2010).

**Use:** the ability to accurately identify and make use of an open access resource, be it an institutional repository, open access journal article or other form of open access material in terms of the appropriate copyright law governing use and distribution of said material (Spezi et al., 2014; Moya and Hanlon, 2015)

### **1.11 Structure of thesis**

The research report is organised as follows:

#### **Chapter One - Introduction and Background**

This chapter introduces the research topic, highlighting the background to the study and placing it in context to the rest of the world. It also provides the motivation of the study and gives a brief overview of the theory and methodologies informing the conduct of the study.

#### **Chapter Two – Theoretical Framework and Literature Review**

Chapter 2 expands on some of the concepts introduced in Chapter 1, including exploring the theoretical framework governing the study, exploring the various open access routes available and providing an analysis of previous studies.

### **Chapter Three - Research Methodology**

Chapter 3 presents the data collection procedures and instruments that were used.

### **Chapter Four - Data Presentation and Analysis**

Chapter 4 presents, interprets and analyses the data collected.

### **Chapter Five - Discussions**

Chapter 5 critiques the meanings placed on the data collected in relation to other studies that have been conducted in similar settings.

### **Chapter Six - Summary, recommendations and conclusion**

Chapter (6) summarises the findings of the research, recommends the way forward and provides suggestions on further research.

#### **1.12 Summary**

Chapter One introduced the background of the open access movement and highlighted the ideals spearheading this movement as promoted and documented by the various charters and declarations detailed in this chapter. The chapter introduced not only the concept of open access but also outlined the environment in which the study will be based. The contextual background to place the setting of the study was outlined as was the conceptual background that, combined, gave rise to the research questions. The theoretical framework by which the study was influenced was also introduced. The working definitions of commonly used terms across the study were also provided. In essence, this chapter gave a brief background to the circumstances that informed the researcher to seek to investigate the research problem. The research problem was identified and the aims and objectives provided. The following chapter, Chapter 2, focuses on reviewing literature on open access awareness and use in academia as the research topic is further explored.



## **CHAPTER TWO**

### **THEORETICAL FRAMEWORK AND LITERATURE REVIEW**

#### **2.1 Introduction**

The previous chapter discussed the origins and ideals spearheading the open access (OA) movement. This chapter reviews the theoretical framework and literature conceptualizing OA, discussing its typology, highlighting the benefits to the academic research community, and analysing the challenges to OA adoption and use.

The theoretical framework guides the research process and assists the researcher to formulate appropriate strategies in responding to the study under enquiry. It posits the research problem and explains why there is a challenge, if any, in terms of awareness and use of open access resources by researchers.

A literature review provides an overview of the knowledge currently documented by previous studies undertaken on topics similar to the one under study. The literature review sets offers a general understanding of OA. In understanding OA and the environment under which it was formulated and exists, an analysis of the particular benefits it bestows on researchers globally as well as locally could thus be made.

The chapter further reviews the current researcher perspective and future of the OA movement by addressing the following questions:

1. Are researchers aware of OA databases at their disposal?
2. Are the OA databases used and valued?
3. What strategies are in place to bring about awareness of OA databases?

4. What are the challenges and opportunities faced by researchers regarding use of OA databases?

## **2.2 Theoretical framework**

When conducting research, it is prudent to be guided by a theory or a model which can be either proved or disproved by the eventual findings and conclusions from the data collected and analysed. This assists in providing a predetermined overview of the phenomena under study without making premature and unfounded conclusions. Case (2012:134) juxtaposes the two (theory and model), and defines a theory as a set of related statements that explain, describe or predict phenomena in a given context; whilst a model is described as a framework for thinking about a problem, and may evolve into a statement of the relationships around theoretical propositions.

Researchers within the field of teaching, learning and technology have presented several theories or models in an attempt to conceptualize how students (be they young or old) adopt to new knowledge and in more recent times, new technologies. These models of adopting new technologies are aimed at tracing the development of an innovation from the time it is introduced to the time it becomes generally accepted by the greater public. As time goes by, these models are refined and reworked to better reflect the understanding of adoption or acceptance of an innovation as new methods of teaching and learning are discovered.

As stated in Chapter One (Section 1.1.3 and 1.2), this study was informed by Rogers' Diffusion of Innovation Theory. Rogers (Rogers, 1983:5) postulates that innovations are adopted by way of diffusion, a process by which an innovation is communicated through certain channels over time among members of a social system. Thus innovations are not necessarily adopted at the same time by members of a social system but are rather adopted at different rates and as a result of different influences by members within a social system.

In assessing the existence of an infrastructure that supports access to open access research, as well as realizing that university resource funding has declined with the simultaneous rise of costs of access to research literature, this researcher proposes that there are factors that promote and detract from awareness and subsequent use of open access resources. This study stemmed from a need to assess the current levels of awareness of these resources and to determine how researchers have adopted as well as perceive these resources. Availability of a resource does not automatically lead to public knowledge or utilization and it is this dichotomy that informed the study.

Rogers (1983: 246) proposes the following as categories of adopters, classified according to their rate of adoption of an innovation:

- a. Innovators: innovators are willing to experience new ideas.
- b. Early adopters: more likely to hold leadership roles in the social system.
- c. Early majority: although have good interaction with other members of the social system, they don't have leadership role that early adopters have.
- d. Late majority: includes 1/3 of all members of social system who wait until most peers adopt an innovation.
- e. Laggards: traditional view, more skeptical about innovations and change agents than the late majority.

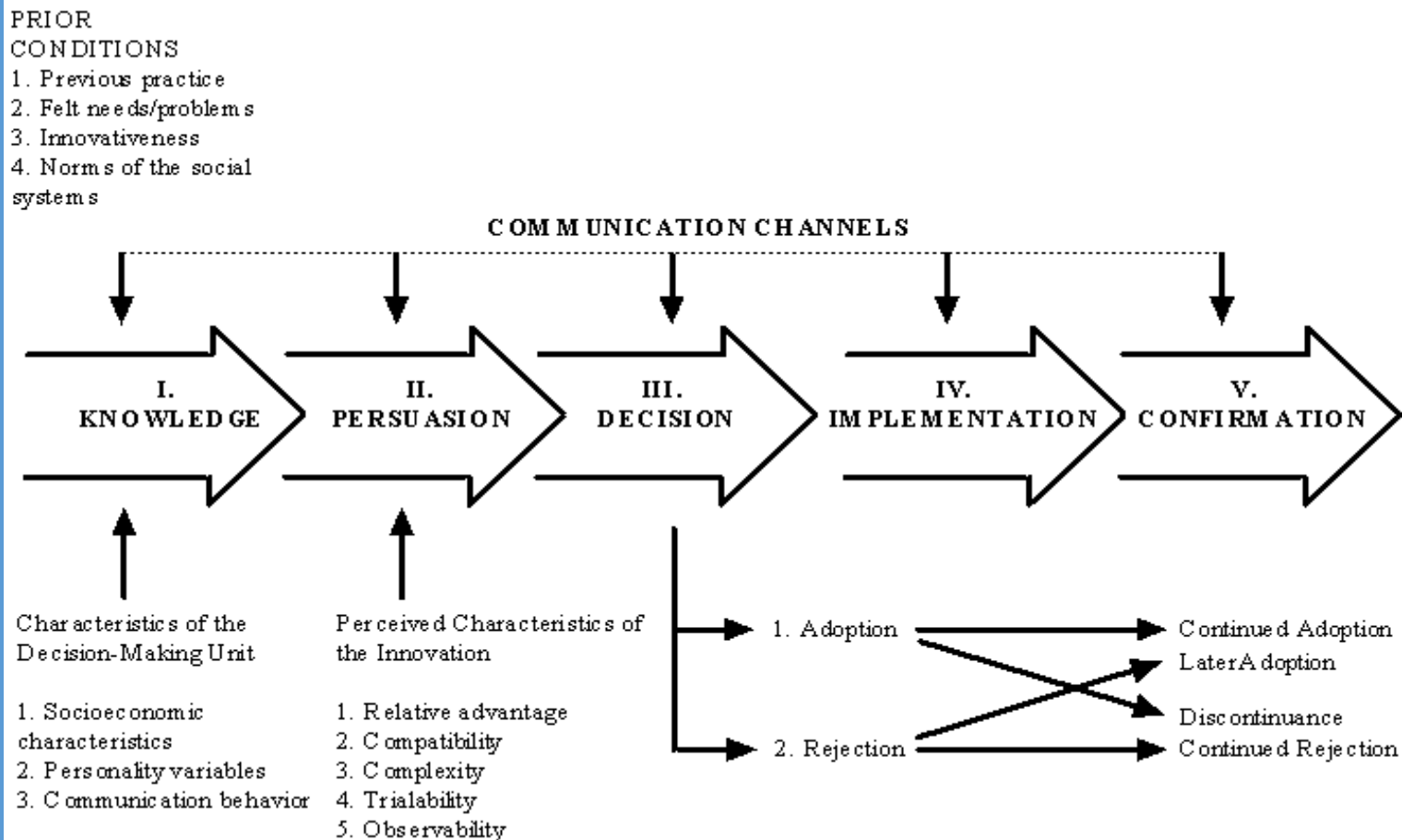
While innovations exist as improvements to the status quo, Rogers (1983:11) argues that technological innovations are not always adopted or diffused rapidly even when the innovation has obvious and proven advantages due to one or more of the four key components of the diffusion of innovations:

- i. the innovation
- ii. communication channels
- iii. time and
- iv. the social system,

An innovation diffuses to the public for which it is intended as a result of the relevant mix of the above elements as specific to any given situation. The same mix will not work for one social system as it would for the next because we are inherently different. For an innovation to be successfully adopted, the promoter of the innovation must look at these components to determine how and when best to introduce and persuade the uptake of the innovation.

The beneficiary communities adopt the innovated technologies or systems by either imitating them or making proper adjustments for local use. On the other hand, those that resist new technologies are considered to have failed adoption. Rogers (1983:165) identified an innovation-decision system with which appropriate characteristics of the innovations determine the rate and pattern of adoption. He viewed diffusion as a multi-stage process during which information is transferred, adoption is persuaded, decisions are made, and imitation is implemented. At various stages of the process, there are those who will reject or adopt the innovation.

Figure 1.1 below maps the innovation- decision process from the time communities or individuals are introduced to an innovation and continues to the choices made, be they continued adoption, discontinuance, later adoption or continued rejection.



**Figure 1.1: A model of stages in the innovation- decision process (Rogers, 1983:165)**

The knowledge stage is where an individual becomes enlightened about the existence of open access electronic resources (the innovation) and looks for further information about them. This desire for knowledge is informed by several variables emanating from the individual (such as attitude towards making use of a different type of resource and the individual's social system (e.g. what is perceived as permissible change, what resources are relevant or vice versa). When an individual has received the initial knowledge, the persuasion step follows.

The persuasion step occurs when the individual has a negative or positive attitude towards the resources (innovation), but "the formation of a favourable or unfavourable attitude toward an innovation does not always lead directly or indirectly to an adoption

or rejection” (Rogers, 2003: 176). At this step, the individual can be persuaded otherwise, depending on the perceived benefits, ease of adoption etc. of the innovation/ open access electronic resources.

At the decision stage, an individual chooses to take up (adopt) or reject an innovation (Rogers, 2003:17). At this stage, a researcher has looked at the available arguments and then makes a choice on whether or not to use or publish in open access journals. This stage is followed by the implementation stage wherein a researcher then starts making use of the OA resources. While uncertainty about the outcomes of the innovation can still exist, the researcher would have begun to test out the innovation or new open access electronic resources and databases they are now aware of.

The last stage is the confirmation stage in which the individual researcher looks for support for his or her decision. At this point, the researcher can still change his or her mind and either rejects these resources in favour of a better innovation to replace them or due to dissatisfaction with the innovation, it is rejected completely Rogers, (2003:17) suggests that another reason for this type of discontinuance decision may be that the innovation does not meet the needs of the individual.

As all these stages take place, simultaneously or in sequence, there still needs to be a conducive environment for the innovation to exist. In the case of this study, Rogers’ model ties in well as the discussion centres on the acceptance of OA resources (the innovation) by various members of the research fraternity at the University of Zululand. Acceptance and use of OA resources is not at optimal levels, suggesting that while some have taken the initiative to adopt them, some are still at the various stages of Rogers’ model, be it knowledge, persuasion, decision, confirmation or rejecting the OA resources outright in favour of more traditional sources. The following sections will look at the environment in which OA exists and what the response has been from the communities it is meant to benefit.

## **2.3 Literature review**

A literature review provides an overview of the current literature on the topic under study. It enables the researcher to contextualise the current study on the basis of previous studies already conducted. In the following sections, this literature review will contextualise the study by reflecting on the various methods of accessing information on the internet, the different types of resources available depending on which part of the World Wide Web they are found, and will document what extant studies have revealed regarding the research questions that this study has. This includes awareness issues, usage of OA by researchers, strategies to increase acceptance of OA and challenges that still have to be overcome for researchers to appreciate and benefit from OA resources.

### **2.3.1 Open Access defined**

Detailed definitions of open access, defined variably and comprehensively by the Budapest Open Access Initiative (BOAI); the Bethesda Statement on Open Access Publishing and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, are provided in the previous chapter, specifically Section 1.1.1. The various scholars and institutions that have sought to define OA are in consensus as to what it constitutes. OA has been defined as a deliberate process to offer free and unrestricted access on the public internet to the literature that scholars provide to the world, without expectation of direct payment, in order to accelerate research, enrich education and share learning across rich and poor nations (Prosser, 2003:168). This definition implies that OA does not occur by accident or chance, but is a plan to enhance dissemination and access to knowledge without profiting from those who use that information. It is separate from public domain resources because it is guided by different intellectual property rights, yet it is still accessible to all without payment. Although free, it should be noted that OA is not about being charitable, but that it enhances the return made on investment in research by drawing on a larger audience than paid access would attract, and is provided by using funds that already exist within the system, and redirecting them. Therefore instead of paying for access, we pay for dissemination.

The Research Councils of the United Kingdom (RCUK, 2013:4) define OA as unrestricted, online access to peer-reviewed and published scholarly research papers. They state that specifically, a user must be able to do the following, free of any publisher-imposed access charge:

1. Read published papers in an electronic format
2. Search for and reuse the content of published papers both manually and using automated tools (such as those for text and data mining), provided that any such reuse is subject to proper attribution. (RCUK:2006:2)

The Research Councils acknowledge that some publications may need to amend their copyright conditions if they are to meet this definition of open access.

OA does not discriminate in terms of geographical location or the financial resources that an institution has at its disposal. Rather, it implies being a free, immediate and permanent online access to the full text of research articles for anyone, web-wide (Adcock and Fortrell, 2008; Kenney and Warden, 2011). This is in contrast to the ever-changing URLs and removal of websites that constitute the lifecycle of the traditional invisible web. Consequently, as long as one has access to the web, the assumption is that one can have access to OA resources. Thus this research will define OA as the free, limitless and unending access to scholarly research that has been uploaded to be available to all and sundry. It includes theses, peer-reviewed articles, full-text journals and all manner of research documentation.

### **2.3.2 The role of OA in scholarly communication**

Suber (2012:8) identifies the purpose of OA as removing barriers to all legitimate scholarly uses for scholarly literature, but there is no legitimate scholarly purpose in suppressing attribution to the texts we use. Thus his shorthand definition states that OA literature is free of 'most' rather than 'all' copyright and licensing restrictions. In essence, OA is not promoting plagiarism, or giving it free reign. Appropriate use and attribution must be made depending on the respective licenses attributed to the work.



There is growing evidence that OA articles are downloaded more often, and that journals converting to OA see a rise in their submissions and citation impact owing to larger audience and heightened visibility provided by OA (Suber, 2012:15). So even if one's research is of limited geographical relevance, by publishing it OA a researcher increases the chances of having it cited, even when major journals might have rejected it as not having a bearing on their larger, global, paying audience.

Lack of access to the complete literature also has the effect of impeding advances in knowledge. Velterop (2005:7) emphasizes that while the benefits of OA for readers may be great for authors' funding bodies, their institutions, their professional organizations and for society at large, the benefits are likely to be even greater as listed:

- Widespread OA would make it even easier to avoid duplication of research effort, and the resulting financial and time waste.
- OA would increase public accountability of science.
- OA would make for easier meta-analysis of results.
- OA defragments science literature because it is making seamless, comprehensive searching possible.
- OA would speed up understanding of outstanding scientific questions.
- OA closes gaps in the access to knowledge, enabling every researcher to try and see the entire picture.
- OA enables the building of databases and knowledge-bases, effectively and efficiently reusing published results in order to make trying to see the entire picture not just a 'mission impossible'.
- OA would take science out of its ivory tower by letting non-scientists in.
- OA would stimulate wider understanding of, and respect for, science (Velterop, 2005:7).

OA seems to be currently driven by funders as articulated by Ren (2015: 682) who sustains that a large number of funding bodies and universities all over the world now require research outputs resulting from their funding to be publicly accessible. This is encouraging as it means that the authors/ researchers do not lose out on anything –

they simply fulfil funding requirements. Yet it is also discouraging because the researchers are not leading in the open access advocacy campaign so as to disseminate their research to their peers.

### **2.3.3 The role of the World Wide Web in providing access to OA resources**

There are various ways of publishing and accessing information on the World Wide Web. It has documents that are available in the public domain; proprietary publications, and also information found in what has been distinguished as ‘the invisible web’ and the ‘visible web’. The web has become synonymous with being the first port of call when one does research. It provides access to the entire spectrum of information, from miscellaneous conjecture to high-quality scholarly literature. Lin and Chen (2002:1) view the World Wide Web as a huge repository of diverse information, with the major challenge being to provide a mechanism for any user to efficiently retrieve information that he/she is looking for.

#### **2.3.3.1 Public domain resources**

The world of information exists in a public sphere, yet not all information is available freely to the public. Boyle (2008:xv) subscribes to the general rule of law, which is that the noblest of human productions – knowledge, truths ascertained, conceptions, and ideas – become, after voluntary communication to others, ‘free as the air to common use’. This sounds like a direct challenge to the notion that ideas belong to their creators, and is clarified by Litman (1990:975), who states that the concept of the public domain in the intellectual property context describes a true commons comprising elements of intellectual property that are ineligible for private ownership. Thus the public domain may be mined by any member of the public to access and use works free from copyright or old works with expired copyright (Litman, 1990:976).

While the public domain represents that area of information that is free to all without constraints on use, it is not without its grey areas. As noted by Samuelson (2003:149), there are some intellectual creations that courts have treated as in the public domain for some but not all purposes, such as content technically protected by copyright law, but is widely available to all comers without fee or apparent restrictions in use. Samuelson (2003:167) adds that entrepreneurial individuals have also taken advantage of the Web to make available a wide array of materials that, strictly-

speaking, are protected by copyright, but nonetheless are posted on open websites with few or no restrictions on copying or distribution; and include articles by academics posted on their homepages, preprint archives, electronic journals, newsgroups, MP3 music files, etc.

### **2.3.3.2 Visible versus invisible web resources**

The most easily accessible part of the Web is termed the 'visible web', while the more secluded part falls under the invisible web. Sherman and Price (2003:282) state that the visible web is made up of Hypertext Markup Language (HTML) pages that the search engines have chosen to include in their indices. This means that when one submits a query, the most likely results will be retrieved from the visible web. Sherman and Price (2003:283) then define the invisible web (also referred to as the 'deep web' or 'dark matter') as text pages, files, or other, often high-quality, authoritative information available via the World Wide Web, that general purpose search engines cannot (owing to technical limitations) or will not (owing to deliberate choice) add to their indices of Web pages. The authors state that this definition is necessarily general, because the general purpose search engines are constantly adding features and improvements to their services. Thus what may be invisible today may suddenly become visible tomorrow should the engines decide to add the capability to index content that they cannot or will not currently index. Lewandowski (2007:3) agrees that the invisible web is that part of the web that search engines do not add to their indices for reasons including limited storage space, or inability to index certain kinds of content.

Sherman and Price (2003:282) emphasize that while the invisible web consists of content that has been excluded from general purpose search engines, and web directories such as Lycos, LookSmart, Google, etc., there is nothing inherently 'invisible' about this content. However, since it is not easily located with the information-seeking tools used by most web users, it becomes effectively invisible because it is so difficult to find unless one knows exactly where to look. Another part of the invisible web involves the proprietary web pages that are accessible to people who have agreed to special terms in exchange for viewing the content. This agreement can be in the form of free registration, or payment of subscription or a download fee

such as is the case with most journals and journal databases (Sherman & Price, 2003:296).

Research, though beginning at an individual level, should cascade to the appropriate audience, one that will be able to use the results to improve and understand prevailing conditions, and how to manipulate those research results so that they can be understood within their particular contexts. When research is elitist and accessible by only those who can afford to pay access fees the purpose of its existence is limited to a few, a situation OA is in the process of drawing away from.

#### **2.3.4 Awareness of scholarly OA by researchers**

To be able to use an innovation, awareness thereof is presupposed. A number of studies have been done in recent years to establish the levels of awareness among students and researchers (Ivwighreggheta and Onoriode, 2012; Obuh & Bozimo, 2012; Kaba and Said, 2015). Kaba and Said (2015) in their study among faculty members at the University of Science and Technology (AAU), United Arab Emirates, established a relatively high level of awareness and knowledge of OA among the faculty members. The respondents also displayed a very positive attitude towards the use of OA resources, using it for a number of their academic endeavours such as lectures and research activities. In a study conducted amongst graduate students at the University of Ghana, Borteye and Dadzie (2015: 56) revealed a moderate level of awareness of the nature of open access journals among respondents in four follow-up statements. It was only for the statement “open access means free access” that more than half of the respondents affirmed their awareness of the statement. There were low levels of awareness for the rest of the listed items. For instance, 37.8% were aware that open access material was free from copyright at the point of use; 37.2% were aware that open access journals are peer reviewed, and only 33.9% were aware of the DOAJ. This implies that libraries and librarians need to be more proactive about creating awareness of the nature, existence, usage and usefulness of open access journals among graduate students.

In contrast with the study by Kaba and Said (2015) a study carried out amongst Library and Information Science (LIS) lecturers in Southern Nigeria universities highlighted limited knowledge of open access initiatives (Obuh and Bozimo, 2012). While Obuh and Bozimo (2012:57) observed a fairly high degree of awareness of open access publication concepts amongst the Library and Information Science (LIS) lecturers, this awareness hinged mainly on the nature and types of open access and not on open access initiatives such as the Bethesda Statement on Open Access, Berlin Declaration on Open Access to Knowledge etc. Obuh and Bozimo (2012:58) theorized this lack of knowledge on the founding principles of OA as being possibly due to the infancy of the use of the Internet as a primary research tool in developing countries. Low level of awareness of open access either in its concepts, types or initiatives will, in one way or the other, affect its use. The study by Iwighrehweta and Onoriode (2012) similarly found that among LIS students enrolled for a Masters in LIS at the University of Ibadan, Nigeria awareness of OA journals were low with only 64 (46%) of the first year level, and 76 (54%) of the second year level students responding positively to being aware of OA journals. The study by Okendo and Mligite (2014:7) among staff members in Tanzanian university established that 23 (51%) of the respondents were not familiar with the concept OA prior to the study. A study among postgraduate students using private university libraries in Nigeria (Ajibili and Emmanuel, 2017:33) established that very few OA resources were available in the libraries and that general awareness thereof was very low among the students.

With the majority of Institutional Repositories (IR) being accessible as OA resources the assumption can be made that faculty members and students should be aware of the existence of their university-based IR. Yang and Li (2015) in a study among faculty members at the Texas A & M Universities (TAUM) found very low awareness levels among the respondents of the existence of the local IR. Halder and Chandra (n.d.) however established that among staff and students at the Jadavpur University awareness of the IR was quite high with 42 (93.3%) of the lecturers and 65 (76.47%) of the students indicating knowledge of its existence. Awareness was created through a number of sources such as colleagues/friends, lecturers, the library website, bulletin boards and through the internet.

Knowledge of the different types of resources that are available is also a prevailing issue as Ajibili and Emmanuel's (2017:35) study of Nigerian postgraduate students highlighted. The respondents were aware of open access resources to a great extent on free online articles, free online journals, free online reference materials e.g. dictionaries, encyclopedias, almanacs, yearbooks, Britannica, directories, maps, atlases, manuals, indexes, abstracts, bibliographies, etc., free online video files, free online pamphlets, and free online government publications) on the other hand, aware to a low extent on items such as free online conference papers, free online theses/dissertation/ project, free online audio files, free online photographs, free online annual reports, free online bulletins, and free online archives. The study by Ivwighreghweta and Onoriode (2012) found that 85 (61%) of the students enrolled for a Masters in LIS at the University of Ibadan were not aware of the existence of OA Journals.

These low awareness levels are not only peculiar to Africa but can be identified in the rest of the world as well. In an effort to assess the levels of awareness of OA and institutional repositories at the University of Wisconsin-Eau Claire, Kocken and Wical (2013:140) found that small colleges and universities, often late adopters of innovations, face challenges that have not been fully explored in the professional literature. This survey observed that faculty members do not share the same levels of awareness as compared to their counterparts in larger universities. Reasons for this could be that open access initiatives are better established at larger institutions, yet it is the smaller universities with low budgets that would benefit the most from making use of OA resources.

With low levels of awareness in research institutions across the globe together with the challenges that accessibility and other factors pose, it was prudent for this research to be conducted to determine how the University of Zululand researchers fare as compared to the rest of the world. As has been stated, innovations do not necessarily fail to garner followers because they are not useful, the environment under which they

are introduced is also a great determinant to their successful adoption and implementation.

As seen in the studies discussed above, low levels of awareness impede the effective use of resources, whatever the resources may be. Another challenge is that of accessibility. The availability of a resource does not ensure that it will be utilised by its intended audience if that audience is not able to easily access the resource. Awareness and accessibility go hand in hand as awareness does not mean utilisation when accessibility is a hampering factor.

### **2.3.5 Purpose and value of OA in research**

OA has a major role to play in research as it provides a platform through which research information can be disseminated and accessed at minimum cost. Sieltman, in a European Commission study (2008:12), postulates that any restriction of access to academic information hinders the process of obtaining new insights and making new discoveries whose usefulness cannot be determined in advance. The publication of results and the accessibility of publication are therefore a precondition for the efficiency of the research process. The European Commission's Seventh Research Framework Programme (2008:9) contends that the OA requirement of a funding body does not force anyone to publish – it is an individual choice, and only applies once the decision to publish has been taken. There is consensus on the presupposition that all research builds on earlier work; thus there is need for efficient and reliable access to previous research to avoid duplication and stimulate research, innovation and excellence.

Publishing on an OA platform greatly increases the chances of reaching a wider audience. McKay (2011:251) says that research from Africa has a very low international reach, so it is not readily available to other researchers even within the region, not to mention the global scientific community. Thus by placing research on a platform that is open to all, chances are greatly increased that it will come up in a search, and not only be read, but cited as well.

OA empowers researchers by enabling access to research that has been published across the globe without need for institutional subscription payments. In a study conducted amongst health sciences faculty Lwoga (2013: 129) noted that the majority of respondents were aware about general OA issues, however, while more senior faculty with proficient technical skills were more likely to make use of OA venues for publishing, most faculty members used OA venues to access research content as compared to disseminating their own research outputs.

Barton and Waters (2005:11) acknowledge the great benefits of IRs when he says that universities and research libraries around the world use IRs for the following purposes:

- scholarly communication
- storing learning material and courseware
- managing collection of research documents
- preserving digital materials for the long term
- electronic publishing
- knowledge management
- research assessment
- creating an institutional leadership role for the library
- adding to university prestige by showcasing its academic research
- encouraging OA to scholarly research
- housing digitized collections (Barton and Waters, 2005:11).

Day (2010:1) summarizes the benefits and uses of IRs by saying they can be used in the following areas: research data management; digital preservation infrastructures; virtual research environments (VREs); open educational resources (OER); and research information management (RIM).

In a study done at the University of Development Studies (UDS) in Ghana, Jain, Bentley and Oladiran (2014) observed that a majority of respondents (80.3%) were aware of the benefits of an IR but only 8.8% of respondents had submitted work to the IR. Factors which influenced their reluctance included concern about possible



plagiarism of their work, copyright and journal policy on depositing in IRs. Other issues they identified were trust in the IR and the need for training in using the IR. Another concern raised by respondents was about the quality of material including some graduate students' theses. This tallies with Jain, Bentley and Oladiran's (2014) contention that IRs are comparatively new to much of the academic world, particularly in developing countries and there is still some skepticism as to their authoritativeness.

A later study done at the same university by Akeriwe and Aikins (2016:327) suggests a change of behaviour by the researchers as the study confirmed the increase of the university's prestige with the very visible example of the web ranking of universities in Ghana, where UDS has moved from the 9th position to 3rd mainly as a result of the IR.

The move towards use of OA resources cannot be done outside of the greater principle of open scholarship. An open scholarship institution has been characterized by Olivier (n.d:2) as follows:

- Theses and dissertations are openly available online based on a policy of mandatory submission.
- Research and conference papers are openly available online, and researchers actively contribute based on a policy of mandatory submission.
- Researchers and students actively use open access material.
- Researchers publish in available accredited open access journals, and the institution has policy and financial support in place for that.
- Researchers actively manage the copyright of their publications, inter alia with addenda to their contracts or using Creative Commons contracts, and when the necessary policy exists.
- Publications from the institution's press/publishing house are available in open access mode based on policy.
- The institution publishes its own online open access journals OR provides infrastructure and support for members of its community who are involved with society publishing
- Dissemination forms part of its publication strategy (Olivier, n.d.:2).

Olivier (n.d.:2) concludes by positing that open scholarship proponents subscribe to the viewpoint that “*the job of research is only half-done if the results of that research cannot reach the widest audience*”.

Universities are best-placed in promoting open scholarship. McKiernan (2017: n.p) recommends that universities can support open scholarship in many forms, including recognition of open access and open data in promotion and tenure evaluations, small grants to support the development of open educational resources, and redirecting existing funds from proprietary software to support creation and training in open source solutions. Simple actions, McKiernan adds, could demonstrate that universities value sharing, thereby changing faculty behavior and in turn increasing the university’s funding, visibility, and recruiting power. Open scholarship will assist researchers in disseminating knowledge for broader public good.

With the advent of the internet, researchers are more readily able to access information from their counterparts across the globe. However, like all other products, it does tend to come at a price. Even the wealthiest institutions cannot have access to all the information their researchers require (Prosser, 2003:167). Open access enables the free transfer of knowledge across the globe, and so reduces the prohibitions of price.

The huge financial prerequisite of subscription journals is eliminated through OA. McKay (2011:253) posits that OA challenges geographic, economic and social inequalities regarding access to and use of high quality scientific resources. Gleason (1991:7) believes that an empowered user will want to use the most convenient resources to access information. Empowerment is not only acquired through financial status, it is more relevantly acquired through knowledge. The knowledge we have empowers us to seek out more; thus OA empowers researchers to explore the world of research through the Internet.

OA further closes up the information gap because as long as one has Internet access, one can have access to the complete available research. In a study conducted by McVeigh (2004:9), it was shown that recent articles in OA journals received a higher percentage of total citations than recent articles in traditional access journals. Pinfield (2005:34-35) attests to the fact that OA improves access to papers and the impact of papers. He says that it improves scholarly communication, and as this is the lifeblood of science and scholarship, it leads to: better science and better scholarship; better public understanding of science; better knowledge transfer between research institutions and industry, and finally better dissemination of high quality content to inform clinical practice. McKay (2011:253) concurs that the high visibility and citation rates of OA articles mean that this publishing method also aids those looking to communicate their own research results to the global scientific community, and because OA ensures rapid and efficient communication of research findings, it can be a catalyst for economic development. Swan, Williams and King (2014:18) concur and add that not only does citation of work rise once it has become open access; the earlier it is made open access, the greater are the number of citations and these citation figures do not remain stagnant, they increase with time.

Kenney and Warden (2011:5), in a survey conducted amongst cancer researchers across Europe, state that 59% of respondents indicated that a lack of access sometimes or often slowed their work (when they did not have free access to a particular subscription journal). Slow work means slow progress, and this can have an impact on the efficacy of breakthroughs in science.

Swan, Willmers, and King (2014: 11) advocate for OA as improving the efficiency of the research process. They state that barrier-free access to research results benefits the research process by cutting the time researchers spend looking for information for their work or checking information when conducting peer review, by saving them going up blind alleys that they might otherwise not have known about, by helping to prevent duplication of previous research because it is more easily discoverable when openly available, and by saving the time currently spent seeking permission from publishers

when material in journal articles is to be re-used for various purposes. As a result of this time saving, open access means research can move more quickly and efficiently when researchers do not have to spend time seeking access to articles that are not available through their library.

The advantage of electronic publication cannot be denied. Solomon (2008:3) stresses that electronic publication allows types of content not feasible for traditional journals, such as videos, audio and the inclusion of research data sets. In traditional publication this is difficult unless a book comes with a CD. In a journal, it would be almost impossible.

As Ren (2015: 688) articulates it is not a question of whether an academic likes or dislikes a particular method of publishing but whether an initiative on offer is an efficient mechanism for helping them to secure the resources they need, particularly in terms of publication metrics, research impact and an academic career. The open access movement is geared towards enhancing the prestige of a researcher and his respective institution by making research readily and widely available. It also promotes more exhaustive and rigorous research in institutions that struggle to pay the prohibitive prices of the so-called illustrious academic databases, thus subsequently benefitting the world in general.

Suber (2012:16) concludes the argument for publishing OA by noting that when you enlarge the audience for an article, you also enlarge the subset of the audience that will later cite it, including professionals in the same field at institutions unable to afford subscription access. He says that OA increases a work's visibility, retrievability, audience, usage and citations, which all convert to career building, not only of the author but also of the audience that makes use of it.

#### **2.3.5.1 Issues in publishing in OA resources**

Researchers have more flexibility in disseminating and accessing scholarly information without constantly spending money or waiting for a 'middleman' to provide said access through the use of OA mechanisms. Respondents asked, in a European

Cancer Research Survey (Kenney and Warden, 2011:5), which factors were important to them when selecting a journal to submit to for publication, indicated that a combination of 'journal impact factor' and the 'prestige/perceived quality of the journal' was seen as most important. The challenge is that even now researchers regard prestigious, thus more expensive journal titles to be the most impressive to affiliate with. The irony is, while one can get published in a prestigious subscription journal, it is possible that the very audience for whom the research would have maximum benefit will not have access to the article.

The other factors influencing the authors in seeking where to publish included:

1. Importance of journal to academic promotion,/tenure, or assessment
2. Relevance of journal to researcher's community
3. Speed of publication of the journal
4. Likelihood of acceptance
5. Positive relationship with editor/publisher
6. Policy fit of journal with research organization
7. Journal copyright policy
8. Personal recommendation of journal
9. Over 40 per cent said the OA nature influenced them, while 10 per cent said it was irrelevant (Kenney and Warden, 2011:5)

The challenge faced by OA in acquiring new converts, so to speak, seems to be a misunderstanding of what OA is. Researchers are afraid that they might not be properly credited for their work, and there is also a prevalent fear of or myth, that OA research is low quality (Foster & Gibbons, 2005, Van Westrienen & Lynch, 2005).

Foster and Gibbons (2005:1) highlight that for most academics, the major barriers to depositing their work in repositories include such factors as cumbersome, time-consuming submission procedures, and lack of mandatory provision in institutional policies to deposit the outcome of academic research. Pinfield's (2005:30) solution is that the best way to achieve major improvements in scholarly communication in the

short and medium term is to make it mandatory to deposit research papers in OA institutional repositories.

There is also reluctance on the part of researchers to submit their work to IRs, for example, because of the assumption that it is complicated and takes time. Lynch (2003:4) argues that a faculty member seeking only broader dissemination and availability of his/her traditional journal articles, book chapters or even monographs through use of the network, working within the traditional scholarly publishing system, faces several time-consuming problems:

1. Exercising stewardship over the actual content and its metadata
2. Migrating the content to new formats as they evolve over time
3. Creating metadata describing the content
4. Ensuring the metadata is available in the appropriate schemas and formats, and through appropriate protocol interfaces such as the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). (Lynch, 2003:4)

Lynch goes on to say that faculty are typically best at creating new knowledge, not maintaining the record of this process of creation. Thus managing a dissemination system, e.g. a personal website, and playing the role of system administrator is therefore not a reasonable activity for most authors. Owing to these perceived pressures, faculty then become reluctant to go beyond their traditional sphere of publishing. However, depositing material in an IR is not as pressure-filled as that: researcher only needs to submit his work to the library or whoever is responsible for administering the IR, and all the above will be done for him.

Van Westrienen and Lynch (2005) suggest that ways to stimulate IR use by faculty include simple submission processes, and smart propagation of materials from the IR to national or disciplinary repositories without the need for additional faculty intervention. The authors add that support of libraries in the submission process, and getting contents indexed in search engines such as Google et al. make the work more visible, and chances of citation higher (Van Westrienen & Lynch, 2005).

Prosser (2003:168) discusses the benefits to individuals in their depositing work in an IR to be immense. He argues that it allows individuals (scientists and researchers) to self-archive; and because an IR acts as a central archive for individuals, it creates a scholarly *curriculum vitae* that provides a complete list of their research over the years. This cannot be done as efficiently by any other system. Depositing work in an IR also increases the dissemination and subsequent impact of work, thus enhancing the researcher's prestige amongst his peers.

Velterop (2005:7) discusses the cascading effect of current subscription-based journals, declaring that subscriptions mean limited access, and that means limited use, limited impact, and limited benefit for science and for society at large. He states that, providentially, OA removes those limitations and satisfies the interests of science (including funding agencies, and society as a whole) which are best served by the widest access to research results. Velterop (2005:11) declares that what was never possible in the print world is now feasible, at miniscule, marginal cost, and near-instantaneously with regard to research articles. This makes it virtually impossible to limit or restrict their dissemination without resorting to tortuous and difficult to police, even draconic, legal constructions.

Zhu (2017:563) notes that there is a disparity between attitudes regarding the importance and the reported experiences of OA publishing as academics, while acknowledging the importance of OA, still have concerns on the issues of copyrights, concerns of the quality of OA journals and their inability to pay APCs.

Pampel et al (2013) provide another dimension to the issues faced in deciding to publish in OA repositories. They assert that due to the heterogeneous research data repository (RDR) landscape, it is often difficult for scholars to identify appropriate repositories for the storage of and access to research data as data formats can vary from research data sets, nucleotide sequences to drilling data and georeferenced data. All these data are created by researchers but are difficult to access if one does

not know where to begin searching. This is acknowledged by Wade (2014) who affirms that in health data repositories for example, it may be quite impractical to index collection data so that, for example, a researcher could search 1000 different studies for the values of a particular type of laboratory test. Wade's solution is that when such integration is not practical it is instead useful to standardize and index metadata – e.g., whether a study is known to be a randomized controlled trial, or whether it has single nucleotide polymorphism data thereby letting a database user know that by examining selected studies' data separately they can continue to search for needed details.

### **2.3.6 Strategies to bring about awareness**

Willinsky (2006:xii) argues that commitment to the value and quality of research carries with it a responsibility to extend the circulation of such work as far as possible, and ideally to all who are interested in it, and might profit by it. He says it is not about making research articles absolutely and unequivocally free, and that though information may want somehow to be free, OA is not free access. To gain access to OA material, substantial investment is necessary in hardware, software and networking, even if that investment has been made by the local public library, supported by the taxes paid in some small part by those who would read OA articles there. Thus, he concludes, the OA movement is not operating in denial of economic realities, but is rather concerned with increasing access to more of the research literature for more people, with that increase measured over what is currently available in print and electronic formats. Taking a page from Willinsky (2006: n.p.), one can then assert that while the onus is on the publisher or author to make the information available without expectation of payment from the user, the user still requires necessary ICT infrastructures that come at a price, to be in place for him or her to access OA material.

In a study conducted amongst librarians from private higher learning institutions in Botswana, Kassahun and Nsala (2015) observed that 67% of the respondents were not aware of the concept of open access and only 33% of the respondents were aware of this concept. These results translate to mean that inadequate level of OA awareness from the librarians filter into low rate of engagement with OA activities and



subsequently library users will remain unaware of OA. For those who were aware of OA resources, only 25% promoted OA resources on their website, the majority (75%) tended to verbally refer patrons to them as a supplementary reference resource.

There are several measures that institutions can adopt to promote awareness and use of OA. Lwoga (2013: 131) proposes workshops, participation in university meetings, public lectures, print materials and electronic communication. Lwoga further suggests that university librarians should conduct information literacy training to faculty in order to improve their skills on access and use of OA venues and university libraries should provide information services that focus on OA issues, such as copyright management in order to assist researchers to understand the legal implications of self-archiving their research outputs.

Yebowaah and Plockey (2017:17) assert that the utilization of various promotional activities has significant influence on library resource awareness and utilization. In their study conducted at the University of Development Studies in Ghana, they observed that the majority of respondents (65%) were aware of electronic resources and that this awareness had come from various sources mainly university mailing systems, internal memos, colleagues, workshops, website, posters and brochures.

### **2.3.7 Challenges in accessing OA information**

A consultation conducted by the World Health Organisation with developing world health researchers and scientists determined that access to the priced literature, especially journals, was their most pressing 'information problem' (Ochs, Aranson, & Wu, 2004:175). The above study showed that the modern research library, as known in developed countries, was basically non-existent in the majority of the developing world, with some libraries having not received new journals five years before the consultation. This meant that doctors, scientists and researchers in developing countries were unlikely to be aware of advances in their fields of practice or research as they had not had access to the most recent of the world's knowledge. Thus while

science marches on, the developing world remains stagnant. Or rather, in its own limited environment.

McKay (2011:251) agrees with Ochs, et al., and points out that for many scientists and medics, especially in lower income countries such as those in sub-Saharan Africa, access to the latest research can be limited. He puts forward the following question: 'In this age, should anyone have to pay for access to research published online?' McKay's argument is based on the knowledge that to aid both the economic development of developing countries and to ensure a complete scientific record, scholarly research must be made freely accessible. The strength of his argument is based on the indisputable fact that OA presents researchers with easily, freely accessible, high quality scientific resources essential to the rapid and efficient global communication of scientific research findings.

McKay (2011:251) maintains that economic, political and societal issues are often compounded by both technological restrictions and journal subscription barriers, creating serious global inequalities in both access and visibility of published research. Unfortunately, it is researchers from Africa and other developing countries who are the least able to pay to access information, resulting in 'lost science' in the form of information which is either not published or simply not made accessible to all. This lack of access to the latest research findings can mean, in some cases, the difference between morbidity and mortality. Added to this, research from developing countries lacks the global visibility that Western research obtains.

It is not only a financial issue: technological skills also come into play. As Alperin, Fischman and Willinsky (2008:177) have shown, Latin-American researchers lack both funding and the ability to consult leading journals in their field, which limits their opportunities to conduct cutting edge, high quality research.

Harle and Powell (2009:216-217) acknowledge that skills and training are huge constraints amongst researchers in developing countries, and insist that better access to electronic resources will lead to higher quality papers, helping publishers to identify and source new material and recruit new authors

In a study conducted across The Gambia, Tanzania, Uganda, Cameroon and Nigeria (Smith, et al., 2007), respondents indicated that difficulty in logging onto websites that require passwords, and do not always guarantee access, is a major obstacle in accessing online resources. This is compounded by the difficulty of obtaining passwords from administrators or librarians; as the librarians are not always readily available, or always able to provide the passwords. As a result, most respondents preferred websites that do not require login to access journals (Smith, et al., 2007:3). Apart from these obvious irritations, Smith et al. (2007:3) add that the following problems make the situation even more untenable: problems with hardware; poor internet connection; lack of adequate and limited computing facilities; interrupted power supply, and the quality of internet connection.

Harle and Powell (2009:215) concur, adding that limited and high cost internet access, specifically a lack of reliable, high-speed broadband networks; irregular power supplies; insufficient computing facilities; and a lack of internal campus networks to deliver connectivity across institutions, have been particular constraints in accessing information. Veena (2016: 118), in a study conducted amongst postgraduate students at Mangalore University, found the same as respondents indicated that the problems they encountered in accessing electronic resources included lack of internet access speed., few computers with internet facilities, overload of information on the internet, lack of computer skills and difficulty in finding relevant information.

The great volumes of information which have become available through initiatives such as the Programme for the Enhancement of Research Information (PERI) and the Health InterNetwork Access to Research Initiative (HINARI) are thus not always accessible. They state that insufficient access is frequently reported as an obstacle to

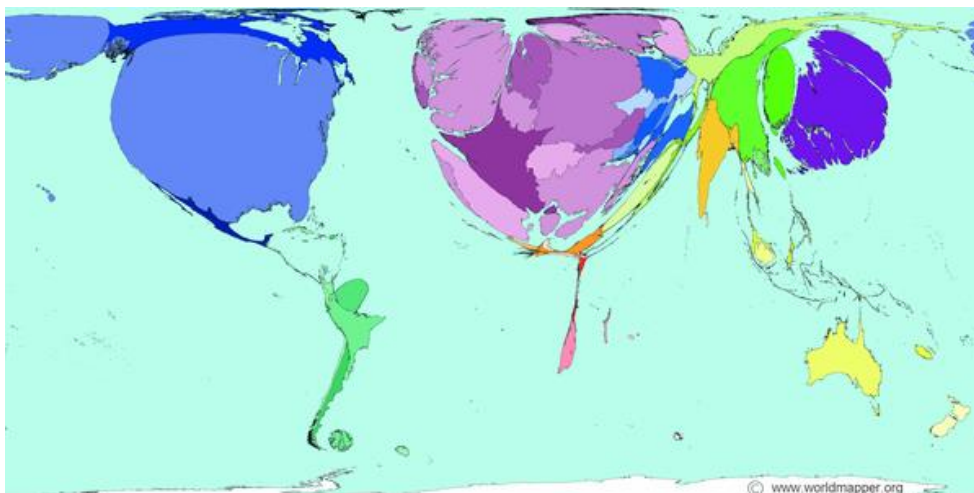
the use of e-resources, so students who have low internet access are less able to develop their familiarity with online sources, and the skills and competencies which help them become researchers of the future (Harle & Powell, 2009:216). Santhi and Nagarajan (2016: 81) found these assertions to be true as respondents to their study conducted across engineering colleges in Puducherry cited slow internet speed as the major challenge; this was followed by non-availability of full text, identified were inadequate search facility, lack of subject coverage.

These findings concur with a study done by Sellan and Sornam (2017:96) who suggest that database developers, meta-data cataloguers, and publishers should consider improving their services since non-availability of full-text articles ranked as the most frequently faced problem, followed by the non-availability of relevant articles, scattered information and too many results.

Ochs, et al. (2004:175) posit that one key factor in isolating developing countries from the tremendous strides made in conquering disease and improving health and life expectancy has been lack of information. This can be the difference between health and life, increased efficiency in general activity, and redundancy. Developing countries will never get out of the economic sphere they have been classified in if they are unable to keep up with global developments, and thus they will always be seen as backward, even though they produce minds as brilliant and capable as those found in the West. Likewise, Smith, et al. (2007:1) indicate that while cheaper hardware and increasing internet coverage in sub-Saharan Africa potentially increase access to reliable, up-to-date medical literature, prohibitive commercial online subscription costs for journals are a major constraint. One way of reducing the information gap that is still prevalent, even with the advent of ICTs and OA, is to promote the idea of making research information available to those who need it. Alperin, Fischman and Willinsky (2008:173) support the idea that scholars' and academics' main mission is to produce new knowledge through research activities. They firmly believe that knowledge generated through publicly sponsored research should benefit the public; thus scholars should be careful to ensure that the public has access to what was produced with public support.

Adcock and Fottrell (2008) state that online journals have the advantage of more easily searchable content, remote access, and the ability to save and print relevant articles. Barriers to publishing include insufficient access to existing information on the research subject so poorer researchers are unable to produce significant and relevant information. Another challenge is that of language, where external language editing (which needs money) might be required, relegating work produced in a minority language being deemed not relevant for a journal.

According to **www.worldmapper.org**, if the World Map was to be resized according to research output, the world as we know it would look like Figure 2.1 below:



**Figure 2.1 World research output map**

Source: [www.worldmapper.org](http://www.worldmapper.org)

From such illustrations it is clear that the developing world is seriously lagging behind. Yet presumably disciplines are uniform across the globe. This therefore means there is an urgent need to address the problem of the developing world researcher, and assist him or her to have access to the same resources that his or her Western counterpart is privy to. This can only be done through the collaborative efforts of learned society as a whole.

## 2.4 Critique

Shukla and Yadav, in Chandra, et al. (2007:48), affirm that the increase in free online digital information sources like electronic journals, e-books, and e-databases have transformed traditional library systems into hybrid information systems, having a mix of digital and traditional paper resources. Users have also become aware of the new medium, and have started to actively bid for alternative forms of access. Technology/ICT improvement, paired with the decreasing cost of hardware, creates greater incentives for innovation.

As researchers, the secondary goal after the primary one of solving research questions is to share that information or conclusion arrived at with others. Information is one of the greatest resources of empowerment, and it is important for those who conclude research to share what they have discovered. It is of equal importance for those still in the process of discovering to have access to what has previously been studied. For this reason, it is evident that the promotion and use is of crucial importance when it comes to dissemination of research information. Notwithstanding, the costs of the hardware and software infrastructure needed to access OA resources, OA is the most cost-effective way of garnering a wide audience, and of having that audience actually access, use and cite resources.

However, because of the myth prevailing that cheap (or 'free') is poor quality, it will be a long time coming for researchers at all levels to effectively use and promote OA resources. It is only when policy comes from the top, and is structured in such a way as to incentivize the provision of OA resources, that the OA movement will begin to function in its Utopian ideal.

Barton and Waters (2005:26) propose that getting 'thought leaders' (both academics and central administrators) on board early to leverage their interest in an IR service will increase its adoption by the wider institutional community. Meanwhile, the call of money will continue to work on those who research for financial gain at the expense of those who might be resource-impooverished, and are in dire need of said information.

Perhaps, instead of making it an elitist or segregatory movement, we could take Carpenter (2008:5) up on the suggestion that, for example, moving away from strict institutional affiliation of contributors towards including communities would serve to make IR more sustainable. It is only when we realize that research information benefits not just an institution or a professional grouping, but rather the larger community as a whole, that we might begin to think more gregariously about disseminating research findings to the broadest audience of all – the world through OA.

From the discussions above, it can be seen that the challenges to OA tend to be superficial. The difficulties of obtaining literature to be published in OA are similar in principle to getting readers of the literature. A complete paradigm shift is needed in how we regard so-called 'free information'. The benefits of having the world's body of knowledge are phenomenal, and cannot begin to be computed. The questions remain: are researchers knowledgeable about the resources available to them, and are they making sufficient use of them? OA publishing is not a case of getting the leftovers or the surplus from the rich nations. Everyone benefits, and it levels the playing field, both in getting published and in getting access to recent, relevant, scholarly communication regardless of one's location and the research's provenance.

From the reviewed literature one can draw upon the fact that while there are indeed inroads being made in making information accessible to all at minimum cost, there are still bottlenecks in accessing that information. It is imperative that governments, institutions and the scholarly community at large work together to produce an environment conducive for OA initiatives to be used to the full. One cannot overemphasize the importance of disseminating information as a way to highlight new knowledge and share insights across distance. Open access is the way of the future. However, it remains to be seen whether researchers can make effective use of this platform by both contributing towards and making use of the research therein.

## **2.5 Conclusion**

This chapter set to explain the theoretical framework used to underpin the study, and to contextualise the landscape of OA across the globe. In the chapter, the role of OA as a means of shifting the scholarly communication cycle was discussed as well as

how researchers and institutions can maximise in terms of establishing and making use of institutional repositories as one of the tools of open access.

This chapter has reviewed literature pertaining to OA in academia. It has primarily attempted to conceptualize the OA environment and analyse literature relevant to the research questions/objectives. Issues such as the awareness of OA among researchers, how it is used and for what purposes and the challenges experienced were all elaborated on. The chapter that follows deals with the research methodology to be employed in accessing, collecting and analysing data from the researchers at the University of Zululand.



# **CHAPTER THREE**

## **RESEARCH METHODOLOGY**

### **3.1 Introduction**

The previous chapter set the background of the study by focusing on literature that was reviewed to get a broader understanding of the Open Access (OA) environment in academia. This chapter discusses how the research was conducted. It highlights the ways in which the research was conceptualized, and justifies the procedures selected for use in this research. The structure of the research, from the research paradigm to the research design, methodology, target population, method of sampling and data collection procedures used, are all outlined in the chapter.

### **3.2 Research**

...apart from inquiry, apart from the praxis, individuals cannot be truly human. Knowledge emerges only through invention and reinvention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world and with each other . . . (Paulo Freire, in Bless, Higson-Smith, & Sithole, 2013:74).

Leedy and Ormrod (2013:2) define 'research' as a systematic process of collecting, analysing and interpreting information (data) in order to increase our understanding of a phenomenon about which we are interested or concerned. Research necessitates asking questions, exploring problems, and reflecting on what emerges in order to make meaning from the data and tell the research story (Clough & Nutbrown, 2012:4). So research is not merely an information-gathering event, but rather involves a logical progression from realizing we do not understand something until we have found answers to the challenge that interests us.

### **3.3 Research paradigms**

A paradigm, or worldview, is a basic set of beliefs that guide action; these have variously been called paradigms, philosophical assumptions, epistemologies, ontologies, broadly conceived research methodologies and alternative knowledge claims (Creswell, 2007:19). Researchers work and formulate research within the paradigms with which they view the world. Denscombe (2010:130) describes a research paradigm as a pattern or model/philosophy of research. Research paradigms include positivism, postpositivism, advocacy/participatory, social constructivism (also referred to as interpretivism) and pragmatism (McNeil and Chapman, 2005; Creswell, 2007; Denscombe, 2010).

#### **3.3.1 Positivism**

Broadly defined, positivism is the approach of the natural sciences (Neuman, 2006:81). Positivism is an epistemological position that advocates the application of the methods of the natural sciences to the study of social reality and beyond (Bryman, 2008; Denscombe, 2010; Neuman, 2006). Ritzer and Goodman (2003:16) declare that in the positivistic stage of evolution, which is really the scientific age, people tend to give up the search for absolute causes (God or nature) and concentrate instead on observation of the social and physical world in search for the laws governing them. Neuman (2006:81) expands this definition to add that positivist social science emphasizes discovering causal laws, careful empirical observations and value-free research.

Positivist social science researchers prefer precise quantitative data and often use experiments, surveys and statistics; seeking rigorous, exact measures and “objective” research and they test hypotheses by carefully analysing numbers from the measures (Neuman, 2006:82). Critics see positivism as reducing people to numbers and not being relevant to the actual lives of the participants and general society, this approach to research is largely utilized by applied researchers who prefer quantitative methods.

#### **3.3.2 Social constructivism/interpretivism**

Social constructivists or interpretivists seek to understand the world in which they live and work, and the goal of research is to rely as much as possible on the participant's

view of the situation (Creswell, 2007:21). Creswell (2007:20) argues that individuals develop subjective meanings of their experiences, and these tend to be varied and multiple, leading researchers to look into complexity of views rather than narrow the meanings into a few categories or ideas. Hence qualitative research tends to be referred to as interpretive research. Schwartz-Shea and Yanow (2012:47) concur, and add that interpretive researchers seek to theorize on the basis of knowledge that makes clear its connections to specific kinds of human beings in specific, historically and culturally understood settings, whereas positivists aim to generalize findings. Walsham (1995:367) argues that interpretive methods adopt the position that our knowledge of reality is a social construction by human actors, and value-free data cannot be obtained since the enquirer uses preconceptions to guide the process of enquiry.

Henning, Van Rensburg and Smit (2004:20) posit that the knowledge frameworks that drive society are key role players in the interpretivist project, and should be interrogated by the researcher, who analyses texts to look for links in the meaning they make. In essence, then, Henning, Van Rensburg and Smit state that the interpretive researcher looks for the framework that shapes the meaning. This view is supported by Richards and Morse (2013:51), who advise that interpretive methods are ideal for projects aiming to see both 'what is going on' and 'what it means or how it can be explained'. Rubin and Rubin (2012:3) pronounce that 'interpretive constructionists' accept that there is a reality, but argue that it cannot be measured directly; only perceived by people, each of whom views it through the lens of his or her prior experience, knowledge and expectations; and this lens affects what people see, and how they interpret what they find.

Hennink, Hutter and Bailey (2011:15) argue that the divergence of paradigms is not always as distinct as it may appear: some approaches to qualitative research have positivist influences, and some quantitative methods include interpretive elements like open-ended questions in surveys.

### **3.3.3 Postpositivism**

Postpositivists hold a deterministic view in which causes determine effects or outcomes, thereby rendering them as researchers whose goal is to identify and assess the causes that influence behaviour (Creswell, 2009:7). Ryan (2006:16) maintains that postpositivist values in research are not about subjectivity or objectivity. Rather, they emphasize multiplicity and complexity as hallmarks of humanity, are interpretive, and have led to emphasis on meaning, seeing the person, experience and knowledge as 'multiple, relational and not bounded by reason'. With a postpositivist approach, the researcher is not isolated from the study, but becomes a co-researcher with the respondents, and adopts a learning, not just a testing, role.

### **3.3.4 Pragmatism**

Pragmatism is an approach that evaluates theories or beliefs in terms of the success of their practical application (Ritzer and Goodman, 2003; Denscombe, 2010 and Creswell and Plano, 2011).

Ritzer and Goodman (2003:335) give an overview of pragmatists as follows:

- i. True reality does not exist "out there" in the world: it is actively created as we act in and toward the world.
- ii. People remember and base their knowledge of the world on what has proved useful to them and are likely to alter "what no longer works".
- iii. People define the social and physical objects that they encounter in the world according to their use for them.
- iv. If we want to understand actors, we must base that understanding on what people actively do in the world.

Johnson and Onwuegbuzie (2014:17) provide a detailed listing of pragmatism's characteristics, listed below are some of the more pertinent aspects:

- Recognizes the existence and importance of the natural or physical world as well as the emergent social and psychological world that includes language, culture, human institutions, and subjective thoughts.

- Places high regard for the reality of and influence of the inner world of human experience in action.
- Knowledge is viewed as being both constructed and based on the reality of the world we experience and live in.
- Endorses fallibilism (current beliefs and research conclusions are rarely, if ever, viewed as perfect, certain, or absolute)
- Theories are viewed instrumentally (they become true and they are true to different degrees based on how well they currently work; workability is judged especially on the criteria of predictability and applicability).
- Endorses eclecticism and pluralism (e.g., different, even conflicting, theories and perspectives can be useful; observation, experience, and experiments are all useful ways to gain an understanding of people and the world).
- Endorses a strong and practical empiricism as the path to determine what works.
- Views current truth, meaning, and knowledge as tentative and as changing over time. What we obtain on a daily basis in research should be viewed as provisional truths.
- Endorses practical theory (theory that informs effective practice; praxis).
- Organisms are constantly adapting to new situations and environments. Our thinking follows a dynamic homeostatic process of belief, doubt, inquiry, modified belief, new doubt, new inquiry, in an infinite loop, where the person or researcher (and research community) constantly tries to improve upon past understandings in a way that fits and works in the world in which he or she operates. The present is always a new starting point. (Carus 1908; Johnson and Onwuegbuzie, 2014; Leighton, 1904; Morgan 2014; Nowell, 2015).

Hall (2013:4) posits that of the four commonly agreed worldviews; postpositivism, constructivism, transformative and pragmatism, only the transformative and pragmatism worldviews are seen to be compatible with mixed methods research. Positivism and its successor postpositivism are closely identified with quantitative research and constructivism with qualitative research, making neither particularly suitable for mixed methods research. Hall (2013:6) adds that pragmatism has gained considerable support as a stance for mixed methods researchers as it is oriented

'toward solving practical problems in the "real world" rather than on assumptions about the nature of knowledge.

While pragmatism may not be the only approach to mixing methods, it was deemed effective for this research as it focuses on the problem to be researched and the consequences of the research. As the phenomenon under study involved researchers' habits and perceptions of the material available to them (world around them), the possibility of there being not just a singular but multiple realities open to the researcher and requiring practical not idealistic solutions was high. Utilising pragmatism as the underpinning research paradigm, enabled the researcher to explore different ways of accessing and analysing information to form 'one whole' that enabled the story of the research problem to be told together with practical solutions to the problem to be provided.

Johnson and Onwuegbuzie (2014:17) sustain that the project of pragmatism has been to find a middle ground between philosophical dogmatisms and skepticism and to find a workable solution (sometimes including outright rejection) to many longstanding philosophical dualisms about which agreement has not been historically forthcoming.

### **3.4 Research approach**

Research approaches are plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation (Creswell, 2007:3). The philosophical assumptions governing the study, data collection procedures, analysis and interpretation methods all play a part in the choice of approach. The selection of a research approach is also based on the nature of the research problem or issue being addressed, the researchers' personal experiences, and the audiences for the study (Creswell, 2007; Creswell and Plano, 2011; Richards and Morse, 2013). Richards and Morse (2013:2) postulate that good research is purposive, and good methods congruent: methods being a collection of research strategies and techniques based on theoretical assumptions that combine to form a particular approach to data and mode of analysis.

In summary, research approach refers to the methods and instruments to be used in seeking explanation to our queries (McNeil and Chapman, 2005; Creswell, 2009; Gravetter and Forzano, 2009). There are three broad approaches in research: quantitative, qualitative and mixed: mixed methods research being the use of two or more methods in research yielding both qualitative and quantitative data (Gorard & Taylor, 2004; Hall, 2013).

### **3.4.1 Qualitative research**

Rolfe (2006:306) postulates that there is no unified body of theory, methodology or method that can collectively be described as qualitative research. This is perhaps in reference to the tendency of scientists in the different fields to try to own a particular method or methodology as being strictly for use by a particular field or profession. Qualitativeness comes in the form of the data collected, and not necessarily how it is collected. Qualitative research begins with assumptions, a worldview, the possible use of a theoretical lens and the study of research problems inquiring into the meaning individuals or groups ascribe to a social problem (Creswell, 2007:36). It is based on making observations in a natural setting that are summarized and interpreted in a narrative report, and the researcher tends to be the key instrument in data collection and development (Creswell, 2007; Gravetter and Forzano, 2009). Qualitative research methods involve trying to understand a particular phenomenon of interest without formulating hypotheses, and normally involve open-ended or semi-structured interviews which are typically tape-recorded, and then transcribed (Devlin, 2006:53).

Qualitative research is primarily concerned with obtaining insights rather than hard data with a solid statistical basis; consequently a qualitative research report will consist primarily of description, and will contain virtually no tables or diagrams (Baarda, 2010:17). Creswell (2007:36) adds that multiple forms of data (i.e. interviews, observations, documents, etc.) tend to be gathered in a qualitative research project rather than relying on a single data source, and the researchers keep a focus on learning the meaning that the participants hold about the problem or issue, not the meaning that the researchers bring to the research.

Hoinville (1977:9) declares that the essence of qualitative research is an unstructured and flexible approach to interviewing that allows the widest possible exploration of views and behavioural patterns, and that some of the main methods of data collection are individual depth interviews, which may be structured or unstructured, and group discussions. Baarda (2010:40) advocates focus groups as a research method, and states that qualitative methods include case study, ethnographic research, focus groups, Delphi research and grounded theory, and that qualitative research in particular lends itself to developing ideas, explanations and theories rather than proving them.

Qualitative research is conducted because a problem needs to be explored; it is ideal for complex, detailed understanding of issues that can only be established by talking directly to participants in their natural setting. It helps researchers and their audience to understand the contexts/settings in which participants in a study address a problem or issue, as we cannot separate what people say from the context in which they experience the problem (Creswell, 2007:40).

### **3.4.2 Quantitative research**

Quantitative methods emerged from the philosophical belief that the world runs according to natural laws, and that the role of the scientist is to uncover or discover these pre-existing laws (Bless, et al., 2013:15). Thus Bless, et al. maintain, truth is assumed to be absolute and independent of the human beings that search for it, in comparison to qualitative methods, that emerged out of more recent philosophical beliefs that truth is relative, and that knowledge is constructed by human beings; i.e. our understanding of the world is a product of our personal assumptions, biases and prejudices.

Quantitative research, as Gravetter and Forzano (2009:147) explain, is based on measuring variables for individual participants to obtain scores, usually numerical values that are submitted to statistical analysis for summary and interpretation. When dealing with large populations, it is important that the researcher be able to use findings to generalize to the entire population. Attempting to include an entire target



population in a study lends itself to an expensive and long process that is not always necessary. Leedy and Ormrod (2013:96) stress that quantitative researchers seek explanations and predictions that will generalize to other persons and places, and that the intent of quantitative research is to establish, confirm or validate relationships, and develop generalizations that contribute to existing theories.

Baarda (2010:18) posits that in quantitative research the crucial question is whether research can be replicated (verified), and data will consist of figures, usually in the form of a data matrix that can be analysed with the aid of statistical software such as Excel or SPSS. Denzin and Lincoln (2011:132) affirm that numerical data lend themselves to precision, statistical analysis, rigour, repeatability, comparison, objectivity and value neutrality, which is why some researchers believe quantitative methods are more suitable for research. The most cost-effective way of gaining quantitative data is by using the survey method.

### **3.4.3 Mixed methods**

Johnson and Onwuegbuzie (2014:17) formally define mixed methods as the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study. They further add that mixed methods research rejects dogmatism through the use of multiple approaches in answering research questions, rather than restricting or constraining researchers' choices.

Creswell (2009:207) posits that mixing of methods can occur at several stages: data collection, data analysis, interpretation, or at all three stages. Johnson and Onwuegbuzie (2014:17) attest that mixed methods research is an expansive and creative form of research, not a limiting form of research and that what is most fundamental is the research question and how best answers can be found to that question.

For this study, the mixed method approach was followed through from research design right up until analysis and interpretation. As Feilzer (2010:7) asserts, proponents of

mixed methods research strive for an integration of quantitative and qualitative research strategies and this was done through the following:

- i. distribution of a survey questionnaire to gather both qualitative data from open-ended questions and quantitative data from closed-ended questions from the researchers,
- ii. focus group discussions were held with non-restrictive discussion points to expand on themes raised in the survey while
- iii. semi-structured interviews assisted in acquiring qualitative data from the library staff.

This convergence of data provided a relatively cheap tool for collecting data fairly from a large population, and allowed the researcher to gain easier insights into the composition of the participants who completed the questionnaire. It was also easier to provide descriptive statistics from the quantitative data collected.

The mixing of methods enabled the researcher to look at the research problem in its entirety, from both the qualitative and the quantitative aspect. This produced a more comprehensive analysis than either one of the methodologies could have done on its own. Denscombe (2010:134) advises that in selecting a research method, distinctive features should not be judged by how well they fit with the ontology or epistemology of the quantitative or qualitative paradigm. Rather, the decision should be based on how useful the methods are for addressing a particular question or problem that is being investigated in essence, a pragmatic approach should be taken to answering the research question.

### **3.5 Research design**

Once the need for research has been conceptualized, it is necessary to formulate how the research question will be answered or particular problem solved. Research design is therefore a plan or blueprint of how a researcher intends to conduct the research, and it focuses on the end-product as regards what kind of study is being planned, and the result aimed for (Mouton, 2001:55). Bless, Higson-Smith and Sithole (2013:130) state that a research design relates directly to the answering of a research question; it is a detailed outline for the testing of a hypothesis, spelt out in clear and definite

terms akin to a specification of the most suitable procedures which need to be executed in order to test a specific hypothesis under given conditions. Research design can also be defined as a strategy which moves from the underlying philosophical assumptions to specifying the selection of respondents, the data gathering techniques to be used, and the data analysis to be done (Gibson & Brown, 2009:78). It serves as a bridge between research questions and the execution or implementation of the research (Durrheim, in Terre Blanche, et al., 2006:34). Durrheim (in Terre Blanche et al., 2006:34) adds that a research design should provide a plan that specifies how the research is going to be executed in such a way that it answers the research question as formulated in the following diagram.

**Figure 3.1 The Research Process**  
(Terre Blanche, 2006:34)



Research design is predetermined, and is particular to a specific research project, is formulated before the actual execution of the research, and should be within the limits of practical concerns. Approaches to research tend to depend on the nature of the population to be involved and the type of data to be collected. One can make use of case study, ethnography/field research, and survey research methods, amongst other methods (Creswell, 2007; Gravetter and Forzano, 2009).

### **3.5.1 Case study research design**

The case study approach to research involves the specific and detailed study of a case or cases (Lichtman, 2013:90). The ‘cases’ in case studies are the individuals (even entire populations), organizations or objects selected to take part in the research (Gorard, 2013:75). Lichtman (2011:111) suggests three purposes of case studies: descriptive, interpretive and evaluative.

Simons defines (2009:21) case study research as an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, programme or system in a real-life context. It is research-based, is inclusive of different methods, and is evidence-led. The primary purpose is to generate in-depth understanding of a specific entity to generate knowledge. Maree (2007:75) argues that case study strives towards a holistic understanding of how participants relate and interact with each other in a specific situation, and how they make meaning of a phenomenon under study.

The case study approach to qualitative research is usually used when a researcher seeks to understand, in depth, the phenomenon under study. Its purpose is to provide a holistic account of the case, and in-depth knowledge of the specifics through rich descriptions situated in context (Pickard, 2013:102). In a case study, a researcher can make use of several methods of data collection, including questionnaires, interviews, observations, document analysis and focus groups.

This study used a case study design as the researcher sought to understand the population under study in depth. This research sought to develop the fullest possible understanding of the research problem under investigation. In this case study, use was made of questionnaires to get data from the larger portion of the respondent population; focus group discussions provided a platform to explore issues raised in the questionnaires further; while in-depth individual interviews allowed for the researcher to collect data from the point of view of the 'originators of awareness' – the librarians. Document analysis was also done to corroborate the responses received, not only from the researchers, but also from the information librarians. This was particularly useful in ascertaining usage statistics of the Institutional Repository, which seemed to form the base of the OA databases that most of the researchers made use of. The case study was particularly relevant to the University of Zululand as it enabled the researcher to study the research population in both a descriptive and interpretive way. The multiple data sources used were designed to be complementary so as to allow the data from the questionnaires to either corroborate or dispute the data from the focus group discussions with the interviews enabling the point of view of the

implementing agents to provide an added dimension to analysing the phenomenon under study, thus providing triangulation.

### **3.6 Target population**

Bless, et al. (2013: 162) describe a target population as the entire set of objects or people that is the focus of a research project, and about whom the researcher wants to determine some characteristics. The population under study consisted of all researchers at the University of Zululand. A researcher in this instance was defined as either a postgraduate student engaged in postgraduate research study, and registered as such at the University of Zululand, or a member of the academic staff. It was assumed that all academic staff members, regardless of qualification, are perpetually engaged in ongoing research as discoveries and advances in their respective fields are constantly being made.

The total number of postgraduate students at the University of Zululand, as of 29 May, 2014 (registration.UNIZULU.ac.za), numbered 1 775, and an email received from the Human Resources Department indicated that the academic staff number 287. Of the 1 775 postgraduates registered, 547 were deemed ineligible to qualify as researchers since they were registered for postgraduate diplomas and certificates. Although these students held other degrees, the current programmes of study would not promote such in-depth research amongst these students as to allow them to be labelled as 'researchers' for the purpose of this study. Thus the final postgraduate target population was reduced to 1 228. There was a total of four information librarians at the time the study was conducted, but one was away on maternity leave, so the three available were considered as complete representation.

### **3.7 Sampling**

Sampling refers to the points of data collection or cases to be included within a research project in order to select possible research participants because they possess characteristics, roles, opinions, knowledge, ideas or experiences that may be particularly relevant to the research (Gibson & Brown, 2009:56). Du Plooy (2009:100) asserts that a researcher must first establish the population parameters – nature, size and unique characteristics of the population, before drawing a sample, and a distinction must be made between the target population (postgraduates and academic

staff) and the accessible population to which we are able to generalize findings. Notwithstanding, a homogeneous population requires a smaller sample size than a heterogeneous one.

### **3.7.1 Sampling methods**

Sampling can be split into two classes: probability (random) and non-probability (non-random) sampling (Creswell, 2009; du Plooy, 2009; Baard, 2010; Richards and Morse, 2013). These classes have also been classified as non-purposive and purposive sampling (Mack, Woodsong, MacQueen, Guest & Namey, and 2005:5). The main requirement of a good sample is that it must be representative of the population as a whole, and to qualify as being random, every research unit has to have an equal chance of being selected as long as the sample list has been drawn from an appropriate source (Baard, 2010:55). While Baard (2010:55) asserts that having a sufficiently large random probability sample is the best guarantee that the sample will be representative, du Plooy (2009:101) argues that a homogeneous population will require a smaller sample size than a heterogeneous population. When a researcher opts to use quota/stratified sampling, certain general requirements or characteristics of the sample have to be set, and any sample of cases meeting those requirements is used (Maisel and Hodges, 1999:3).

In making use of the mixed method approach, this study could not efficiently use just one particular sampling procedure to adequately fulfil the requirements of both quantitative and qualitative methodologies. It therefore adopted a multiplicity of sampling methods, employing a mix of stratified non-probability, convenience, and snowball sampling techniques.

The selection of the sampling techniques was informed by the characteristics of the population under study. The student population is largely homogeneous, in that while there are differences in terms of research study level, background, financial background and gender, all these are counterbalanced by the resources made available to the researchers. Lichtman (2013:92) affirms that since in qualitative research you do not have sufficient breadth to make generalizations, it is not essential

to identify a case that is representative of all cases of a particular type: for example, in educational background, social status, etc. Thus it would have been prejudicial to use some of these demographic characteristics to inform the sampling, and attempt to rigorously stratify the population. However, given the mixing of methods as well as in an acknowledgement that the different disciplines might have different information needs, an attempt was made to get representation across all levels of study and by mixing the methods, the strong points of each could make up for the shortfalls of the other.

Gibson and Brown (2009:57) maintain that the representivity of a sample is the link between a sample and the broader population. As the researcher did not have access to the contact details of the postgraduate population to provide a population register with contact details, stratified sampling was used to compile a sampling frame and ensure proportionate representation of postgraduate levels of study (honours, Master's and PhD). Thereafter, convenience sampling, which is used when there is no population register to draw on (Baarda, 2010:58), was used to select the initial respondents, and subsequently snowball sampling was initiated to add to the number of respondents. Mack, et al. (2005:5) contend that snowball sampling is often used to find and recruit 'hidden populations', and participants with whom contact has already been made use their social networks to refer a researcher to other people who could potentially participate in or contribute to the study. As the postgraduates are largely independent of one another, they were not easily accessible as a group to the researcher through other sampling strategies, hence the choice of this method. However, as Devlin (2006:141) states, while a convenience sample is gathered conveniently, it could be biased if all respondents are known to the researcher. To remove this bias and to assist in the collection of data, two research assistants were employed to assist in accessing researchers.

Richards and Morse (2013:221) explain that in purposeful (non-probability) sampling a researcher selects participants because of their characteristics: for example, they know information required, are willing to reflect on the phenomenon under study, have the time, and are willing to participate. Convenience sampling was used to approach

academic staff members in their offices while other researchers were approached in their study laboratories, hostels, and library spaces designated specifically for postgraduate students. In all instances, the criteria primarily used was their availability and willingness to participate and after gaining consent from them, respondents were asked to refer the researcher to potential respondents (snowball sampling).

Maisel and Hodges (1999:4) state that in a census, data are collected on every member of some specified population. Thus census interviews were conducted with the information librarians, using a semi-structured interview schedule. For the focus groups, participants were selected using convenience and snowball sampling.

This study attempted to meet the target sample population number. However, apart from difficulty in identifying and securing willing participants and collecting completed questionnaires, the researcher also took into account that data saturation could be reached. Thus analysis of responses was ongoing throughout the data collection phase. This was with the aim of observing whether either data saturation had set in, or a large enough sample had been attained – and thus concluding the fieldwork based on whichever occurred first within the time limits of the fieldwork.

### **3.7.2 Sample size**

The target populations for this study were postgraduate students of all faculties at the University of Zululand, academic staff and library staff. According to the university's statistics there are 287 academic staff members, and a total of 1 229 postgraduates registered for honours level study and above. This number also includes some members of the academic staff who are studying part-time. However, as figures were not independently available the total number of researchers was left as approximately 1 515 postgraduates and academic staff.

There are various opinions as to what constitutes an ideal sample size. According to a table based on Krejcie and Morgan's (1970) formula for determining sample size, to acquire a 95% confidence interval and a margin of error of 5% for a population of



approximately 2 000, a suitable sample size is 322. Leedy and Ormrod (2013:216) propose the following figures for populations (N):

N=100, the entire population should be sampled

N=500 (give or take 100), 50% should be sampled

N=1500, 20% should be sampled

Beyond 5 000, the population size is almost irrelevant, and a sample size of 400 will be adequate. Bless, et al. (2013:174) write that the rule of thumb in choosing a sample size is that it should be at least 5% of the population, but this depends on the degree of accuracy required; degree of variability or diversity in the population, and a number of different variables to be examined simultaneously in the data analysis.

Gorard (2013:78) argues that case study research can actually save time for the researcher who may want to spend a greater proportion of resources working with each case, thus sacrificing breadth for depth, as opposed to purely quantitative surveys that focus on large numbers. Silverman (2013:145) posits that in case study research, researchers generalize to theoretical propositions, not to populations, and that what is sampled are the social relations, not the individuals, and all this is done to the point of saturation.

Taking these variations in opinion into consideration, and the fact that this study used mixed methods and was not purely quantitative, but had qualitative elements which do not regard quantity as much as depth of data gathered, the sample size was set at 10% of the target population. Thus, a total of 125 questionnaires were handed out, and the researcher had three focus group discussions with the aim of having a combined total of one hundred and fifty one (151) as the sample.

### 3.7.3 Sampling frame

A sampling frame is the actual form or range of cases in which a population becomes accessible to us (Terre Blanche, et al., 2006; Gibson & Brown, 2009). Mouton (1996:135) defines a sampling frame as the set of all cases from when the sample will actually be selected. It is not the sample, but the operational definition of the population that provides the basis for sampling. The entire available number of three (out of four, with one away on maternity leave) information librarians was easily accessible, so a census was conducted for the semi-structured interviews. The researcher was not able to get a list of all postgraduate researchers from the university (this was not available) but did manage to source the total numbers.

**Table 3.1 Researcher Target Population**

STUDY LEVEL	NUMBERS
HONOURS	567
MASTER'S	458
DOCTORAL	203
ACADEMICS	287
<b>TOTAL</b>	<b>1 515</b>

Denscombe (2002:143) declares that to be representative a sample needs to cover all relevant types and have these types in proportion to the numbers found in the whole population. An attempt was made to proportionately represent all levels of study at 10% of each of the population strata. As convenience and snowball sampling were utilised, it was difficult to proportionately sample across faculties as will be discussed in Chapter 4. The sampling figures according to study level are tabulated in the following table.

**Table 3.2 Sampling Figures**

<b>STUDY LEVEL</b>	<b>TOTAL POPULATION</b>	<b>TARGET SAMPLE</b>
HONOURS	567	57
MASTER'S	458	46
DOCTORAL	203	20
ACADEMICS	287	28
<b>TOTAL</b>	<b>1 515</b>	<b>151</b>

The figures in Table 3.2 were used to guide the researcher in planning a data collection plan. The aim was to target a total of 151 researchers that would represent the researchers in proportion to their actual numbers.

### **3.8 Data collection tools/instruments**

Data collection is the process through which a researcher acquires the data on which conclusions are made. Data can be collected by use of, amongst other tools, questionnaires, interviews and observations (Mouton, 2001; Ghauri and Gronhaug, 2002; Creswell, 2007; Gravetter and Forzano, 2009). Mouton (2001:99) emphasizes that documenting the data collection process accurately and in as much detail as possible enables quality assurance, and can be used in a historical study later for secondary data. This research collected data through self-administered questionnaires and focus groups for researchers, and interviews for library staff. The selected tools are briefly explained below.

#### **3.8.1 Questionnaires**

Questionnaires are a data collection tool that does not require physical interaction between researcher and respondents. A researcher does not even have to travel to administer them. The use of questionnaires in data collection is a convenient method, especially if the researcher does not have the capacity to interview all individuals concerned (Flick, 2009:164). Questionnaires are generally used to target a large population as they can be sent out in numbers, and can be completed in the

individual's own time, thus enabling a relaxed analysis and interpretation of the questions asked (Henning, Van Rensburg and Smit, 2004; Creswell, 2007; Gravetter and Forzano, 2009; Denscombe, 2010). The major disadvantage is that the response rate is not guaranteed, nor can the certainty of who actually filled in the questionnaire be established (du Plooy, 2009; Gravetter and Forzano, 2009). Baarda (2010:94) highlights that questions must be unambiguously phrased, specific and neutral. Questionnaires are not purely after quantitative data, and Marsland, Wilson, Abeyasekera and Kleih (n.d.:10) share the view that qualitative response is routinely incorporated in many questionnaires, with the inclusion of open-ended questions.

One questionnaire was administered to the researchers in attempting to ascertain their level of awareness and use of OA at the University of Zululand. The questionnaire was divided into three sections. The first section elicited demographic data from the respondents; the second focused on researchers acknowledging ignorance of OA, and the last section had questions addressed to researchers who claimed prior knowledge of OA. Topics that were covered included the origins of OA awareness, the gatekeepers of OA awareness, challenges faced and potential opportunities, and future use of OA and OA publishing by the researchers.

### **3.8.2 Focus groups**

Hennink, et al. (2011:136) define a focus group discussion as an interactive discussion between six to eight pre-selected participants, led by a trained moderator and focusing on a specific set of issues. Rubin and Rubin (2012:30) regard a focus group as a group of individuals brought together by the researcher that is representative of the population, and whose ideas are of interest. Richards and Morse (2013:51) attest that focus groups provide a way of gathering sometimes complex data rapidly, and data thus acquired may be quickly and descriptively reported. Baarda (2010:41) concurs, and adds that the advantage of a focus group is its time-effectiveness, and that inspired by what others think, participants may be more interactive.

Morgan (1988:12) acknowledges that a focus group is used for convenience as it allows more individuals to be reached at once, and adds that the hallmark of a focus

group is the explicit use of the group's interaction to produce data and insights that would be less accessible without it. This group interaction replaces interaction with the interviewer, thus ideally leading to greater emphasis on participants' points of view; but because it is not based in a natural setting, there is always some residual uncertainty about the accuracy of the responses, given complicated group dynamics.

Thomas (2011:164) maintains that using focus groups as opposed to the individual should be because there is something from a group that differs from an individual interview: for example, how a group attitude compares with individual attitudes within the same group with the researcher as the moderator. This research used three focus groups to analyse how group dynamics affected the responses given, and to enable the researcher to have physical interaction with researchers to clarify issues surrounding OA resource awareness, accessibility and use. The focus group discussions also created a platform through which the researcher could offer clarification on seemingly ambiguous questions raised, which cannot occur when the researcher is not present when a respondent completes a questionnaire.

Since by their very nature, focus groups are dynamic, questions had a set structure that was not necessarily followed as the discussions progressed. For example, when participants were questioned on their recognition of OA after it had been defined, some focus group participants would then include responses relevant to the question on what strategies the university had in place to bring about awareness of OA. Thus the questions were steered towards responding to all issues raised as they came rather than in a pre-formulated sequence. Topics covered by the focus group questions included how respondents had come by their knowledge of open access; challenges faced, and their view of the university situation. In essence, the focus group questions were similar in tone to the survey questions, yet with the intention of bringing about more detailed verbal responses than is possible when one has to write down a response. The constitution of the focus groups is discussed in Chapter 4.

### **3.8.3 Interviews**

Interviews are another form of data collection tool, and require physical interaction between the researcher and the respondent. Bogden and Bitken, in Scheurich (2001:61) maintain that an interview is a purposeful conversation, usually between two people, that is directed by one in order to gather information from the other. Bless, et al. (2013:193) succinctly characterize an interview as involving direct personal contact with the participant, who is asked to answer questions relating to the research problem. Gillham (2000:1) establishes the possibility that while an interview is a conversation where the interviewer is seeking responses for a particular purpose from the interviewee; this may or may not be for the benefit of the particular person being interviewed. Gibson and Brown (2009:87) advise that questions must be clear, relevant and analytic, and should be formulated in logical sequence before the interview. In a highly structured interview the natural flow of conversation is disrupted so that topics can only be dismissed at the point at which the interview schedule specifies rather than where an interviewee may be thinking about it, thereby causing a researcher to miss relevant issues.

The advantage of conducting interviews is that the interviewer is guaranteed a high number of responses as usually all the people who agree to be interviewed will be interviewed; thus a 100% response rate is achieved. Interviews, particularly open-ended ones, enable the researcher to gain a deeper perspective on the research question as they do not limit the boundaries through which respondents can clarify the phenomenon under study. Gillham (2000:2) affirms that the purpose of a research interview is to obtain information and understanding of issues relevant to the general aims and specific questions of a research project; consequently, both these: aims and questions, should inform the interview schedule.

Rubin and Rubin (2012:6,7) suggest the practice of responsive interviewing as a specific variety of interviewing that emphasizes flexibility of design, and expects the interviewer to change questions in response to what he or she is hearing/learning. This analytical method of formulating questions from the ground up, based on what is discovered, rather than having preformulated conclusions, is the method that was

used by the interviewer during the focus group discussions and information librarian interviews.

Interviews were conducted to ascertain that the persons mandated to develop information literacy amongst researchers, and subsequently OA education – the information librarians – were managing to do so, and whether there are systems in place to evaluate the frequency of OA resource (particularly the databases) use. The researcher carried out interviews using a semi-structured interview schedule, with both closed- and open-ended questions, while at the same time not adhering strictly to the schedule when relevant points not covered in the schedule were raised. This enabled the researcher to collect an even richer pool of information than strict adherence to the schedule would have produced. Permission was requested and granted by the University Librarian to interview the staff members identified as the ‘promoters’ of the resources. Thereafter, appointments were made at the convenience of the librarians.

The information librarians were questioned mainly on the ideal that the library has in terms of bringing about OA awareness in their users. Questions ranged from what strategies the university had in place, and how the library ensures that users gain enough knowledge about the resources at their disposal, to what can be done to improve the current situation.

The research questions targeted by the various instruments used are summarized in the table below:

**Table 3.3 Table for research methodology**

<b>Research Questions</b>	<b>Research Method/ design (s)</b>	<b>Data Collection Instrument (s)</b>
1. Are researchers aware of open access resources at their disposal?	Survey  Case studies  Historical	Questionnaire  Focus group discussion  Staff interview
2. Are the open access resources used and valued?	Survey  Case study	Questionnaire  Focus group discussion  Interviews
3. What strategies are in place to bring about awareness of open access resources?	Survey  Case study	Questionnaire  Focus group  Interview
4. What are the challenges and opportunities faced by researchers regarding use of open access resources?	Survey  Case study	Questionnaire  Focus group  Staff interview

### **3.9 Reliability and validity of instruments**

In carrying out research, it is important that the researcher is able to defend the methods and instruments used, and the results achieved as having been without bias. Research is not an isolated event, and other researchers in the field should be able to trace the steps followed and replicate them if necessary for comparative purposes. This is why it is crucial that the reliability and validity of the instruments used to collect data be analysed. Bless, et al. (2013:221) define reliability as the extent to which the observable or empirical measures that represent a theoretical concept are accurate and stable over repeated observations. This is essentially a confirmation that should



the research be repeated using the same methods, it must produce the same results. This can be achieved by documenting each step of the research process adequately, and calls for the researcher to be ethical in conducting and reporting the research processes, otherwise there will be discrepancies that will draw questions on the trustworthiness of the research report.

Marsland et al. (n.d.:4) state that internal validity or credibility is concerned with how confident the study is about the truth of the findings. Henning, Van Rensburg and Smit (2004:147) declare that validity asks the question whether by using certain methods, the study is measuring what it is supposed to be measuring with the instruments selected. He adds that the researcher must check for bias, neglect and lack of precision, question all procedures and decisions critically, look for and address theoretical questions that arise throughout the process, and finally discuss and share research actions with peers as critical in-process reviewers. The internal validity of a research project is the extent to which the study enables defensible conclusions about cause and effect and other cross-variation relationships, while the external validity is the extent to which the study's results can be generalized to a larger population or broader context (Leedy & Ormrod, 2013:263). Devlin (2006:57) emphasizes that internal validity is concerned with the integrity of the research project in that it assesses whether the research design adequately measures and assesses what the researcher says it does. Bless, et al. (2013:157) specify that the external validity (transferability in qualitative research) is the extent to which the results of a study can be generalized, and to achieve high external validity the sample must reflect the experiences of the population as fully as possible.

Marsland, et al. (n.d.:4) maintain that reliability and validity of data adds to the trustworthiness of information, and this determines the value of information, which is greater when qualitative and quantitative approaches to data collection and analysis are combined rather than used separately. Denscombe (2002:100) asserts that a great deal of social research relies on information collected directly from people, on people, and about people, and that reliability relates to the methods of data collection, and the

concern that they should be constant and not distort the findings. This constancy should hold regardless of who decides to replicate the study, or when.

In seeking to establish the reliability and validity of the research instruments to be used in the study, an initial pilot study was carried out. In line with the methodology, convenience and then snowball sampling were employed to approach potential respondents, and a total of 20 questionnaires were distributed. After numerous attempts to receive completed responses, only eight were received. This brought the response rate to 40%. However, because there were problems with the instrument, the researcher felt that continuing with the pilot would be impractical.

The pilot study enabled the researcher to fine-tune the phrasing of the questionnaire, and assisted in clearing ambiguous phrasing and the use of technical terms that were not necessarily known to the target population.

The target population was stratified with the intention of getting respondents in proportion to their numbers at different study levels, and therefore achieve a measure of representivity in an effort to attain external validity.

### **3.10 Data collection procedure**

In preparation for the data collection, permission was requested from the University of Zululand to be allowed to conduct research using its students and staff. Once this had been received the researcher proceeded to conduct a pilot study using all three data collection instruments. The aim was to test the instruments. Harding (2013:48) states that a pilot study is crucial in any form of research as it helps identify potential difficulties, thereby reducing the danger of collecting flawed data (Harding, 2013:48). Once the researcher was satisfied that the instruments had been tested and modified appropriately, data collection began in earnest.

#### **3.10.1 Interviews**

The researcher sent a request, in writing, to the University Librarian to be granted permission to interview staff members involved in information literacy training. The

University Librarian responded positively, explaining that only the information librarians could be approached to provide relevant data, and this had to be done by appointment with the respective librarians. They were all willing to be interviewed and quickly scheduled appointments.

### **3.10.2 Questionnaires**

The researcher initially approached researchers known to her as well as staff members in their offices in the hope of waiting while respondents completed the questionnaire. However, respondents were not comfortable with this arrangement, preferring to complete questionnaires in their own time and return them at a pre-arranged date. But as it took more than three weeks to collect the first forty questionnaires handed out because of postponements on the part of the respondents, it was necessary to seek the aid of research assistants (especially those based on campus); and so two postgraduate students, who had participated in the pilot study, were engaged. Participants were selected using convenience and snowball sampling. Contact was made with a conveniently available participant, after completion of the questionnaire, the researcher or research assistants would then request a referral to another potential participant.

### **3.10.3 Focus groups**

In preparation for the focus groups several attempts were made to recruit participants. The researcher first verbally approached the researchers she knew in an attempt to ask them to recruit their colleagues from different faculties. That failed owing to the myriad commitments of not just the postgraduate students, but also academic staff during the period in which the data collection was carried out. Thus the researcher was able to arrange only one focus group with a few researchers already known to her. She then sent email requests to researchers she knew personally to assist in the recruitment of at least one other researcher in the hope of broadening the 'catchment area', but only one responded, apologizing for prior commitments.

The researcher then asked the assistants to approach researchers known to them with the intention of snowballing further respondents, but even though the potential participants initially agreed, not one turned up for the scheduled focus group

discussions. At this point the researcher acquired the email addresses of all registered doctoral students (PhD candidates) within the Faculty of Arts, and sent emails to them all in the hope of generating a self-selected sample (defined by Maisel & Hodges, 1999:4, as a general message requesting everyone who hears it to respond by mail or telephone). That was also unfruitful, with the only responses received being apologies for being unable to participate.

The researcher then considered offering incentives to participants, and went back to an attempt at snowballing, asking the research assistants to recruit potential participants with a promise of refreshments. That was not successful either, as researchers declared they were busy, or openly admitted their reluctance to participate. Finally, as the researcher was on the verge of reviewing this data collection instrument, the meaning of convenience was redefined when she chanced to find, while in the process of collecting questionnaire responses, groups of congregated postgraduates, and requested they participate at their convenience, but preferably as soon as possible. Rather than defer participation to another date, the respondents were willing to participate immediately, with the result that the researcher managed to hold three focus group discussions. Regrettably, owing to the sampling method, the participants were not completely representative of all the faculties at the University of Zululand, but as responses were similar, the researcher was satisfied that a satisfactory level of data saturation had been achieved, and there was no need to attempt to recruit members for the fourth group.

### **3.11 Ethical and safety Issues**

Mouton (2001:239) declares that the ultimate goal of all science, the search for truth (the epistemic imperative of science), is a moral commitment that all researchers make, and which acts as a regulative principle that guides the conduct of researchers. Part of the epistemic imperative is the importance of conducting research without coercion, in a transparent and honest manner.

Ethical research includes getting the informed consent of participants and reaching agreements about the uses of this data and how its analysis will be reported and disseminated (Blaxter, Hughes and Tight, 2006:158-9). The researcher fully

understood the ethical commitments involved, and sought to carry out the study in an ethical, unbiased and professional manner that posed no threat or offence to anyone. Permission was sought and received from the University of Zululand to conduct research using its students and staff (see Appendix V). Further permission was requested from the University Librarian for the researcher to be permitted to interview library staff. This was also granted. Informed consent was secured by providing an introductory letter (see Appendices V-IX) detailing the research aims, risks and future uses of data collected. This was attached to an informed consent form, wherein respondents had to sign in an acknowledgement that they understood the nature of the research and had voluntarily agreed to participate without coercion. The participants in the focus group discussions and interviews were further reminded that their responses were going to be recorded before the interviews/discussions began. At all times anonymity was guaranteed as the research had more interest in the generic biographical information than in the personal identities of the respondents.

However, the researcher was interested to note that questionnaire respondents were not completely comfortable in having the researcher personally collect the questionnaires. This was predominantly evident amongst the more senior researchers. The researcher noted an aversion to returning the questionnaire, and in some instances she had to give up on collecting the supposedly completed questionnaire. Perhaps it was due to what could be viewed as a fear to acknowledge ignorance. Yet without such research and recommendations to rectify the situation on the ground, mankind cannot advance.

Another ethical challenge was noted in attempting to access the email addresses of both academic staff and all registered postgraduate students. The ICT department felt ethically challenged when approached to assist, and respectfully declined to furnish the above details. The researcher had intended to send the questionnaire electronically, and similarly recruit participants to the focus group. Interestingly, it was noted that the Faculty of Arts has on its website all its registered doctoral candidates' details, and the researcher was able to access these.

### **3.12 Data analysis**

The bearing of a study rests upon the ability to effectively collect and analyse data. Without this analysis the data is simply a collection of figures and notes. Without posing questions (which open up discussion, encouraging reflection and triggering intellectual activity), it is not possible to develop our knowledge about a particular subject (Alvesson and Sandberg, 2013:1). The answers must lead to some sort of a resolution of the problem under investigation, or at least bring it a step closer.

#### **3.12.1 Interviews and focus groups**

Data analysis, the second stage of interviewing as a research method, is a creative interaction between the conscious/unconscious researcher and the decontextualized data, which is assumed to represent reality as interpreted by the respondent (Scheurich, 2001:63). Richards and Morse (2013:1) assert that collecting and analysing data are not separate procedures in qualitative research; they suggest that the strength of qualitative enquiry lies in the integration of the research question, the data and data analysis. Morgan (1988:64) affirms this, and declares that basic approaches to analysis of focus group data are a strictly qualitative or ethnographic summary and a systematic coding via content analysis, thus producing numerical descriptions of the data.

The qualitative data came from the interviews with staff and the focus group discussions, as well as some open-ended questions from the questionnaire. Qualitative data collected was documented in discussions and summarized cohesively, using content analysis. With qualitative data, the basis of analysis is a transcription of conversations or observational reports; where little prior knowledge is available, analysis must demonstrate transparent work methods, and how the researcher reached conclusions – and these should be plausible (Baarda, 2010:20). This transcription was done by the researcher, and analysis was guided by the content of the responses.

Devlin (2006:53) advises that in analysing interview responses or transcriptions, researchers must begin with the raw data, and move step-by-step to relevant text,

repeating ideas, themes, theoretical constructs, theoretical narratives and research concerns. This develops a thematic analysis of the data, enabling the researcher to make connections from the various responses. The researcher transcribed the interviews and focus group discussion data from the recordings made. After the transcription, the separate interviews and focus groups were summarized. Thereafter similar questions and themes in the responses were identified and grouped together to make a single dataset. When all the interviews had been completed, and focus group discussions done, they were respectively coded with patterns of responses identified. After this sorting, the responses were integrated and summarized to create comprehensive and complete responses. These responses from the four interviews and the three focus groups were then tallied to produce a comprehensive report, and were used to form the final conclusions of the research.

### **3.12.2 Questionnaires**

Data analysis in quantitative research includes the use of statistical techniques in two ways: statistics for descriptive purposes that make it possible to provide a summary of certain characteristics of the units of analysis, and statistics for inferential purposes that can be used to draw inferences beyond behavioural descriptions (du Plooy, 2009:234). The data was analysed using Microsoft Excel. The data was coded in categories to enable easier analysis by reporting elementary descriptive statistics in the form of frequency tables, and the use of bar charts, plots and pie charts for more visual presentation (Mouton, 2001:153).

For easier analysis of questionnaire responses the same was done for questionnaires, which were coded and responses recorded as they were received. Once data collection had been completed, the entire range of responses was analysed for relational connections.

### **3.13 Challenges and limitations**

Due to the nature of research studies, postgraduate students are not always available on campus, so it will be a laborious task to access the sample sizes targeted. The sampling techniques to be used might stratify the sample in such a way that there might be bias towards a particular field of study within individual faculties. However, it

is hoped that it will be sufficiently representative to allow generalizations to be made without compromising the validity of the results.

### **3.14 Summary**

This chapter has comprehensively discussed how the research was carried out. It has conceptualized and justified the research paradigm underpinning the selection of methodology, methods, instruments, sample size and data-gathering procedures used to acquire data in the study. Limitations encountered in the conduct of the research have also been highlighted to ensure transparency and reduce unconscious bias.

The following chapter will examine the data gathered as a result of the procedures outlined above. It will also analyse the data collected, and present it as either narrative or graphs.



## CHAPTER FOUR

### DATA PRESENTATION AND ANALYSIS

#### 4.1 Introduction

This chapter presents and analyses data. The study aimed to assess the University of Zululand researchers' awareness and use of OA resources. A comprehensive breakdown of the responses received has been documented in Section 3.7.3 of Chapter 3. For easier reading, the percentages are rounded off to the next whole number. The breakdown of these responses is illustrated in Table 4.1 below.

The researcher collected data from the researcher population tabled below (Table 4.1) using a survey questionnaire and then focus group discussions were held later to corroborate and add clarity to responses received through the questionnaires. Thus response rate below is for both the questionnaire and the focus group discussions. The responses for all the instruments, **including** the librarian census are recorded in Table 4.2.

**Table 4.1 Response rate for the researcher population**

<b>Study level</b>	<b>Total Population</b>	<b>Target Sample</b>	<b>Actual Sample</b>	<b>Percentage (%)</b>
Academics	287	28	21	75
Doctoral	203	20	18	90
Master's	458	46	34	74
Honours	567	57	38	67
<b>Total</b>	<b>1515</b>	<b>151</b>	<b>111</b>	<b>74</b>

**Table 4.2 Response rates for all research instruments**

Research Instrument	Targeted Number of Respondents	Actual Number of Respondents	Percentage Response Rate
Questionnaire	125	96	77%
Focus Groups	26	15	58%
Interviews	3	3	100%

The data will be presented in three sections. Section A will discuss the responses to the questionnaire, Section B those of the focus discussion groups, and Section C will provide an analysis of the interviews with the information librarians.

## **SECTION A: PRESENTATION OF QUESTIONNAIRE FINDINGS**

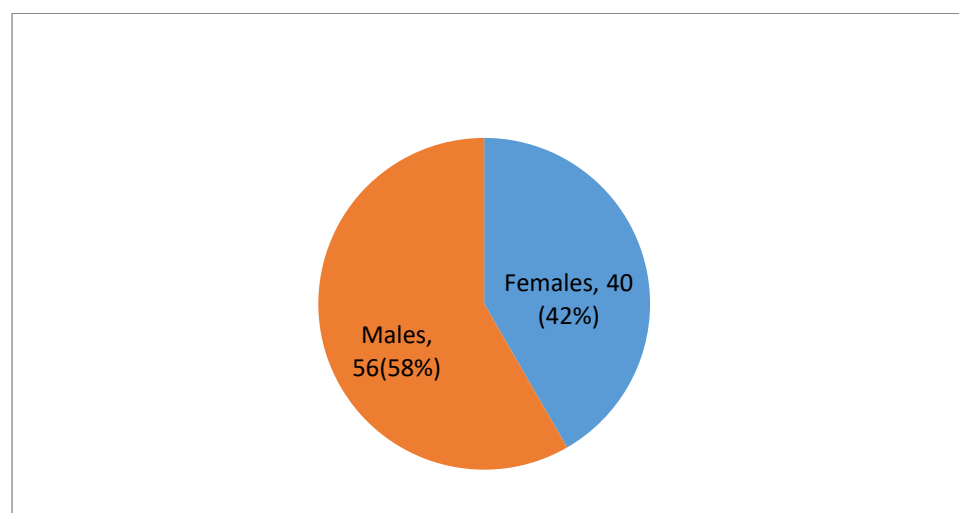
### **4.2 Demographic characteristics**

The breakdown of the study's respondents provides a picture of who participated in the study, and can be used as a determinant of the relevance of responses given. In this section, the study's respondents are classified according to their gender, faculty, department and academic status.

#### **4.2.1 Gender distribution**

Although gender was not used to determine the selection of potential respondents, there was a probability of getting same-gender referrals as the selection of participants was mainly through snowballing. Figure 4.1 below presents the findings by gender distribution.

**Figure 4.1 Gender distribution (N=96)**

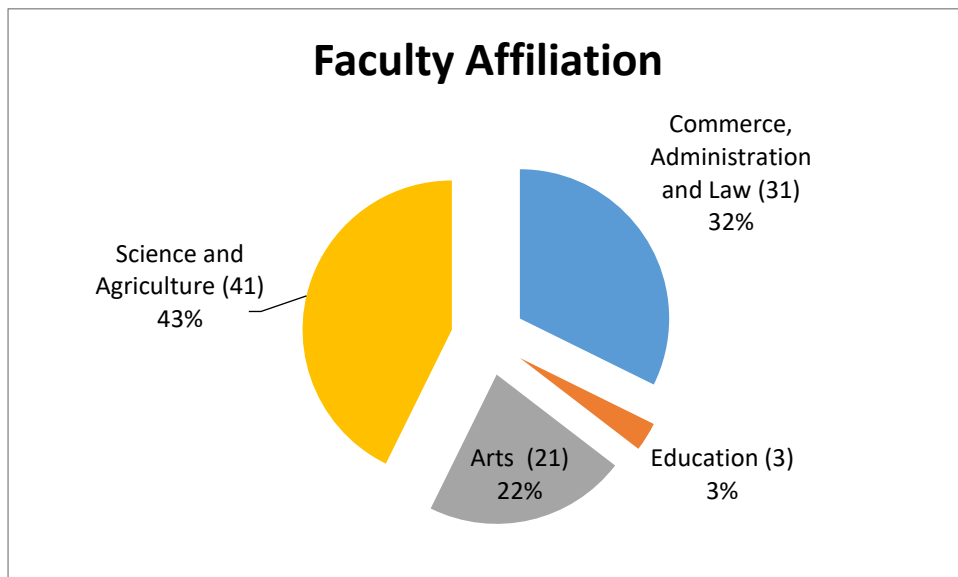


In Figure 4.1 above, it is shown that of the 96 researchers who completed the survey questionnaire, there were 56 (58%) males and 40 (42%) females.

#### 4.2.2 Distribution by faculty affiliation

The University of Zululand has four faculties: Commerce, Administration and Law; Science and Agriculture; Arts, and Education. For this study, an effort was made to hand out questionnaires to all faculties to compare responses across faculties. The results are illustrated below.

**Figure 4.2 Distribution by faculty affiliation (N=96)**



As revealed in Figure 4.2, the response rate across the four faculties at the University of Zululand was not even. It is to be noted that in some faculties, particularly the Faculty of Education, the registered postgraduates are mostly part-time students, thus access to them proved difficult. Another problem could have been the snowball method of sampling. Invariably researchers are likely to be able to refer to someone within their field of study rather than outside it. This is a challenge with snowball sampling that proved difficult to overcome, even when respondents were specifically asked to identify someone not affiliated with their faculty as a referral participant. As Figure 4.2 indicates, the majority of respondents, 41 (43%), were from the Faculty of Science and Agriculture. These were closely followed by the Faculty of Commerce,

Administration and Law, making up 31 (32%) of the total respondents. The Faculty of Arts was represented by 21 (22%) respondents, and the lowest figure came from the Faculty of Education, with three (3%) participants.

#### 4.2.3 Distribution by departmental affiliation

The University of Zululand has 35 departments across the four faculties (University of Zululand website), and this study attempted to target various departments from each faculty to add to the validity of the results. Of these 35 departments, 27 (77%) were represented in the study. Table 4.3 below presents figures for the population that took part in this study's survey (questionnaire).

**Table 4.3 Departmental affiliation (N=96)**

Department	Frequency	%	Department	Frequency	%
Computer Science	13	14	Anthropology and Development Studies	2	2
No details	13	14	Agriculture	2	2
Economics	10	10	Education	1	1
Chemistry	9	9	Criminal Justice	1	1
Business Management	7	7	Accounting and Auditing	1	1
Biochemistry and Microbiology	7	7	Educational Psychology	1	1
Sociology	5	5	English	1	1
Zoology	1	1	Geography	1	1
Social Work	1	1	Mathematics	1	1
Information Studies	3	3	Psychology	1	1
Hydrology	2	2	Public Administration	1	1
Commerce	2	2	Science Foundation	1	1
Development Studies	2	2	Recreation and Tourism	2	2
History	2	2			

Table 4.3 summarizes the composition of the questionnaire participants according to department. The departments that were most represented are Computer Science, with 13 (14%) respondents, Economics, with 10 (10%) respondents, and Chemistry, with nine (9%) respondents. It was easier to get more respondents from these departments as referrals were easy to follow up owing to specially set aside lab and study rooms for the individual departments. 13 (14%) of the respondents did not provide their departmental details, but it is unclear why this was so.

#### **4.2.4 Distribution by academic status**

Academic level/status formed part of the demographical questions asked so as to establish that researchers from all the postgraduate levels were included in the study. The response across the academic levels of the researchers is tabulated below.

**Table 4.4 Academic status of questionnaire respondents (N=96)**

<b>Academic status</b>	<b>Frequency</b>	<b>%</b>
Academic staff	19	20%
PhD candidates	15	16%
Master's students	32	33%
Honours students	30	31%
<b>Totals</b>	<b>96</b>	<b>100%</b>

Of the total figure, the Master's students had the largest portion of respondents at 32 (33%), followed by the Honour's students, who were represented with 30 (31%) responses. Academic staff came in with 19 (20%) responses, and the PhD students were represented by 15 (16%) respondents.

#### **4.3 Information literacy and information-seeking patterns**

This section sought to establish the information literacy levels and information seeking behaviour of respondents, and whether some training, such as bibliographical instruction, was provided which could assist them in becoming aware of library resources.

#### 4.3.1 Bibliographical instruction attendance

Researchers were asked whether they had ever attended bibliographical or library instruction to ascertain whether they had more than just accidental knowledge of information resources. Table 4.5 provides their responses.

**Table 4.5 Bibliographical instruction attendance (N=96)**

Academic status	Yes		No	
	Frequency	%	Frequency	%
Academics	12	63	7	37
PhD	11	73	4	27
Master's	20	63	12	38
Honours	19	63	11	37
<b>Total</b>	<b>62</b>	<b>65</b>	<b>34</b>	<b>35</b>

As Table 4.5 highlights, of the 96 who participated in the questionnaire survey, 62 (65%) affirmed that they had attended bibliographical instruction at some stage, and 34 (35%) responded in the negative. Such a large number of non-attendees was unexpected as all participants had previously been enrolled for at least one other degree programme before their current studies, and it was assumed that, regardless of the university where they had completed their first degree(s), attending bibliographical/library instruction had been a mandatory requirement for each student. The responses suggest that in at least two instances of initial registration (bachelor's and Honours studies), the respondents might not have had the opportunity, or felt the need, to become more information literate, and thus had not attended bibliographical instruction. From the responses, the PhD group had the best attendance at bibliographical instruction classes, with 11 (73%) indicating that they had attended such classes. Assumption is made that this is because, at minimum, this was their third or fourth enrolment at a university, therefore they had three prior opportunities to attend bibliographic instruction as they went up the academic study ladder.

#### 4.3.2 Perceived usefulness of bibliographical instruction

This question was aimed at researchers who had previously attended some form of library orientation. This therefore means that from the population of 96 (100%), only the 62 (65%) that had undergone training responded to this question. This was to

determine the level of usefulness they attached to bibliographical instruction. The results are shown in Figure 4.3.

**Figure 4.3 Perceived usefulness of bibliographical instruction (N=62)**

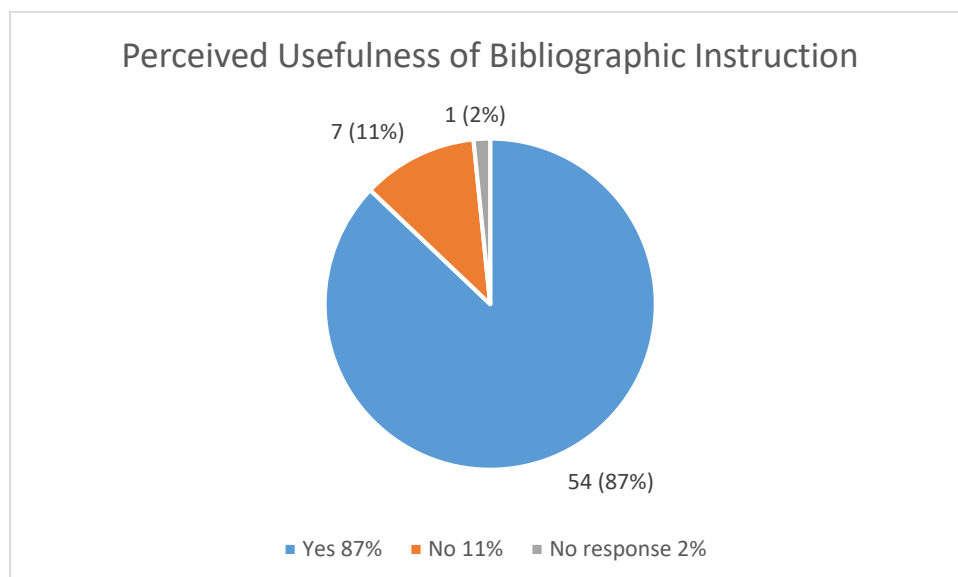


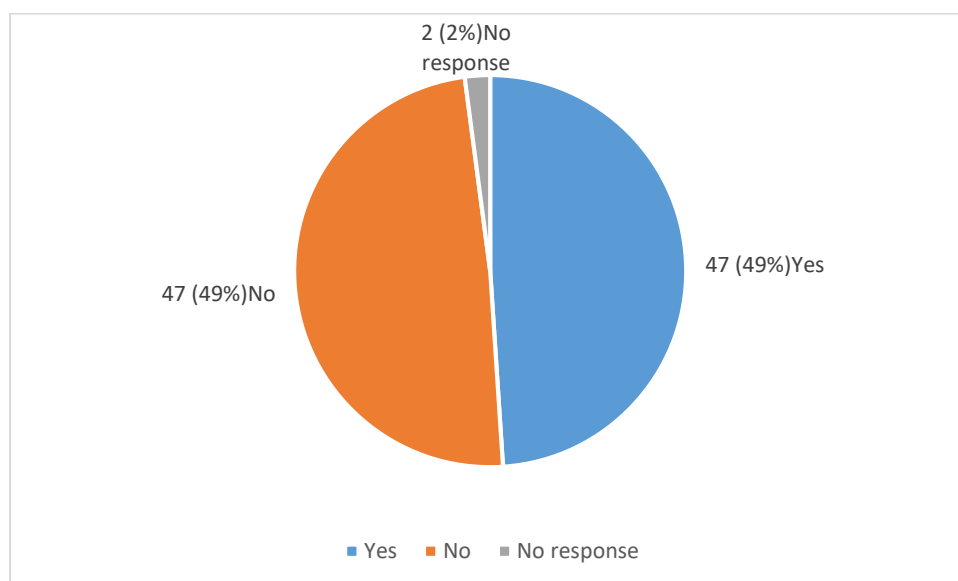
Figure 4.3 highlights the responses of researchers (N=62) who had undergone some level of library instruction, and how they perceived its usefulness. Those who did not attend were not asked to comment on the usefulness or irrelevance of bibliographical attendance as their responses would have been based on theory and not fact.

Fifty four (87%) of those attending bibliographical instruction acknowledged that they had benefited from it, seven (11%) did not perceive any major benefits, and one (2%) did not proffer a response. It can be seen that those who had attended the information literacy courses appreciated the skills they had been equipped with, and were able to use those skills. A minimal number of 7 (11%) did not reveal any benefit from attending.

#### **4.3.3 Satisfaction with campus internet facilities**

The availability of internet facilities is one of the major determining factors on how electronic resources, whether open access or proprietary, are used. This question was posed to try and get the participant's views on how well the university is meeting this information need.

**Figure 4.4 Satisfaction levels in terms of internet facilities (N=96)**



Responding to the question on satisfaction with campus internet facilities, 47 (49%) respondents were satisfied, and another 47 (49%) were dissatisfied. Two (2%) of the respondents did not respond.

#### **4.3.3.1 Reasons for dissatisfaction with internet facilities**

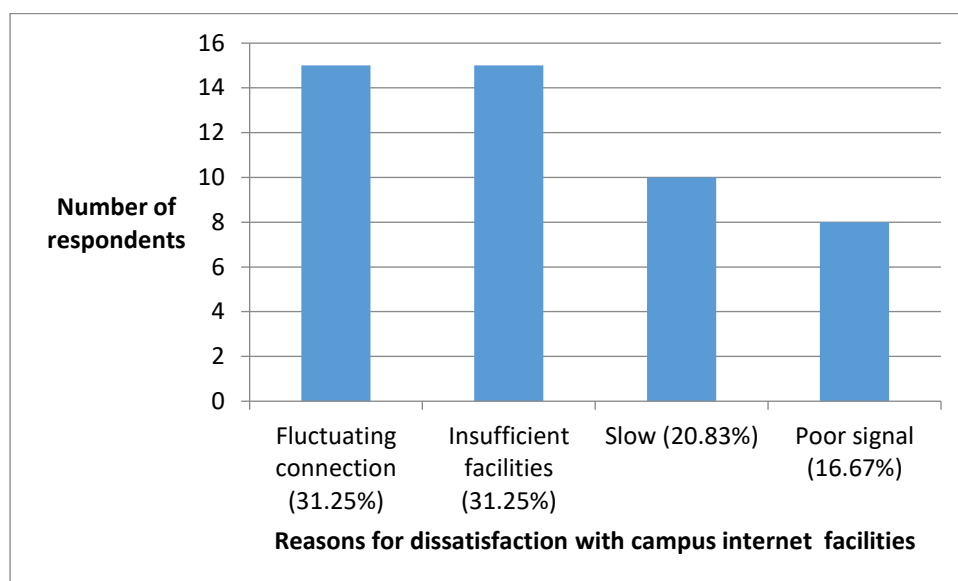
Respondents were then asked to explain their specific dissatisfaction, but a few of those satisfied with the facilities gave unsolicited responses as bulleted below:

- Two respondents indicated the existence of Wi-Fi as being a bonus.
- Four respondents said the internet was adequate at all times as it is readily available, and there is easy access to computer labs.

Reliable internet connection is crucial to accessing online resources such as OA databases. This question was asked to find details as to why they expressed dissatisfaction with the campus internet facilities. Reasons for dissatisfaction with internet facilities were almost in exact contrast with those given for satisfaction. The responses were coded and categorized into four broad categories. Below, four categories are tabulated and some of the verbatim responses from the researchers are listed.



**Table 4.6 Reasons for dissatisfaction with internet facilities**



Fluctuating connection for internet access tallied with insufficient facilities (31; 25% each) as the major reasons for dissatisfaction with the internet facilities available. Asked to elaborate respondents noted such challenges as inability to have regular access to Wi-Fi as a major hindrance to their online research activities. The laboratories do not accommodate everyone thus there are session restrictions which impede unrestricted search time on the part of the researchers. Researchers who noted the slow connection speed (20; 83%) highlighted that this slowed down the ‘pace for the schedule of the work’ resulting in frustrations when the researchers do not manage to complete their downloads on time, with operations timing out on occasion. The strength of the Wi-Fi signal (16; 67%) is another hurdle noted by the researchers who indicated that particularly within the residences, the signal is very weak and is sometimes not available.

One respondent said he/she was ‘partially’ satisfied. That sums up the level of confidence that researchers seem to have with the ICT infrastructure at the university. Although the infrastructure is there, service provision is not reliable or consistent as Wi-Fi is not always available. When there is a signal it is not always strong enough to enable sufficient connection. And when connection is managed it doesn’t always last

long, and times out. So the theoretical ideal is there, but it is yet to manifest itself in practical terms. The computer labs are there, and there are designated postgraduate laboratories, but they are still not sufficient for the entire postgraduate population.

#### **4.3.4 Determinants of academic information source choice**

In the selection of information resources, different criteria are used by researchers. The respondents were thus asked to indicate which criteria were important to them. Their responses are shown in Table 4.7 below.

**Table 4.7 Determinants of academic information source choice (N = 96)**

<b>Criteria for selection</b>	<b>Frequency</b>	<b>Percentage</b>
Accessibility	51	53
Relevance	47	49
Reliability	40	42
Availability	31	32
Currency	14	14
Authoritativeness	6	6
Accuracy	2	2
Scholarly review	1	1

When asked what criteria they used to determine their selection of a source, it was clear from the responses that authoritativeness did not rate very highly in determining the use of a resource (6%). The selection was not limited to one criterion per individual, with some selecting two or three criteria for the resources they use. Respondents added scholarly review and accuracy to the options provided in the space for 'other' determinants of information source selection. Only three respondents added the further criteria of accuracy (2%) and scholarly review (1%).

### 4.3.5 Familiarity with OA resources

Given the possibility that researchers might be making use of OA resources, but not be necessarily aware of the appropriate technical term, a description of scholarly OA resources was provided. Nonetheless, it was still important to determine respondents' familiarity with OA. The responses obtained are presented in Table 4.8 below.

**Table 4.8 Familiarity with scholarly open access resources (N=96)**

	Familiar with OA		Not Familiar with OA	
	Frequency	%	Frequency	%
Total	46	48	50	52

Asked about their familiarity with the concept of OA databases, 50 (52%) respondents indicated that they were not familiar with such databases, and the remaining 46 (48%) were familiar with them.

### 4.4. Responses from researchers who were not familiar with OA

This section reports the findings of questions posed to those who indicated a lack of knowledge of OA. Among other issues the questions sought to determine whether the researchers were intrigued enough by the research questions to ponder using OA in future. Questions also sought to establish who is considered to be the most influential in advising on use of resources so that when the university plans its intervention strategies it will be easier to identify which avenue would be most advantageous. These responses are provided according to the researcher strata in an effort to determine whether this had any relevance on knowledge. The responses are tabulated below:

**Table 4.9 Respondents unfamiliar with scholarly OA databases (N=50)**

Respondents category	Frequency	%
Academic staff	9	18
PhD candidates	4	8
Master's students	19	38
Honours students	18	36
<b>Totals</b>	<b>50</b>	<b>100</b>

Table 4.9 above presents findings on the levels of familiarity with OA. Eighteen (36%) Honours and 19 (38%) Master's students make up the majority of those not aware of OA. This could be because they are still relatively new to research and are as yet not yet conversant with all the available resources.

#### 4.4.1 Future use of OA databases

Respondents were asked whether they would be using OA sources in the future in order to assess whether the explanation of OA made sense to them, and identify what possible prejudices might be attached to OA databases.

**Figure 4.5. Future use of OA resources by category of researcher (N=50)**

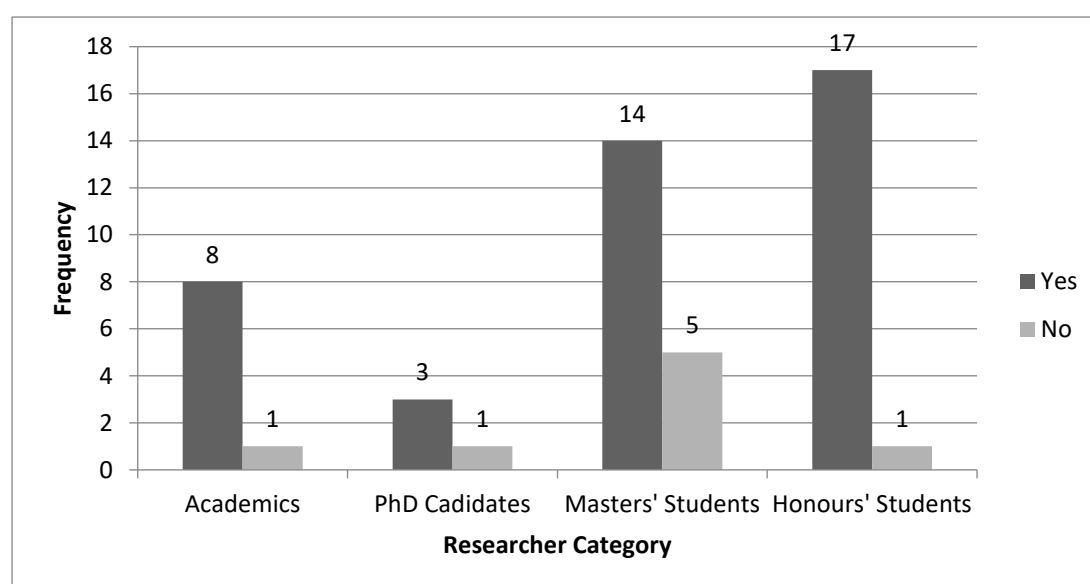


Figure 4.5 above shows that out of the 50 (100%) respondents who were not aware of what OA databases were before participating in the study, 42 (84%) were henceforth going to actively seek out and make use of OA databases. Interestingly, eight (16%) still remained adamant that they were not prepared to introduce OA databases into their reservoir of information sources. Those researchers who did not feel that they needed to use OA resources insisted that they were satisfied with the way that they currently accessed information. In all instances, there were many more researchers in favour of using OA than against. Of note is that slightly more Master's students (five compared to one each at the other levels) indicated they would not make use of OA databases. It is unclear why this is so for this specific group.

Additionally, respondents were asked to indicate what challenges they perceived would interfere in their making use of OA in the future. This question was asked in order to be able to assist policymakers to identify and remove obstacles hampering the future uptake of OA resource use. Six (12%) academic staff members indicated a willingness to start making use of OA material with the hope of adding to their lecture notes and planning for future article publishing, but the remaining two staff members did not give reasons for choosing to use it in future. One respondent in this group acknowledged that in principle it would be beneficial to use it; his only concern was the slow internet connection. The two responses received from the PhD researchers were short and succinct: the respondents indicated they were satisfied with the material available to them, and saw no need to try something new.

Seven (14%) Master's respondents provided challenges that might be met in making use of OA. These included lack of training, instructors and information relating to OA resources. One respondent indicated that 'It is not yet presented to us as postgraduate students, thus it is difficult to try something of that nature.' The consensus on challenges that OA might have were on the lack of knowledge that the respondents had, and there was an overwhelming indication that further training could enable them to make more informed choices, including whether or not to make use of OA databases.

Responses from the Honours students showed excitement in discovering these resources and most (9, 18%) respondents who completed this question were eager about using them in their research. The remaining four (8%) said they would like more information so as to be able to make a more informed choice.

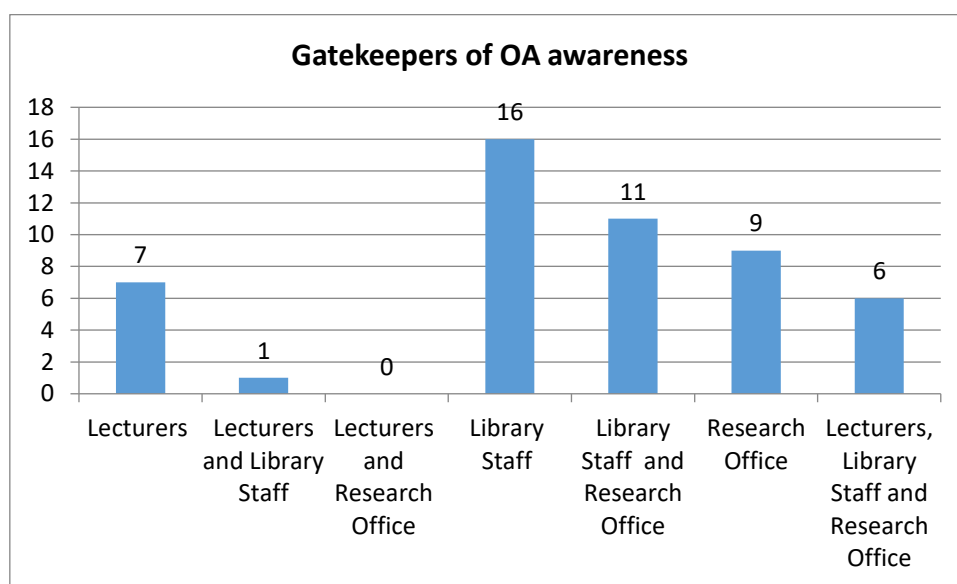
Positive responses to the possibility of using OA databases in future were inclined towards the observation that they provide an international platform with which to compare the research that is being produced by fellow researchers around the world. This observation was made by an Honours student.

Of particular interest to the respondents was the availability of dissertations through subject and institutional repositories that would enable researchers to benchmark their own output.

#### 4.4.2 Gatekeepers of OA awareness

The acceptance of the technology through which we get innovative ideas sometimes depends on who introduces the technology. In addition, access to information can be improved when avenues through which wider access can occur are identified. In this regard, an attempt was made to find out who the participants thought would be the most relevant/logical group to promote OA at the University of Zululand. The responses are presented in Figure 4.6 below.

**Figure 4.6 Gatekeepers of OA awareness (N =50)**



As revealed in Figure 4.6, respondents assigned the responsibility for OA awareness to specific units or individuals, but also felt it should be a combined effort. Library staff (16, 32%) were deemed to have the sole responsibility for educating researchers on OA and OA usage. This was followed by those who felt that the responsibility should be shared by both library staff and the research staff (11, 22%). The Research Office' alone had nine (18%) respondents indicating it should be specifically responsible for

OA awareness, with lecturers alone being placed in the forefront by seven (14%) respondents. The combination of lecturers, library staff and Research Office' was cited by six (12%), and lecturers and library staff received four (2%) responses.

Some of the verbatim responses were:

- 'The library is where we get all the resources we use, and research is there to give us support in research materials we need.'
- 'We have easy access to our lecturers/supervisors.'
- 'Research Office should liaise with lecturers and appeal to them to disseminate the information.'
- 'I say lecturers because these are the people we see and interact with on a daily basis, and they know which areas we should focus on as students.'

#### **4.4.3 Information resource preference**

Respondents were asked why they preferred particular information resources to others to ascertain what informed their information-seeking behaviour. This response can be used to design workshops by incorporating the most favoured.

Researchers' responses indicated in Table 4.10 below illustrate their resource preference, and their reasons for it.

**Table 4.10 Information resource preference (N=50)**

Information resource	Academics		PhD candidates		Master's students		Honours students		Totals		Not selected		Total Frequency (N=50)	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Electronic journals	6	12	3	6	7	14	9	18	33	66	17	34	50	100
Theses and dissertations	5	10	1	2	15	30	8	16	23	46	27	54	50	100
Books	4	8	1	2	10	20	8	16	23	46	27	54	50	100
General internet	4	8	1	2	9	18	8	16	20	40	30	60	50	100
Hardcopy journals	3	6	1	2	2	4	2	4	9	18	41	82	50	100



The academic staff members prefer electronic journals (6, 12%) to any of the other information resources, closely followed by theses and dissertations (5, 10%). However, the differences in preference are very slight, and this could be because the resources are used in combination. The PhD students also had minimal variations in their information resource choices. Three (6%) indicated that they prefer electronic journals, and the rest of the choices had single (2%) selections. The Master's students, with larger numbers of respondents, showed a definite preference for theses and dissertations above all other resources, with 15 (30%) indicating that they preferred this resource above others. The hardcopy journals are not very popular, receiving the least number of selections across all groups. The Honours students had relatively even selection across the selections except for the hardcopy journals, which were selected by two respondents in this group – a low number that corresponds across all research groups.

Researchers were asked to further explain their preferences, and gave the responses below. This question was asked to try to understand what drives a researcher to prefer one information source over another. Reasons for preferring specific information sources were the following:

#### **4.4.3.1 Electronic journals (e-journals)**

- 'Easily accessible and current and easily searchable.'
- 'Because you always get recent journals if you want them.'
- 'Relevant and updated, and they are also internationally recognized.'
- 'Currency.'
- 'Reliability/authoritativeness.'
- 'Cost, easily accessible. Current.'

#### **4.4.3.2 Theses and dissertations**

- 'To get enough information on work that is similar to my research.'
- 'Theses and dissertations contain what people have done. This helps when you are trying to improve what is in existence, i.e. innovation.'

#### **4.4.3.3 Books**

- 'Books are more reliable, and in terms of academic excellence they provide empirical information.'

- 'These are the materials I don't usually get through the net.'

#### **4.4.3.4 General internet**

- 'Fast, convenient and available.'
- 'Internet is widely available on campus; that makes it easier to obtain information.'

#### **4.4.3.5 Hardcopy (print) journals**

- 'Hardcopies are easy reads, and I prefer them. I also gravitate towards the general internet because of the accessibility of it and easy navigation. I type what I want and there it is.'
- 'I have access to the library, and they give us enough time to borrow books from the library. Electronic journals can be accessible via internet, although they might need me to sign in sometimes.'
- 'Books are available in the library, which makes it easy, and electronic journals don't waste paper through printing.'
- 'These are the materials I don't usually get through the net.'

#### **4.4.3.6 Challenges faced in accessing research material**

There are many challenges researchers (postgraduates and academics) face in conducting research. A common challenge relates to access. In acknowledgement of the difficulty of accessing research material respondents were asked to identify the challenges they face at the University of Zululand. Their responses are categorized below:

#### **No support from staff members – two responses**

- 'Sometimes you don't get help from the Research Office' and from the librarians.'
- 'In the University of Zululand library, the librarians are not helpful and the journals, theses and dissertations of all departments, are all over the library. They are not according to the department or even alphabetical.'

- **Lack of resources – six responses**
  - ‘Lack of computer lab/shortage of computers at the computer lab, and no printing facilities at our computer lab.’
  - ‘I don’t always find what I’m looking for – it requires a lot of my time searching rather than compiling my thesis. Going through mountains of information is exhausting and time-consuming.’
- **Accessibility – two responses**
  - ‘I do not have much of a challenge of access to research. It is just travelling there.’
  - ‘Some sites have some restrictions in downloading the research material.’
- **Outdated material – two responses**
  - ‘Outdated and irrelevant information.’
  - ‘Not having the accurate websites. Not having updated books.’
- **Lack of financial capital – three responses**
  - ‘Not having enough cash to print out some hard copy journals and all the work that I have to print since I have to provide myself with all material.’
  - ‘You find that the books within the school are either too old or too limited.’

#### **4.5 Responses from researchers aware of OA (N = 46)**

This section reports on the responses given by the researchers who said they are aware of OA. In instances where the lack of a response per category – for example, Honours – is insignificant, the totality of responses (academics, PhD, Master’s and Honours) is indicated.

##### **4.5.1 Background of OA awareness**

This question attempted to identify how the researchers came to be knowledgeable about OA. From the responses the university policymakers may better plan for OA awareness activities. The respondents that were aware of OA databases received

their knowledge from a variety of sources, so in the end it was difficult for them to single out a source as the point of introduction. Thus although some selected an individual source, the majority selected two or more sources. The findings are presented in Table 4.11 below

**Table 4.11 Source of OA awareness (N=46)**

Source of awareness	Frequency	Percentage
Articles	11	24
Colleagues	16	35
Conferences/workshops	16	35
Lectures	14	30
Library	22	48
Other	1	2

Respondents were given leave to select as many points of reference as possible. The library featured in the forefront of providing OA awareness/education with 22 (48%) responses. Colleagues, conferences and workshops had a frequency of 16 (35%) each. Lecturers were specified by 14 (30%), while articles accounted for 11 (24%) of the respondents. A single respondent said he/she had gained knowledge of OA through work activities as a librarian. Interestingly enough, the most frequent sources of OA awareness across all research groups was the library, followed by colleagues.

#### **4.5.2 Frequency of deliberate access to OA resources**

This question attempted to establish how often respondents deliberately accessed OA resources. Table 4.12 below presents the results.

**Table 4.12 Frequency of deliberate OA usage (N=46)**

<b>Sources creating awareness</b>	<b>Frequently</b>		<b>As needed</b>		<b>Rarely</b>		<b>Never, came across them by accident</b>	
	Freq	%	Freq	%	Freq	%	Freq	%
Academics	4	9	6	13	0	0	0	0
PhD Candidates	5	11	3	7	2	4	1	2
Master's' Students	8	17	4	9	1	2	0	0
Honours students	6	13	2	4	0	0	4	9
<b>Totals</b>	23	50	15	33	3	7	5	11

**KEY: Freq – frequency**

Table 4.12 above shows how researchers deliberately seek material that is OA for use in their research. Half of the respondents (23, 50%) frequently access OA resources. A further 15 (33%) access them as needed, three (7%) rarely access them, and one (2%) does so only by chance. Apart from the academic staff, the rest of the researcher population had the majority accessing OA resources quite regularly, but none to a minute number came across them by accident. From the data collected, a proportionately higher number of 'student researchers' deliberately make regular use of OA databases as compared to academics. Five (11%) researchers did not respond to this question.

#### **4.5.3 OA resources regularly made use of**

This question was posed to identify which OA resources were more attractive/useful to the researchers. This will assist in identifying which areas require more promotion, and the needs of researchers from a policymaking point of view. Table 4.13 below provides a breakdown of the responses according to the academic levels of the respondents.

**Table 4.13 OA resources regularly used (N=46)**

Academic level	ETDs		Online articles		Online journals		E- books		Online datasets		Online audio/ video	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Academics	6	13	6	13	6	13	2	4	-	-	1	2
PhD Candidates	5	11	7	115	9	20	2	4	4	9	1	2
Master's Students	5	11	8	17	10	22	3	7	1	2	2	4
Honours Students	1	2	6	13	6	13	4	9	0		1	2
Total	17	37	27	59	31	67	11	24	5	11	5	11

Key: Freq=Frequency

Academics prefer using ETDs, online articles and journals compared to books, datasets and online videos. In the selection of resources most regularly used, six (13%) academics selected theses, articles and journals respectively. For the PhD candidates, the most frequently accessed OA resources are online journals, with nine (20%) respondents selecting this option ahead of the others. The trend of preferring journals was also repeated by the Master's students: 10 (22%) Master's students selected this option. Honours students make use of online journals and articles more frequently than other sources. As Table 4.13 indicates, six (13%) selected these two respectively. Only one Honours student selected the electronic theses, suggesting (obviously) that the Honours students are not inclined towards downloading them. This could be because they are still in the initial stages of their research careers, and might not yet be in a position to appreciate what benefits previously compiled dissertations provide. As the focus group discussions will bring out, this is possibly because they are not widely aware of their existence and accessibility.

Owing to the varied study disciplines offered by the university, respondents were not asked to specifically identify OA databases by name. Rather, they were invited to indicate which OA resources they regularly made use of. There were no peculiarities among the various researcher groups, and as Table 4.13 clearly indicates, OA journals topped the list with 31 (67%) of respondents frequently searching for relevant articles within the OA journals appropriate to their research. Online articles had a frequency of 27 (59%), and the researcher suspects these could be articles sourced through search engines such as Google Scholar and Mamma, as these were indicated as sources of valuable information by researchers. Electronic theses and dissertations (ETDs) enable researchers, particularly those starting out in their different levels of study, to study what has been done before and the standards set by predecessors, and they act as a standard for comparison with other universities across the globe. Online books did not seem very popular with researchers as only 11 (24%) indicated they frequently used them as a reference resource. A challenge noted that discourages use of online books in particular is that it takes time to find exactly what you are looking for; thus because articles are shorter, they have a higher user rate. Online datasets and audio/video recordings each had frequencies of five (11%).

#### **4.5.4 Challenges faced in accessing OA resources**

The question of the challenges that researchers face in accessing OA resources was posed to better understand the limitations still governing access to these 'free resources'. Again, the responses were similar for all researchers – academics, PhDs, Master's and Honours students alike. The responses were categorized into themes as follows:

- Poor internet connectivity (14)
- Access to internet outside campus limited (7)
- Authority of information (2)
- Lack of search skills (3)
- No relevant material (6)
- No challenges (2)

Of particular interest is that only the Honours students raised the point of lack of search skills as a challenge. The rest of the other researchers did not indicate this in any form as a challenge to accessing OA resources.

Collectively, researchers indicated slow internet connection to be a major challenge in accessing most of the OA resources. This is exacerbated by the limited session periods in the labs. Another challenge that researchers face is that as they do not have adequate training in identifying and selecting relevant and authoritative sources, they tend to take too long to identify the sources suitable for their studies. Thus, before they can complete downloads, their sessions timeout. A challenge not directly linked to OA resources is that some researchers feel that the information they need is not available through so-called 'free channels'. Because of this prejudice, justified or not, they do not make frequent use of them.

#### **4.5.5 Minimization of challenges to OA resource access**

This question was posed in an effort to solicit potential solutions from the respondents as to how the challenges they face could be minimized. Forty-two (42) researchers responded to this question. In general, researchers expressed a need for more training, better internet facilities and more popularization of OA resources by university



officials. Researchers indicated that OA resources are not as easy to find as are the subscription databases. A request that filtered through from the researchers was for the need for the library to organize the available OA resources and “create such portals as they have done with subscription databases; usually I go to the directory of OA”. The issue of the internet connection also came up in comments with researchers indicating that the University imposed download limits yet the internet connection is not always strong enough to enable efficient downloading.

#### 4.5.6 Benefit of OA resources on research output

This question was asked to review whether the use and existence of OA resources had any impact on the researchers’ output. Below is a graph indicating responses by academic level. This is followed by the verbatim responses given by the groups.

**Figure 4.7 Benefits of OA on research (N=46)**

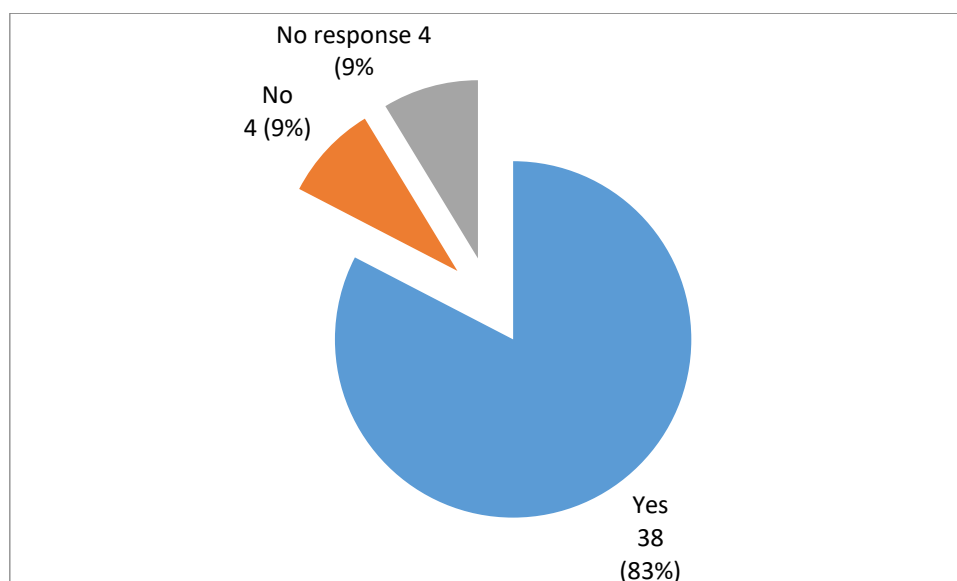


Figure 4.7 illustrates that the majority of OA users – 38 (83%) - had seen a clear benefit to their research. It is impossible to determine how the four (9%) who did not respond perceived any benefit, and another four (9%) had not seen any meaningful impact on their research.

Some of the more pertinent verbatim responses are listed below:

- 'I have access to the most recent works in my field. It offers me an opportunity to recast and see the new dimensions and growing divergence in my field of study.'
- 'I'm able to get information about my research, and OA (is) always available even though it is slow.'
- 'Well, I get to have access to relevant studies that have been done previously, which become referral work to me, and that is how science progresses.'
- 'Rather than wasting time searching in the library, time is saved.'
- 'It gives relevant data and provides validation on your findings as a researcher.'
- 'Information is obtained easily, especially in the literature review, and also it has assisted me to find articles that are relevant to my research.'
- 'The limited articles that I have read have pushed my research to new heights.'

From the responses given, it is evident that generally, OA has improved the breadth of resources available, and it has also assisted in enhancing the level and depth of research produced. It is to be noted that there are still some respondents who have not felt the impact of OA on their research, as the highly regarded journals in their disciplines are not OA.

#### **4.5.7 Favoured aspects of OA resources**

The more a resource performs in fulfilling a particular need the more appreciable it becomes. Information resources can be available in abundance, but if they are not easily accessible or relevant to a study, they are as good as non-existent. Participants in the study highlighted the following as to why they enjoy using OA databases:

- 'Accessibility of information, regardless of location of researcher.'
- 'The services are free, obviously!'

The majority of the responses indicate that researchers appreciate the fact that OA provides free and limitless access to relevant, current, topical research being produced by some of the world's leading scientists. The only challenge is in identifying the relevant resource. Some of the more detailed responses are below:

- 'It has different databases, and spoils researchers with a lot of choice from which to select.'
- 'To me personally it's the simplicity of the OA resources and the fact that these databases actually have the latest literature which makes them efficient.'
- 'It is free, and it's a bit faster to publish in OA journals because of response time from reviewers.'
- 'Free and easy to reach international research and academic communications.'

#### **4.5.8 Perceptions on the quality of OA databases**

This question was posed to identify how researchers compared the quality of OA databases with the subscription databases. Perceptions assist in determining strategies to overcome prejudices, if any, and this is what would partially determine how awareness activities (if there was going to be need for any) would be structured. Again, it was difficult to distinguish responses that were unique to a particular stratum of the population under study. Perception is an individual thing, and has nothing to do with levels of study, and this was noted in the responses that came from across all strata. Not everyone had the same opinion, and yet they were similar to each other, with the result that it would be repetitive to analyse the various groups separately.

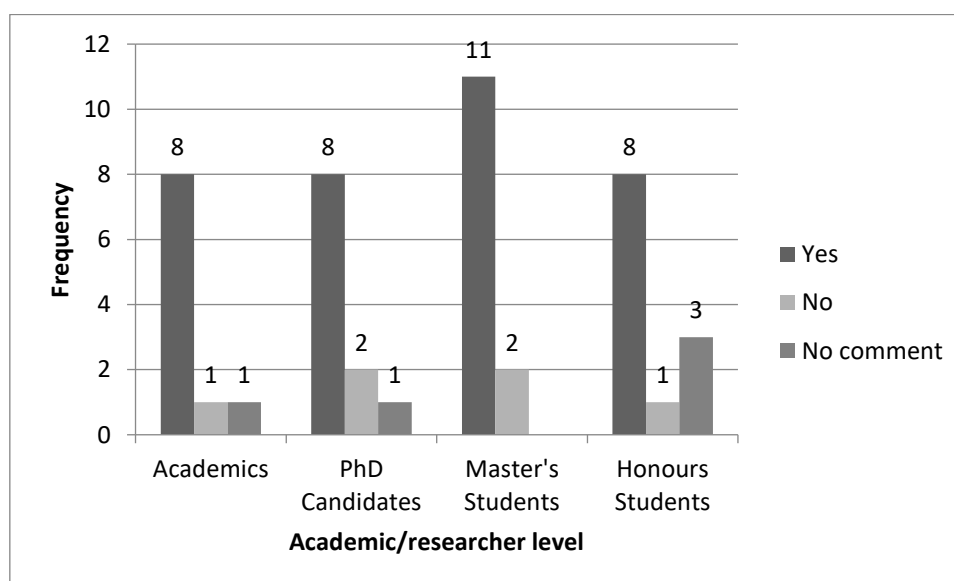
Respondents generally consider OA databases to be of good quality, with an overall 28 (61%) of researchers indicating this. These respondents indicated that there are OA resources that are of internationally competitive standards. This is in contrast to seven (15%) who do not believe that OA resources are of good quality. However, because there is always room for improvement, they are hopeful that this will be remedied in the near future. Four (9%) respondents were unclear whether the two resources – subscription and open access databases – can be successfully compared. A fair response was given by a researcher who noted that the quality depends on the particular database, as databases cannot all be painted with one brush. A respondent said, 'For scientific research most of the OA databases are outdated or not relevant.' This is perhaps in reference to databases following the green open access route that can place embargoes for up to a year on a publication before permitting the author to self-archive in an institutional or personal repository. Other selected comments are as follows:

- 'The ratings are low as quality research is being submitted to databases that pay for the work done.'
- 'They are helpful in the sense that we can now access bundles of articles.'
- 'I never really compared the quality of proprietary versus OA databases before.'
- 'OA databases are obviously not the best, but it is functional but there's always room for improvement.'
- 'OA databases are reliable and trustworthy and therefore the quality is okay.'
- 'I believe, although there is always room for improvement.'

#### 4.5.9 Submitting work to OA publications

To assess the extent to which researchers have adopted OA, they were asked whether they would consider submitting their work to an OA publication. Figure 4.6 below presents the responses according to the different researcher category to compare responses according to their different academic commitments.

**Figure 4.8 Publishing in an OA journal (N=46)**



The majority of respondents (35; 76%) showed a willingness to do so. Some had already previously published in one or other of them, and were going to continue to do so. The highlight of publishing in an OA environment is the opportunity to reach a wide audience. The challenge with a subscription-based publication is that only the subscribers have access to content. These researchers said that as long as the impact of the journal was reasonable, they would definitely continue to do so. Those yet to publish also highlighted the importance of the journal's impact. At the same time, the idea that other researchers could benefit from their research findings, just as they had benefited from OA material, was a major factor in making them consider such a future publishing route. Figure 4.8 provides a stratified illustration of the responses given per group. A total of five (11%) questionnaires had no comments on this section.

As is evident from the responses, most users of OA databases are prepared to also make their own work OA. However, for the academics in particular, this will be determined by the impact factor of the journal – a very important consideration in academic circles, as the higher impact journals tend to guarantee that your work will be cited. After all, that is how the impact factor is calculated. Eight (17; 39%) of the academics would consider publishing in an open access publication, one would not consider doing so, and another did not respond.

The PhD candidates had similar statistics. Eight (17%) would consider making their work open access, but two (4%) would not consider doing so, and one did not respond. The Master's students had a bit more representation, with 11 (24%) interested in submitting their work to an OA archive or journal, and a mere two (4%) having no plans to do so at any time in the near future. Similar statistics prevail for the Honours students with eight (17%) eager to have their work freely accessible, one (2%) not interested and three (7%) not responding to the question. Those who would not consider publishing in an OA publication proffered the following as reasons:

- 'Impact factor is minimal here.'
- 'The material used to compile reports, the majority of it, is obtained from subscribed databases, thus to add value to the reports and to get your money's

worth, it has to be published in subscription restricted journals; research rating also matters.'

- 'Not ready yet.'
- 'Well, honestly, not really, because I am aware of the fact that not many are aware of OA resources, and the point of publishing is having people read your work, and OA wouldn't be the best choice.'

#### 4.5.10 Possession of skills to make maximum use of OA resources

Without the necessary skills it is difficult to make use of something, and this question was asked in an effort to assess the skills levels of the respondents.

**Table 4.14 Self-perceived possession of skills to use OA resources (N=46)**

Academic Status	Yes		No		No response	
	Frequency	%	Frequency	%	Frequency	%
Academics	7	15	2	4	2	2
PhD candidates	8	17	2	4	1	2
Master's students	8	17	5	11	0	0
Honours students	3	7	6	13	3	7
Totals	26	57	15		5	

One distinct range of data that popped up is that while the Master's, PhD and academics had the majority affirming that they believed they had the necessary skills, only a third of the Honours students felt they did. The assumption would be, then, that as one climbs the research ladder, they develop and sharpen their skills – skills not necessarily present at the research career path entry level. There was a mixed response to the request to analyse skills that respondents had in making maximum use of OA resources. 26 (57%) respondents were satisfied with their proficiency in making full use of OA resources. 15 (33%) would like to have further training on accessing, evaluating and using OA resources, and the remaining 5 (11%) did not respond to this question. The respondents were asked to indicate what challenges and opportunities they saw in OA resource use in relation to their skills, and responses are provided below.

The majority of the academics, PhD candidates and Master's students, at seven (15%), eight (17%) and eight (17%) respectively, considered themselves to have the requisite skills to be able to manoeuvre in the use of OA resources. However, the Honours students' responses were in direct contrast with the majority, six (13%), compared to three (7%), acknowledging that they did not have enough skills to be able to maximize on use of OA resources.

#### **4.5.11 Opportunities and challenges to OA resource use**

As with those who were not aware of OA, the question was posed to identify opportunities and challenges facing the researchers in maximizing on availability of OA resources.

The opportunities listed included:

- 'Data is accessible, easy contact with and marketability to the world. Challenges: some data unprintable due to programme requirements that are not available.'
- 'Most of us have learned to access these OA resources by ourselves, and may not have understood fundamental considerations.'
- 'Postgraduates should be given an orientation course the moment they are registered as students.'
- 'I do have experience in using such resources, but the paid ones; not using OA is nothing more than simply not choosing to do so.'
- 'One must be computer literate, one must be linguistically gifted to read, synthesize and evaluate work to avoid plagiarism.'

From the opportunities identified, and the requisite suggestions to make use of these opportunities, it is evident that there is a lot that still needs to be done by university officials to assist researchers. Only a few challenges were mentioned, and these are listed below:

- 'I feel there is a lot to learn. I as an individual can operate OA resources, but a majority of people can't, which goes back to teaching people about OA resources at an earlier stage of their studies.'
- 'I don't have the skills required for me to use OA resources to maximum use.'
- 'Lack of orientation.'

#### 4.5.12 Promotion of OA databases at the University of Zululand'

This question was posed in an attempt to get the sense of what the researchers believe to be happening in terms of the promotion of OA information resources. The different research strata were used to analyse responses so as to determine whether or not strategies differ according to level of academic status.

**Table 4.15 Researchers' contentment with the University of Zululand's promotion of OA (N=46)**

Academic Level	Yes		No		No response	
	Frequency	%	Frequency	%	Frequency	%
Academics	3	7	5	11	2	4
PhD Candidates	6	13	5	11	-	
Master's candidates	4	9	8	17	1	
Honours Students	2	4	6	13	4	9
Totals	15	33	24	52	7	15

The question posed to researchers attempted to establish their views on whether the university is adequately promoting OA. Suffice to say, as Table 4.15 illustrates, most respondents (52%) are not content with current promotional activities run by the university. The responses given by the researchers indicated a general feeling that the university was not doing enough to promote OA as 'there are no workshops on this', and therefore 'most students are unaware of such databases.' One respondent claimed to have 'heard about it by chance from a library staff member.'



These responses were separated according to strata to analyse whether the University had different approaches to promoting OA resources according to researcher level. The following comments were received from the individual groups:

#### **4.5.12.1 Academics' views on current OA promotional activities**

- 'No workshops on this.'
- 'Most students are unaware of such databases.'
- 'There should be frequent calls for workshops or departmental workshops to promote the use of OA by students.'
- 'The library has tried several times to promote them via university channels.'

The academics' responses show that they are aware of the efforts of the university, through the university library, to promote use of OA material, but curiously, the reference to their usage is directed at the students and not at themselves as perpetual researchers. This suggests that academics might not consider that this study was relevant to them, but that these resources are for up-and-coming students.

#### **4.5.12.2 PhD candidates' views on current OA promotional activities**

- 'No workshop, no orientation, especially for postgraduates.'
- 'Not really, because I've only heard about very few from the university, and most of the OA databases are not SAPSE accredited.'
- 'I haven't heard of many students getting benefit from OA resources.'
- 'Not in the scientific domain, though not sure about other fields.'
- 'Yes the University is promoting OA, but not satisfactorily; probably some initiatives have to be taken care of.'

The PhD candidates were not convinced that the university was adequately promoting OA resources. The responses suggest that the view of this group is that the university has poor infrastructure to begin with, and that even those resources that it has made available are inadequate.

#### **4.5.12.3 Master's students views on current OA promotional activities**

- 'They need to do more.'

- ‘Yes, a lot of workshops and explanation have been conducted, not only for postgraduates but also the undergraduates to make sure people are exposed and know how to use it.’
- ‘Only postgraduate students, and few of them, are exposed to OA. This should also be introduced to all undergraduates.’
- ‘Information is not distributed.’
- ‘There are no workshops to promote it for postgraduates.’
- ‘I might be ignorant about this, but how many other initiatives do they do to inform students about OA besides the orientation? There’s your answer there.’

The Master’s students did not sound very positive about the initiatives already put in place by the university.

#### **4.5.12.4 Honours students’ views on current OA promotional activities**

- ‘I heard about it by chance from a library staff member.’
- ‘Most of the students only hear of it when they are either doing their final year project or the Honours research project.’
- ‘They don’t provide those programmes that orient the researcher on how to access OA.’
- ‘I only found out about OA this year. Nobody told me about it while I was still an undergraduate.’

As the responses above indicate, there was a variety of opinions. On the one hand, some felt that only postgraduates had access to training in OA, and this was unfair for undergraduates. On the other hand, other postgraduates felt that there were no training programmes tailored for them to enable them to become more aware of the resources they could access on their own. Perhaps researchers are not really aware of the initiatives that the university has in place, and this needs to be changed.

As the myriad responses reflect, not every individual on the same academic level has the same view of promotional activities taking place at the university. The responses generally tend towards the belief that nothing is being done, and that knowledge of OA

happens by chance discussion with other individuals; and yet some acknowledge that promotional activities are indeed taking place, though these could be increased and be more vigorous in their approach. Honest answers of 'I don't know' also indicate a general inattention to what is taking place around the university, suggesting that the university might need to explore several media channels to reach out to all students.

#### **4.5.13 Future promotional activities that can be undertaken at the University of Zululand**

The respondents were requested to provide suggestions of what activities the university can engage in that would effectively promote access. All respondents said that more awareness of OA was needed through dissemination of information by the Research Office, the library and the lecturers. Diverse suggestions were made, with many of the respondents indicating that the responsibility should lie first with the library, and then with the Research Office and lecturers. A trend in the responses indicates that there is a general feeling that not enough orientation and workshops are being provided at the onset of registration. There was a suggestion that these should be made compulsory so that all researchers become proficient in all aspects of information searching and retrieval. The onus on lecturers is that they should take an active interest in the variety of references cited by students in their assignments and papers. They should encourage reference to at least one OA article, and promote the use of the internet as a resource. Advertisement on billboards, and handouts in frequently accessible areas like the library and the labs were also cited as opportunities for promotion.

#### **4.5.14 Comments on issues raised**

Respondents were given an opportunity to add to issues raised in case the researcher had missed out on asking pertinent questions. Of the 46 respondents, 16 (34.78%) made comments indicating their experiences and challenges at the university. Amongst these comments were:

- 'Increase internet accessibility. We need access to the internet anytime and anywhere on campus so that we are able to increase research production.'
- 'The university must provide or promote programmes that will orient postgraduate students to be able to access OA databases.'
- 'More workshops and accessibility details on information boards.'

- ‘Let there be classes for non-degree purposes for online-accessed information for first-year students’ right through to postgraduates. Issue attendance certificates at the end of the sessions.’
- ‘No comment other than to reiterate the critical role that the library must play.’
- ‘Lecturers should make it a point to make sure students are well aware of OA resources and how to access and use them.’

It is evident that the researchers have different opinions, yet they all boil down to one thing: at the end of the day they would all like to see the university prosper academically, and would like it to address shortcomings in infrastructure and skills. It is crucial that all stakeholders – staff and students – be effectively equipped for this transformation to take place.

#### **4.6 Summary of questionnaire responses**

This section presented the results from questionnaires distributed to the researchers at the University of Zululand. It appears that researchers are not sufficiently aware of OA databases/resources to be able to maximize their use in their research endeavours. As revealed by the responses, there seems to be an indication that the university’s internet capacity is not up to standard, and this has severely affected the manner in which research is conducted. Students continue to need further training, and perhaps the voice of the lecturers in particular needs to be added in assisting students to become aware of the activities that will strengthen their research skills.

It was interesting to note that lecturers have not embraced new technologies for research, and surprising that there was doubt over the quality of OA resources available. This suggests that there is still need for further programmes to enlighten researchers about the ever-expanding information landscape. They are not exploring OA options or even simply asking the librarians, who have the greatest responsibility to promote this knowledge, for further information on resources available – not just at the University of Zululand, but also globally through the World Wide Web. Further findings will be discussed in Chapter 5.

## SECTION B: FOCUS GROUP RESULTS

### 4.7 Introduction

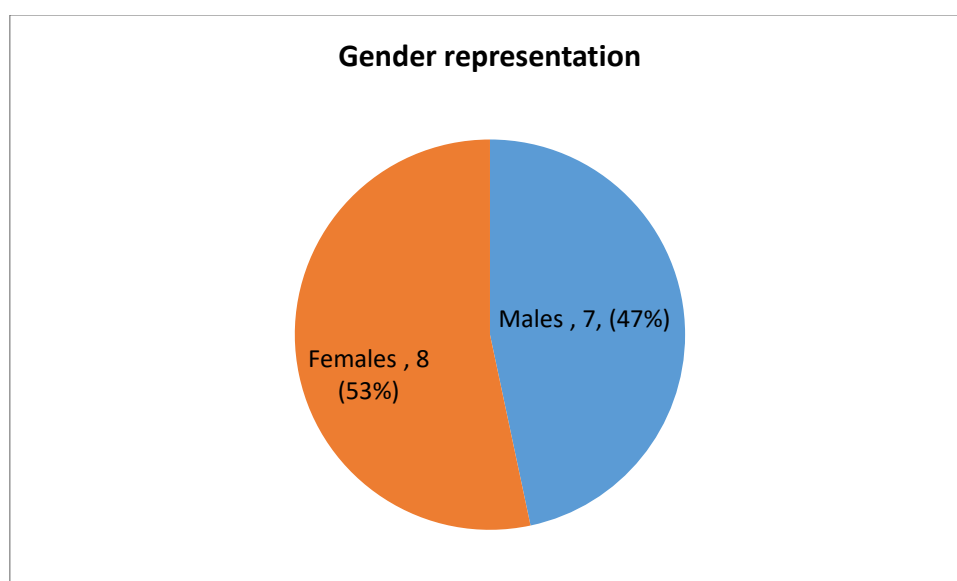
This section presents and analyses the responses from the focus group discussions. For this section of the chapter, the total number of participants (N) is 15. However, these were general discussions, and although they were recorded, in the analysis it was not always easy to attribute responses to specific individuals who participated in the discussions.

Three focus groups, conveniently sampled, were conducted in an effort to obtain not only more qualitative data, but also more insight into the phenomenon under study. The focus groups enabled the researchers to be able to talk freely, without time or 'page space' limit, about their knowledge of and experiences with OA databases and resources. Before the discussions began, participants were given consent forms to read and sign, and the research was explained to them once more, as was the definition of what OA is. This was to enable respondents to be able to answer with an educated mind rather than with presumption. In one case, a participant developed the researcher's definition even further by giving examples on his personal laptop to the group. Participants were reminded that they were welcome to withdraw from the focus group at any time during the discussion.

#### 4.7.1 Demographic characteristics of focus group participants

The demographic characteristics of the researchers were collected using a form that all respondents completed before discussion (Appendix V).

**Figure 4.9 Focus group discussion gender distribution (N=15)**



The two genders were almost evenly represented, with eight females (53%) and seven (47%) males forming the total component of all who participated in the focus group discussions.

The focus groups were sampled after several invitations were met with zero attendance. Thus the departments were not well represented as the researcher approached people who were conveniently located close to each other. This tended to end up with over-representation of particular departments. For example, there is a disproportionately large group of students from the Recreation and Tourism Department (seven of the total of 15 participants).

**Table 4.16 Departmental affiliation – focus group participants (N=15)**

Department	Frequency
Computer Science	2 (13%)
Economics	1 (7%)
Business Management	3 (20%)
Information Studies	2 (13%)
Recreation and Tourism	7 (47%)

**Table 4.17 Academic status of focus group participants (N=15)**

Academic Level	Targeted Sample	Actual Respondents	% of targeted stratified sample	% of total respondents
Academic staff	6	2	33	13
PhD candidates	6	3	50	20
Master's students	6	2	33	13
Honours students	8	8	100	53
<b>Totals</b>	<b>26</b>	<b>15</b>	<b>58%</b>	<b>100%</b>

In this section of analysis, responses are not distinguishable by level of study as an attempt was made for participants to be as ignorant of each other's academic status as possible. Participants filled out the information sheets before the sessions began, but were not given an opportunity to introduce themselves to each other in an effort to retain anonymity, and prevent undue influence being exerted by the more senior participants.

**Table 4.18 Focus Group One demographics**

Academic Level	Department		
	Computer Science	Business Management	Information Studies
Academics	1	1	0
PhD candidates	0	0	0
Master's students	0	1	1

**Table 4.19 Focus Group Two demographics**

Academic Level	Department		
	Economics	Business Management	Information Studies
Academics	0	0	1
PhD candidates	1	0	1
Master's students	0	1	0

**Table 4.20 Focus Group Three demographics**

Department	Research level	Frequency
Recreation and Tourism	Honours students	7

### 4.7.2 Awareness of OA databases/resources

The question was posed to assess the levels of awareness of OA resources and databases. This question was repeated in the focus group discussions so as to elicit more information than would have been possible for the questionnaire respondents to elaborate on in written form.

Researchers were mostly aware of the broader OA resources than of any specific databases. They were particularly conversant with the fact that electronic theses and dissertations had been made available to them by the university. Some participants gave their own definitions of what they understood OA databases to be.

In Focus Group One (FG1), which included two academics and two Master's students; a researcher acknowledged that he had heard of OA, but did not want to commit to positively

saying he could readily distinguish it from subscription databases, and that for his part, he was happy with the subscription databases that the university had access to. However, there were a few individuals in the same group who acknowledged that they were hearing of OA for the first time through the research that was being conducted.

Focus Group Two (FG2) was made up of Honours students, and though they were all from the same department, they had different levels of understanding. Initially, when approached to participate in a focus group discussion, they were reluctant, indicating they were not aware of anything much to do with electronic resources. When assured that prior knowledge was not necessary, lack of knowledge could also be used as a result, and the discussion would be anonymously recorded, they agreed to participate. As the discussion leader introduced the topic, explaining the terms in the process, the group's members murmured among themselves that they knew what was being referred to. What emerged was that they knew about UZSpace, and also that one can access scholarly material for free from Google Scholar.

Focus Group Three (FG3) was made up of two PhD students from the Departments of Information Science and Economics, an academic and a Master's student. The participants in this focus group, possibly by virtue of their study area, were conversant with OA resources and engaged in a lively discourse. Before the discussion had even got to asking participants to provide examples, they had already supplied examples of JSTOR, DOAJ and others.

#### **4.7.3 Development of awareness of OA databases**

The question was posed to respondents in an effort to identify successful ways of introducing OA to the wider university community. Participants in the three focus groups gave varying, but nonetheless similar, responses as to how they came to be aware of OA databases.

In FG1 an academic who had not been aware of OA before the research admitted his/her lack of knowledge beyond what had been discussed. Another academic in the same group explained that he had acquired his knowledge through manuscript solicitations after he had presented a paper at a conference. When he investigated further, the costs involved dissuaded him from submitting his manuscript to this hitherto unknown publication.



FG2 participants claimed to have had access to OA material as far back as high school, when they had to research for assignments. A participant said that back then, when they were not yet conversant with how the World Wide Web worked, they had assumed that because they were paying for the internet they were therefore paying for access to the material they downloaded.

FG3 participants mentioned that they gained their awareness from introductory courses to information technology that they had attended when they were new to tertiary education. The more established researchers indicated that they had been invited to publish in OA journals by the publishers themselves.

Only one researcher out of all three groups asked her fellow participants whether they had forgotten what they were taught during library orientation at the university. Other than that one instance, no one else had brought it up, which means for them, library orientation did not feature at all in how they came to be aware of OA resources.

One participant went as far as saying that the orientation programme did not go up to the level of even e-journal access; it was predominantly on how to use the library, use the online catalogue and borrow books. When asked, researchers from all groups concluded that they had not paid much attention to the orientation programme, and that they attended more as a show of attendance than with the expectation of learning.

#### **4.7.4 OA resources used and perceived academic value**

Researchers from all focus groups were not able to name any other databases specifically by name besides UZSpace, JSTOR (*Journal of Online Storage*) and the *Directory of Open Access Journals* (DOAJ). Their custom was to search for their resources using a search engine, and whatever they found freely available there (particularly in Google Scholar and Mamma) they regarded as OA. The academic value of OA resources was disputed by the participants.

A participant in FG1 said that as every journal claimed to be peer-reviewed it was best to stick with the older traditional publications. Participants who accessed OA material, however,

indicated that they were convinced that the quality was comparable to the subscription journals; with some researchers stating that some OA databases were of an even higher quality than the popular traditional journals.

In FG2 all participants showed an inclination towards OA resources, saying that while they might never have attempted to evaluate them they regarded them as being on a par with the subscription resources. As FG2 was made up of Honours students, perhaps they were viewing this through Utopian eyes without the so-called benefit of years of experience in the research arena.

In FG3, participants accepted that while there were predatory publishers, 'one only has to be alert and be able to evaluate sources so as to make appropriate judgement' on whether or not to use a resource.

#### **4.7.5 Views of University of Zululand strategies to promote OA awareness**

The most prominent strategy, as seen by the participants of all focus groups, was the training that the library provides during library orientation (bibliographical instruction). Participants from all focus groups were aware that even if one did not attend the regular training programmes there were still opportunities provided by the library for individual bookings.

Postgraduate researchers indicated that they usually attend workshops where they are taught how to access UZSpace and other resources. The participants (especially in FG2) reasoned that the method of library orientation should be changed so that there would be an incentive to learn, if possible in small groups and outside the normal lecture periods. If orientation was compulsory, then a lot more students would attend and come out the better for it. In FG2 one student went as far as saying that they only go to be registered as library users, otherwise they would 'not waste their time and effort as they heard nothing.

Participants in FG1 and FG3 (the academics in particular) considered that workshops were generally not well received. When the advertised workshop appeared to be too general in scope, the target audience was not inspired to register for attendance because the feeling was that there were no specific problems being addressed. A point raised was that when need for

training was identified by the researcher, it tended not to be in the direction of OA but rather in other directions more relevant to the researcher's most pressing need.

A participant also attested to the fact that lecturers are wary of OA journals, and would rather not have citations from them. The reason would seem to be that as they are 'free'; the lecturers do not see the value in them. Lecturers have a role to play as several focus group attendees had been introduced to OA resources through referencing training sessions in class.

#### **4.7.6 Background information on OA before using it**

Across the focus groups, none of the participants could say they had been sufficiently versed in OA resources before using it. Some were still not 100 per cent sure they had ever made use of OA resources. For the majority, expertise developed with frequency of access. As with any other innovation, practice makes perfect. The participants indicated that as undergraduates they were totally ignorant of the library's resources, to the point of not being aware that there was an extensive periodical collection. Reference was again made to the academic staff as having introduced some of the participants to UZSpace and other resources.

#### **4.7.7 Challenges and opportunities faced by researchers regarding use of OA resources**

Most of the participants acknowledged that while opportunities abound, the greatest stumbling block was the lack of knowledge around OA resources and publishing. The ability to be able to evaluate and discern which resources are authoritative and which are less so is something that needs to be taught. The consensus was that information librarians and library staff in general should guide people to develop an ability to evaluate resources.

One researcher admitted that he had never visited a site knowing it was OA, but, as he admitted, one can stumble on information without knowing its OA status. His philosophy was that if he saw that a resource was affordable and relevant to his studies, he would download and use it. The majority of participants access their resources by entering searches on Google, particularly the more specialized Google Scholar. However, the subscription resources are still more appealing because the researchers are presumably assured of the exhaustive peer review that took place before publishing. This is clearly another indication that there is not enough knowledge about the OA phenomenon. Researchers still prefer the traditional sources, which in Computer Science, for example, include lecture notes in Computer Science and IEEE publications.

The issue of internet access was reiterated as it was in the questionnaire responses. The researchers found that it was not easy to access internet on campus. On the one hand there is the challenge of the poor Wi-Fi signal, and on the other, for those without personal laptops and devices, the computer labs are always full, indicating insufficient facilities.

It was evident that OA resources do not as yet encompass all fields of study. As one participant said, 'Some resources don't contain the information that you want. The most relevant databases, that really address your issues, are either subscribed to by the university, or need subscriptions, and are not OA.'

Opportunities highlighted include the fact that you get more citations for your article if you publish it as an OA document. OA publishing promotes easy accessibility to current research, and apparently these resources are also easier to download than other ones. Another participant believed that through OA publishing you are able to 'publish a whole lot more articles, and a lot more frequently'.

Opportunities to promote the use of OA databases and resources abound at the University of Zululand, according to participants. The library should engage in aggressive marketing campaigns to educate on OA.

#### **4.7.8 Perceived major advantage of OA over other resources**

This was answered from both a theoretical and practical viewpoint. The theoretical viewpoint was succinctly voiced by one participant:

It is what they claim when they invite you to write...but one cannot verify that it will actually come to that. I think there are other respectable journals or other respectable paths of publication that people do use. And also a greater part of academics mainly care about the impact and not the advantage that the paper will have if it receives more citations. If possibly promotions within the academic setup were done on the basis of how many citations you have, and not how many publications you have, probably people would have put value into that, but it's usually the number of DHET-accredited journal publications. If students had published a paper, then whenever examiners are considering marking the theses they can consider how many citations any article which

came out of the dissertation had. Then possibly people would be encouraged to rethink publishing avenues. As it stands it is more about publishing in DHET (Department of Higher Education and Training)-accredited publications with high impact than on the number of citations an article has.

All the other participants from all three groups highlighted the speed with which they are able to access OA resources. The advantage of being able to access them at home has made OA resources a very attractive option for researchers. A point to note that was also discussed was that unlike the library, which adheres to particular opening hours, OA resources are available wherever and whenever. Thus because research becomes a twenty-four hour process rather than limited to set opening and closing hours, it thrives better in an OA environment.

#### **4.7.9 Most preferred academic information resource**

Researchers had a variety of responses to this question, similar to the responses given in the questionnaires. Some of the verbatim responses include the following:

- 'Journals, as most of them are accredited. They are better than using other sources as they are more current.'
- 'With computer science it's a bit different. It depends on the stage at which your research is. Usually journal publications take a long time to be available, and computer science changes very fast. Current research trends are available from conferences and conference proceedings. Some conferences have a higher impact than even some journals.'
- 'Books and theses. There is nothing wrong with journals, but I am used to these because I only got used to journals this year when I was introduced to them.'
- 'Theses, because you know the style of writing the assignments is different from other departments. So when we are using theses from our departments we get to know how to write our assignments.'
- 'Books and electronic journals, because they are easy to use. We are not sure how to find print journals as they are haphazardly arranged.'

#### **4.7.10 Publishing of work in an OA journal**

The more experienced researchers (academics) have on occasion received invitations to publish in OA publications, but were not considering publishing in them as there are a lot of

predatory publishers that do not undertake stringent peer-review. So you get substandard work being published. This assumption that no OA journals are peer-reviewed or accredited by the DHET (whether it is true or false) plays a role in preventing researchers from publishing via this route. This is compounded by the fact that the university promotes DHET-accredited publications as it gets a subsidy for each publication. From the researchers' point of view, with OA you can publish, but will not get anything in return as the university will not pay any money to register a paper with a publication that is not accredited.

The junior researchers unanimously indicated their intention to publish in OA publications in the near future. They indicated that they would want to benefit other students as they themselves have benefited from OA resources. Financial considerations were seen to be not as beneficial to research as a whole as the dissemination of information. The conclusion from the younger researchers across the board was that because they could never have been able to afford to purchase access to the material they currently download, they would not in future expect others to be disadvantaged.

#### **4.8 Summary of focus group discussions**

These discussions discussed the origin of the participants' knowledge of OA, and how this knowledge and awareness had assisted in their research. The discussions largely centred on how the participants perceived OA, and how the prevailing ICT infrastructure at the University of Zululand was fitting into its role as a gateway to information. The discussion delved into the participants' experiences with OA publishing, while dealing with the current challenges and the future opportunities presented by this growing selection of resources.

The focus group discussions served to confirm and enhance responses received from the questionnaires. The participants were deliberately selected from researchers who had not participated in the questionnaire survey, yet the responses were similar. The advantage of holding the focus groups was the opportunity to interact with the participants, and for both parties (participants and discussion leader) to clarify points raised.

## **SECTION C: INTERVIEW RESULTS WITH INFORMATION LIBRARIANS**

### **4.9 Introduction**

Information librarians at the University of Zululand are tasked with training students in the better use of facilities. They provide bibliographical instruction on a set programme at the beginning of the year to newly registered students, and then on an ad hoc basis throughout the rest of the academic year. The university had four information librarians while this study was carried out. The fourth information librarian was on leave throughout the course of the data collection period, thus only the other three librarians were interviewed. As the responses from the information librarians were not much different, it was reasoned that the fourth librarian was unlikely to render a different picture; thus there was no follow-up beyond the investigation period.

For the purposes of this section responses will be coded Respondent 1, 2 or 3 for responses that require verbatim record, and for any contrary statements amongst the staff tasked with OA awareness.

#### **4.9.1 Frequency of bibliographical instruction in use of e-resources to postgraduates and academic staff**

This question was posed in light of the fact that the survey questionnaire was collecting data on perceptions of what the university was doing regarding awareness activities. It was meant to be the control, and the responses from the researchers would be used to ascertain the points of view of the library users.

The librarians indicated that bibliographical instruction for undergraduates is generally undertaken during the beginning of the academic year, and is mainly targeted at undergraduate students. For postgraduates and staff, there is no set period for them to attend. What the library does do, however, is to provide training as requested, and depending on the structure of the researchers' work. So it is really done at the convenience of the researchers. The library also hosts training workshops on how the researchers can make more efficient use of what the library has to offer from the physical books right up to the electronic resources and

institutional repository. The library workshops also cover how researchers are expected to conduct their research, avoid plagiarism, and use TURNITIN.

The frequency of the workshops is determined by the bookings the library receives. The demand is also dependent on the time of year, and on what the supervisors' requirements are. Some sessions are individual, others are group sessions (usually booked by the lecturers concerned), and can number from as few as three or four per month to as many as three classes per week with 15 to 25 attendees at peak times.

Asked whether there was a set programme for postgraduates to come for bibliographical instruction when they first registered, Respondent 1 indicated that it is difficult to organize as postgraduates come for registration at different periods of their registration window period. Respondent 2, however, said that some lecturers will encourage newly registered Master's students, for example, to promptly attend library training, and others will book a session for a group of their postgraduate students so that they can have a session on, for example, accessing electronic resources and using referencing software.

New academics joining the institution do not have a set orientation programme, and their coming to the library for instruction is purely at the discretion of the Head of Department. What the library has then done to try and make its presence known is to promote or market its services during Faculty Board meetings.

#### **4.9.2 Monitoring of participation in bibliographical instruction programmes**

The interviewees were asked whether the library had any monitoring mechanisms to ensure that all new students and faculty attended bibliographical instruction. All respondents affirmed that participation is by choice for researchers. It is only mandatory for first-year undergraduates as they will not be able to have access to library services without having participated in an instruction session. It is termed 'user education', and is targeted at enabling them to make the transition into academic life. The postgraduates are viewed as having at least four to five years in an academic environment, and thus should have an idea how to access resources in an academic setting. So while they cannot be forced to attend, they are encouraged to make arrangements for instruction anytime during the year. It is only recently



that the library has started to consider making it mandatory; otherwise lecturers call, or the students themselves come and book workshops.

Respondent 3 said it should be mandatory as the postgraduate students who do not attend user education tend to face challenges when they are not able to distinguish between original research and plagiarism as all dissertations go through plagiarism checks. This is a crucial test of the authenticity of research, and when one is not aware of the implications of this and how to ensure one is not caught off-guard, it can end up breaking a research career.

Monitoring of attendance was previously not feasible as the postgraduate students do not congregate in the traditional manner of undergraduates who have regular and common courses. All respondents mentioned the introduction of a Research Commons that specifically caters to researchers from Master's level up to the academic staff. This has enabled the library to provide more focused marketing targeted towards the researchers. However, Respondent 1 indicated that they are yet to undertake a study on the effect of bibliographical instruction on the use of resources, but would probably begin to do so soon.

Respondent 2 noted that the library does not 'at the present moment have a tool'. She went on to indicate that while they do not measure how many come from a department, it would be a necessary future occurrence so that the library can move forward. Highlighted was the fact that usage statistics are collected, but they are not able to distinguish which level of study users are at.

The closest forms of monitoring are attendance registers and workshop evaluation forms at the end of the training. Questionnaires are provided to determine whether participants have understood and benefited from the training, and to evaluate the training technique. Participants are also encouraged to provide suggestions for future training activities.

#### **4.9.3 Promotion of OA databases to University of Zululand staff and students**

Asked what promotional activities are in place at the University of Zululand, the respondents were quick to provide details of what they engage in to bring about awareness of OA databases and such. This researcher can attest to having attended and benefited from some

of these activities. Predominantly, OA is introduced through the institutional repository – UZSpace. Academics are encouraged to register with forums such as ResearchGate to be able to interact with peers as well as post their papers and have access to papers from other researchers in their field. Respondent 2 added that the library also promotes continental and international institutional repositories as ‘you also get articles that are published from the theses and dissertations that are submitted, so we do market and run sessions on this.’

#### **4.9.4 Importance of marketing OA databases**

This question was added during the course of the interview with Respondent 3, and responses gave the personal points of view of the information librarians, and how they understood the benefits of OA.

*Respondent 3: It's important. Let me make an example of our institutional repository. It's our research and that's the first step or the first stop for the postgraduate student, because she or he will go to another institution to request something that we also have here. Rather than going to UKZN to look for something that we have, start here! The use of IR by other institutions or other countries also testifies to the fact that we do have information, rich information within our own repository. That's why we always market and we show them how other countries are using our research. Why would you go elsewhere when you have it here?*

The IR was highlighted once more as the first step towards OA awareness. The challenge is that students will ask for interlibrary loans for access to research results they could more easily acquire from their own institutional repository. It was highlighted that access to UZSpace from other countries worldwide testifies to the richness of the data within the IR. As mentioned before, the trend has been to encourage submissions of theses and dissertations, thus there are no articles as yet uploaded/archived.

#### **4.9.5 Opportunities for the promotion and use of OA databases at the University of Zululand**

Even though there are activities already entrenched in university culture, it was important to ask whether the librarians themselves could see further opportunities beyond what was

already in place. Respondents said that it is difficult to promote OA databases to individuals who still resist the use of electronic resources in general. Acceptance of electronic resources must begin with every individual before acceptance of OA can even be considered. The library, in their reflections, can only support, but as Respondent 1 put it,

*It also depends on the mindset of those who are doing the writing or the publishing of the papers; because if they accept to have their papers accessed freely online then it will be a success, but with the current atmosphere that I see here we might have some way to go to having content openly accessed because people are a bit more comfortable with how things are currently. And they don't seem to be interested in learning the new trends of sharing scholarly communication.*

The librarians can use platforms that the Research Office provides to promote their resources. One interviewee highlighted that the Research Office runs programmes that are geared at strengthening researchers' capabilities to do their research, and invites the library to give presentations of the services it offers.

Another sore point with all three respondents was the issue of the IR. The feeling is that it needs to be 'beefed up'. A suggestion was made that opportunity in adding value to the IR lies in the digitization of the archives of the University of Zululand that highlight where the university has come from, and what it has been producing throughout its existence.

- Respondent 1:

*We need to do something about our IR. It's not doing well yet so I think the opportunity will be in the IR. We need to beef it up. We need to make it better. We need to start some sort of digitization project in order for information to be available. We have some documents that are very, very, very, what can I say, the archives of Unizulu. They contain very valuable information; they can be useful throughout the world. So if we have a digitization project that would make that information openly accessible to other people.*

- Respondent 2:

*What I've noticed is that the only OA platform that we have here at the University of Zululand is the Institutional Repository. And with our IR, if my understanding is right, all we have in the database are theses and dissertations. But with some universities, like the University of Pretoria and UNISA, their lecturers also deposit papers, let's say papers presented at conferences, and other content, not necessarily just theses and dissertations, because the idea is just to promote research and to expose what has been studied. It would be good if our academic staff could do the same so that we don't just have student content. We also have stuff from the academic community.'*

- Respondent 3:

*I think through the use of the platforms that we get from the Research Office. You know the Research Office now runs programmes where we get to participate and make presentations of what we have in the library, including our OA; so that way we are promoting our access, our OA, and I hope it's going to make a change or an input towards the use of it.'*

#### **4.9.6 Challenges regarding the use of OA databases among the researchers**

It is easier to come up with a solution once a challenge has been identified. The respondents suggested that the major challenges seem to be a lack of knowledge and insufficient facilities. There are researchers who are not aware, or are unsure, of what OA entails. Then there is also the challenge that even among those that are knowledgeable about OA resources, the university facilities are just not enough. For those who do not own personal devices or laptops, there are no facilities for them to use within the library so as to access not just the OA resources, but subscription content as well.

Ignorance has resulted in some researchers not trusting OA content. The information librarians considered that some of the researchers, who are not fully conversant with OA, and even with electronic resources, believe that anything that is OA is junk. They would rather play it safe and use the subscription-based peer-reviewed journals, whereas there is also valuable

information in the OA journals (some of which are extensively peer-reviewed) that they do not trust.

#### **4.9.7 University policy on OA**

To get a sense of where the university stands on the issue of OA, the question was asked as to the existence of any OA policy document or manifesto that the university might be party to. None of the information librarians was aware of such a document. This is not to say that it does not exist. However, the university library does promote OA initiatives through its Institutional Repository, magazines from the Library Science Department, Open Access Week, and OA in general.

#### **4.9.8 Future of OA in academic research**

There was consensus among the respondents that the future of OA in academic research seems very promising. As the world is slowly going digital in all spheres, even researchers seem to be developing confidence in sharing their research output to market themselves, and enable their peers to get to know of them. Another factor in support of OA is the fact that researchers are able to self-archive and keep their own record for future use. The respondents see the challenge as coming from the publishers' perspectives as they are presumably likely to resent loss of substantial income. Respondent 3 voiced the fear of the unknown as being predominantly to blame for the slow uptake of OA initiatives. As she said, 'Once everybody understands OA and it is not an animal coming to bite them, but will actually increase their visibility as well...if they look at it from that point of view many researchers will be keen to publish OA.' The key, she emphasized, is to 'make people open access literate.'

#### **4.9.9 Comments arising from the interviews**

Respondents indicated that they would consider publishing in an OA publication as they are aware of the advantages of being able to access their own papers later. With traditional publishing, as they said, an author has to pay to get access to his paper at a later stage. So for the benefits of archiving, they would definitely seek the OA route.

Asked whether academics in particular were aware of this advantage of self-archiving, the librarians were doubtful as they regularly receive requests from researchers for copies of their own papers after they discover they now have to pay to access it. From the discussions it was evident that most academics do not make themselves fully conversant with the copyright privileges they give up when they sign publishing agreements. Fortunately for aspiring authors,

the library runs workshops on publishing, and they are made aware of the fact that ‘they can archive, but at what stage – at postprint or at preprint? And which institutions/publishers allow for that?’

Respondent 3 suggested that there was a need to have more workshops on OA that do not just focus on the IR as tends to be the case more often than not, but also includes the general aspects of OA publishing.

The respondents expressed a desire to see more content added to the IR. Current contents are predominantly theses and dissertations, whereas at other universities, such as the Universities of Pretoria and South Africa, content also includes conference presentations and more. As Respondent 1 concluded, ‘The idea is just to promote research and to expose what has been studied. It would be good if our academic staff could do the same so that we don’t just have student content. We also have stuff from the academic community.’

#### **4.10 Summary of Interviews**

The information librarians were interviewed to get the perspective of the stakeholders who are currently tasked with promoting OA. This was also a platform from which the librarians could inform the researcher about the strategies in place from a provider-payment point-of-view. The interviews clearly indicate that there is a challenge. While the library staff are aware and able to provide training on library information resources, it is not mandatory for anyone to attend these training sessions. This makes it difficult for them to fully disseminate and empower researchers to be able to research across a wide variety of relevant material. The interviews gave the researcher an opportunity to explore the platforms through which OA is promoted without getting preoccupied with any one case.

#### **4.11 Chapter Summary**

In this chapter, data collected from the various research instruments has been set out and outlined. These instruments were the questionnaire, focus group discussions and the interviews with the information librarians. From the evidence provided by the three research instruments, one can see that there is a pattern that indicates that awareness of OA is not at its maximum. Roger’s theory of diffusion highlights that an innovation can only be used once it has been promoted and accepted. The data collected from this research indicates that while some might be aware of OA sources, not all have accepted them as useful in research. This could be because the potential users have not been fully persuaded to embrace them, and reasons for this will be discussed in the following chapter. There is the very real fact that

people are wary of free things, yet they acknowledge that the easier and more seemingly reliable something is, the more they would rather cite and have their work presented in it.

The chapter has presented the data collected, the analysis and the interpretation thereof. It provides a platform for the results of the study to be seen as illustrations, while at the same time giving a detailed analysis of the results and interpreting the responses to provide a cohesive explanation of the data collected. Chapter 5 will comprehensively discuss the findings and link them with results from other studies.

## **CHAPTER FIVE**

### **DISCUSSIONS**

#### **5.1 Introduction**

The study's aim was to investigate the awareness and use of OA databases by researchers at the University of Zululand.

The study's research questions were:

1. Are researchers at the University of Zululand aware of OA resources at their disposal?
2. Are the OA resources used and valued?
3. What strategies does the university have in place to bring about awareness of OA resources?
4. What are the challenges and opportunities faced by researchers regarding the use of OA resources?

In this chapter, the above research questions will be addressed. To answer them, several data collection methods were employed. Literature was reviewed to gain a clearer understanding of OA across the globe. The study was designed as a case study, with empirical data collected using a survey, focus group discussions, and interviews.

The study was based on Rogers' diffusion of innovation theory, the premise being that users can only make use of OA resources if they have been made aware of them, and have become convinced about the benefits they represent.

#### **5.1.1 Demographics**

The research engaged researchers from all levels – teaching staff, PhD candidates, Master's and Honours students. It was notable that the participants with the junior degrees tended to be more excited and optimistic about OA, while the senior staff became progressively jaded – some attesting to the fact that they had sufficient data available from subscription databases,



while others did not trust the authority of OA resources. However, the majority agreed that OA had greatly affected their academic work (discussed in Section 4.3.15).

The study attempted to engage researchers from as many departments as possible, but the eventual participants were from 27 (77%) of the 35 departments the university has in total. The department most frequently represented was Computer Science, which made up 15 (14%) of the participants in the researcher group (from the survey and the focus group discussions). This could be because they were easily accessible in the computer laboratories specifically set aside for the various study levels.

The departments were not all proportionately represented. Nonetheless, as the study was concerned more with the levels of research/academic status than with weighting any particular departments, this was considered negligible. 13 (12%) respondents chose not to provide their departmental details. 15 (14%) were from the Computer Science Department, with representatives from Honours, Master's and PhD students, and teaching staff; so this department was well represented. The Economics Department had 11 (10%) representatives participating in the study; Business Management, Chemistry and the Department of Recreation and Tourism followed with nine (8%) each; Biochemistry and Microbiology had six (5%); Social Work and Information Science each had five (5%); Hydrology four (4%); Commerce three (3%); and the rest had two or a single representative.

## **5.2 Discussions of findings by research questions**

This section will discuss findings of the research (based on the responses from the participants), and provide examples from literature that compare or contrast with these findings. This section will be explored on the basis of the research questions posed, and of other findings that came to light during the course of the investigation.

### **5.2.1 Awareness of University of Zululand researchers of OA resources at their disposal**

During the study a description of scholarly OA resources was provided to explain the context in which the research was being conducted. The results showed that fewer than half the population of researchers who participated (46, 48%) were familiar with what OA is, let alone with what an OA database is. The researchers who claimed to be aware of OA databases generally failed to provide appropriate examples, with participants in the focus groups providing search engines as examples of databases. Amongst the lecturing staff and PhD

students there was better understanding, and responses were consistent with knowledge of OA. However, for the junior researchers, examples tended to get a bit confused, with one questionnaire respondent saying that 'the university should pay for more databases so we can access them.' This is a clear indication that this participant did not understand what OA actually is. This concurs with a study done by Okendo and Mligite (2014:7), which revealed that the majority of Tanzanian University staff members were not aware of OA outlets before that study was conducted. They relied on friends to assist them to access and disseminate information on the internet. The greater knowledge of the senior researchers ties in well with Rogers' theory especially as it pertains to the notion that an innovation is communicated through certain channels over time among members of a social system. The more senior researchers have had more time in the research system thus the innovation of OA has possibly permeated to them more than to the relatively less experienced researchers.

The researchers from the Faculty of Science and Agriculture, and particularly those from Computer Science, were able to give more relevant examples. This is similar to what Creaser, Fry, Greenwood, Oppenheim, Proberts, Spezi and White. (2010:145) discovered: that although there was a good understanding of OA in general, there were clear differences between scholars from different disciplinary backgrounds in their understanding of OA repositories, and even their motivation for depositing articles within them. In the University of Zululand study, this was revealed particularly during the focus group discussions where participants gave examples of Google and Mاما as databases. Yet others gave names of specific journals, and not of databases. The researcher noted that it seems that the way in which information is searched for on the internet has an effect on the perception of what a database is, and bibliographical instruction was apparently not considered to be anything other than a tour of the library. However, when the researcher referred to UZSpace as an example, most respondents indicated they knew of it, and this awareness had come to them in their Honours year, when their supervisors referred them to it for examples of previous work done. Other databases cited as examples included the *Directory of Open Access Journals* (DOAJ) and the *Journal of Online Storage* (JSTOR).

Participants in the study generally considered that awareness should be driven by the library. The librarians tasked to do so indicated that they do have training programmes in place, but they are not always made use of. In a study of open institutional repositories in Saudi Arabia, Parvez, Mohammed and Asad (2012:70) cited a general lack of awareness with regard to open institutional repositories in Saudi universities and other higher educational institutions,

and concluded that these institutions should be tasked with establishing an IR project, creating a collection think tank for meeting the nation's IR needs; possibly through a consortium in which all their IRs could be archived in a single, centralized repository. This is something that is already being encouraged in other parts of the world, including by the Research Councils in the United Kingdom (RCUK), as cited earlier in Section 2.3.

At the University of Zululand, the information librarians opined that the existing IR needed to be 'beefed up' to become a comprehensive database that is relevant to the needs and history of the researchers and institution respectively. This lack of knowledge of the benefits of these information resources and this publishing model is a serious hurdle that needs to be overcome for research to reach even greater heights than at present.

While every researcher was conversant with what the internet has to offer, as Kuh (2003:257) attests, not everything available is valid and reliable information. This was highlighted when both survey and focus group participants included lack of training, instruction in search skills, and ability to determine the authority of sources as a challenge in the use of OA resources. From the above, it might be deduced that comprehensive training would be beneficial.

### **5.2.2 Familiarity with the concepts of OA publishing**

Owing to the sometimes ambiguous language used, which can be confusing, there was a need to investigate how familiar the researchers were with OA terminology. To clear up any misconceptions, a definition of OA was given, and requests for further explanations invited from participants who needed clarity. The research indicated that there was a disparity in knowledge of what OA is and is not. Participants to the focus groups tended to regard OA to mean the (sometimes obscure) journals that solicit them for articles after they have presented at conferences. There was also concern raised that most times the university is unlikely to pay for an article to be published as an OA publication when it can just as easily be published in a proprietary journal. In research Schroter and Tite (2006:142) conducted on authors who submitted original research articles to the *British Medical Journal*, *Archives of Disease in Childhood* and the *Journal of Medical Genetics*, of the 468 responses received, 28% and 35% respectively of the respondents were not familiar with either the term 'OA publishing' or the 'author-pays concept', while 25% and 19% respectively were not sure. Only 47% were familiar with OA publishing, and 38% with the 'author-pays' concept.

After definitions of the terms were provided in this study, 50 (52%) participants were still not familiar with the concept of OA, a finding similar to those in Schroter and Tite's study (2006:142), where 33% of those who said they were not familiar with the concept maintained they still knew nothing. This indicates two things:

- i. There are researchers who, though leaders in their field, are not aware of what OA is.
- ii. Regardless of academic standing, enlightenment on current and projected future trends is imperative if we are to move with the times. However, more importantly, it is crucial that this enlightenment begin in the early stages – and that is ideally when students are introduced to an academic library.

### **5.2.3 Use and perceived value of OA resources.**

This study found that students tend to make more deliberate use of OA resources than do the academic staff members, who access it as needed. This could indicate either that students undertake more rigorous research to impress their lecturers as opposed to the academics who are more settled in their careers, or that the more established researchers are suspicious of these resources.

When asked to indicate the frequency of use of OA databases, participants' responses indicate that only half (23 of 46) of those that are aware and making use of OA databases deliberately access them. The most OA resources made use of are online journals (31, 67%) followed by online articles (27, 59%). This implies, and it was confirmed in focus group discussions that search strategies tend to be focused on using search engines to collate potential results, and then the results are used based on the accessibility of the full-text article. Once researchers become familiar with a journal that is either OA or offers OA material, they begin their searches at the journal level before going on to their next search.

Researchers at the University of Zululand, while aware of the existence of UZSpace, do not consider it as much of a resource except when they want to use the electronic theses and dissertations. Watson (2007:226) notes that making an IR available does not necessarily mean that authors will automatically start depositing their work for inclusion. Thus it becomes a challenge to encourage not only depositing, but also use of the actual deposits.

Rogers (1983:11) presupposes that the social system is a key component in whether or not an innovation is adopted or diffused rapidly. Disciplines by themselves form mini academic systems which can be aligned to social systems thus what works or is seen to work for one discipline will not necessarily work for another.

Researchers in the arts and social sciences indicated a willingness to make their work open access should the opportunity arise. Reasons proffered included the opportunity to have their work on an international platform on which they could compare and publish results. They also indicated the desire to be philanthropic to future researchers after benefiting from the advantage they have received by having access to resources that complement the constrained subscription databases.

Respondents raised the slightly 'uninformed' worry that most OA journals do not have a high impact, and are not peer-reviewed. Yet there are several ways to OA. The different routes and financial implications of each route need to be impressed upon authors so that they do not ignore an opportunity that will enable them to get their work viewed by a large audience. The simplest way is to use the green route to OA, where the author can self-archive his or her work after an embargo period. However, if funding allows, the golden route is ideal. More training needs to be done on this so that authors can go through their publishing agreements with a fine-toothed comb, and not sign away their copyright simply because it is seemingly the easier route.

The attitudes of researchers from the sciences were in direct contrast to research done by Said (2015:95) that found that authors publishing in the sciences were more likely to know about OA publishing issues than those in the humanities and social sciences. In the case of the University of Zululand, the science students tended to be content with the subscription databases available, and had no intention of moving to try other sources. Creaser, et al. (2010:153) observed that authors in the medical, life and related sciences were more likely to associate OA with the 'Gold Route' than researchers in the physical sciences, mathematics, social sciences and the humanities. Correspondingly, authors from the medical and life sciences were less likely to associate OA articles with not being peer-reviewed, and not being the final published version, than those in other fields. This is perhaps because most initiatives for OA have been driven by research bodies in the life sciences, thus authors in these fields are most probably funded by bodies such as the Wellcome Trust and the National Institutes

of Health (NIH), which have adapted their funding policies to actively promote OA as part of their funding stipulations.

#### **5.2.4 University strategies to promote OA.**

The current promotional activities that the university is undertaking, as revealed in the study, include bibliographical instruction and workshops on the various products and services the library has to offer. Sadly, because workshops are not always widely received, and are not compulsory, the strategy only works for a few. Bibliographical instruction was cited as a good place to start to encourage awareness, yet researchers complained that sometimes because of the period in which it is done – just as lectures are starting – the potential attendees are not able to benefit owing to other commitments, so that even when they attend, they are not attentive.

From the librarians' perspective, training is provided as requested. This is because there is often no set period for researchers to attend bibliographical instruction, nor is it compulsory. The frequency of the library's workshops to encourage more efficient use of resources is dependent upon the bookings received and the time of year. This implies that if a researcher chooses never to take part in these training activities, the chances are they will remain ignorant of the full extent to which they can benefit.

Chances are also high that they will neither make use of UZSpace nor deposit in it unless they absolutely have to. Rogers' theory (Rogers', 1983:165) suggests that beneficiary communities adopt the innovated technologies or systems by either imitating them or making proper adjustments for local use. Similarly, institutions have had to adjust mandates given to researchers to encourage them to make their work open access. With regard to institutional repositories, Creaser, et al. (2010:147) highlight that low deposit rates led to the worldwide rise of institutional mandates to encourage researchers to make their work available on OA. They add that the success of PubMed Central is possibly the result of two initiatives joining forces: the implementation of the National Institutes of Health (NIH) mandate, and the adoption of a variation on the self-archiving model; in that publishers automatically deposit articles on behalf of authors, and accept articles from individual researchers.

Lack of knowledge and skills came across as some of the factors that create this apathy. Focus group participants realized they were aware of at least one OA database when UZSpace was cited as an example. There is a need to spread the message about OA in all possible ways as mixed messages are coming across from the study, particularly when one compares researchers' responses on OA promotional activities with the librarians' own responses. This situation is not unique to the University of Zululand. In a study conducted at Cranfield University (Watson, 2007:225) it was indicated that despite a reasonable amount of advocacy many authors had not heard of its IR, and were not aware of its purpose. Once it was explained during the study, all authors saw at least one benefit to depositing a copy of their work into the IR, but many were unsure how to deposit, preferring to depend on the library to do the work. This led to a project that investigated how to embed the IR into the research process, and thereby encourage more authors to deposit their work, thus making it an automatic part of the research process. This could be what needs to be done at the University of Zululand as well, as previously unaware researchers said they would consider using and publishing on an OA platform. As suggested by Rogers' diffusion of innovation theory, for an innovation to spread, human capital is vital. From the responses to this question, it can be seen that there is a need for all stakeholders involved – librarians, lecturers and the Research Office – to come together and disseminate information on OA databases to the research community.

#### **5.2.5 Challenges and opportunities faced by researchers regarding use of OA databases**

As documented in Chapter 1, as at the 17<sup>th</sup> of June 2013, when this research commenced, the University had several computer laboratories with the ICT Computer Training Centre Statistics indicating a total computer complement of eight hundred and ninety six (896) machines. Internet could be accessed through Wi-Fi over most of the main campus and hostels thus ideally enabling researchers with personal laptops to have constant access to the Internet.

However, this infrastructure was declared as insufficient by the respondents who bemoaned the (perceived or otherwise) inadequacy of the internet facilities. Respondents complained of slow internet connections, lack of infrastructure – including Wi-Fi in residences – and not enough lab space. Respondents decried inadequate infrastructure as being an impeding factor in their use of electronic resources in general. One respondent suggested that there was network overload, and would appreciate it if there was 'a separate internet provided for researchers from the one for undergraduate students.' Other respondents were so

despondent that they were not sure what could be done as it seemed to be an insurmountable challenge. The lack of adequate ICT infrastructure was also mentioned as an impeding factor by Ivwighreghweta and Onoriode (2012:9). The challenge that this causes is that when access to resources is availed, there is no time to explore and search for new sources, respondents automatically focus on those resources that they have used in the past. Without well-structured infrastructure and rigorous activities to operate it at the university, there is not much that can be done to meet this challenge.

The last stage in Rogers' (Rogers, 1983:168) innovation-decision model is the confirmation stage whereby an individual researcher looks for support for his or her decision. As has been highlighted before, the researcher could still accept or reject the innovation (OA) depending on his or her experience with them. When the infrastructure is such that the environment is not conducive for access to OA resources to be effected efficiently, then chances are high that a researcher would reject these resources. It is imperative therefore, that a conducive environment be established so that researchers can amply explore the OA resources available to them.

Research participants were primarily introduced to OA through the library, lecturers and colleagues. However, from the figures targeted for the survey, over half (50, 52%) were ignorant of what OA is. As attested to by Ivwighreghweta and Onoriode (2012:1), the primary advantage of an OA journal is that the entire content is available to users everywhere, regardless of affiliation with a subscribing library. Unfortunately, as they add, lack of knowledge of the existence of OA journals, lack of internet search skills and retrieval of too much irrelevant information tends to overshadow these benefits.

From the findings it was clear that researchers do not seem to appreciate that they can also use personal or institutional repositories to archive their work, and thus circumvent the need to pay for work to be made OA. This calls to mind the importance of authors knowing how the publishing chain works, and being able to make the right choices so that they do not disadvantage themselves.

It was found that researchers appear to want the hard work done for them so that the time they take searching for relevant literature is minimal. One respondent insisted that 'the library



officials should see to it that they provide appropriate URLs for many/plenty OA resources, especially in the natural sciences field.’ This echoes responses from some of the other postgraduate students, who indicated that there are so many resources available that they end up not knowing which to select, and in their hesitation, their internet session times out. Respondents would also like to see the more well-known databases becoming OA, and if it were not for the financial impact of the gold OA model, this would definitely go a long way to upgrade the standard of current OA databases, journals and articles in the eyes of the researchers.

An important issue that needs to be taken into consideration is that respondents do not know how to evaluate sources. The responses that if the university could assist in ‘rating these publishers’, and ‘setting up bodies to monitor the ways and means individuals post or put material into an OA domain’ indicate as much.

#### **5.2.6 Perceptions of quality of OA resources**

A preconception that repeatedly came up is the assumption that OA resources, whether database, journal or individual article, are outdated and of low quality. It is to the point that some lecturers would rather not have citations from OA articles. As indicated in the findings, the thinking is that what is freely available is not of any value. This challenge is intensified by the expectation from institutions for authors to publish in journals that do not necessarily offer an OA option. In the view of Creaser, et al. (2010:156), there is a conflict between OA mandates and the increasing pressure placed on them by institutions to publish in high impact journals. This brings the buck back to the institution in realizing the importance of OA publishing. In a survey that randomly selected 28 international authors who submitted to the *British Medical Journal*, Schroter, Tite and Smith (2005) highlighted that the factors of importance when selecting a journal to publish with included:

- Impact
- Reputation
- Readership
- Speed of publication
- Quality of peer-review systems.

Thus authors would continue to submit appropriate papers to journals they regard as ‘high quality’ even if they charged. Reasons cited for not previously submitting to author-pays journals included lack of familiarity, and perceptions that they are not widely read, they don’t

have impact, they have inferior peer-review, and are not of high calibre (Schroter, Tite & Smith, 2005). These same perceptions are prevalent at the University of Zululand, so that in essence the status/quality of the journal is more important than access options when selecting which journals to submit publications to.

One information librarian suggested what Bussert (2012:109) recommends, and that is the need to develop services that facilitate peer-review and provide a knowledge-sharing mechanism within the academic community that aids the scholarly communication process. When all in the academic community are aware of the scholarly communication process and the opportunities they can make use of with the various licences available from the Creative Commons, for example, publishing choices will become easier. Haug (2013:793) maintains that we must recognize that no publication or financing model is, in itself, morally superior to others, or can guarantee high quality. Various models can produce high quality content, and all are vulnerable to exploitation. It might make the most sense to concern ourselves less with the publication or financing model used and more with ensuring transparency about a publication's content and editorial processes. This contrasts with the worry that researchers at the University of Zululand have about predatory publishing. Knowledge is indeed power.

This calls for assistance from the institution itself, and as Abrizah, Noorhidawati and Kiran argue (2010:6), the lack of policies to support and promote IR implementation hampers institutional development. In Asia, researchers in top-ranked universities have well-established routines of publication in prestigious journals, and see little benefit in alternative methods of access to the same material.

### **5.2.7 Risk of plagiarism**

During the focus group discussions, a concern that appeared in the questionnaires, but which was not fully addressed, is the issue of plagiarism. Focus group participants were worried that enabling content to be freely available would increase the risk of its being plagiarized. The researcher thought that this thinking was unique to the University of Zululand, but literature from across the globe supports this erroneous conclusion. Watson (2007:228) found that a concern about depositing work in Cranfield University's QUEprints IR were associated with risks that exist with sharing work in any format, including the risk of plagiarism, or of being misquoted, or that others might use the work for unauthorized commercial gain. This is to be expected as Rogers' (1983:165) acknowledges that as an innovation is filtered along the innovation-decision system, there are those who will either reject it or adopt it. Thus for

researchers, if the perceived usefulness is outweighed by the potential problems, they will understandably reject OA publishing.

OA repositories have been embraced by more and more prolific academic institutions, and form part of the webometrics analysis that determines a university's web rankings. This is a clear indication that even the lesser known academic institutions can begin to make their mark on the global scene. It is more about the commitment of the staff than about any financial resources as staff members can set up the repositories themselves while promoting self-archiving (green OA) in their academic community. Deng (2011:30) concludes that although it is never easy to run an open source digital library and keep it up to date in a small to medium library, willingness to learn new things, finding inspiration and good practice from other institutions, working with a team, and consulting the larger, DSpace community can all help to accomplish IR projects.

#### **5.2.8 Training/bibliographical instruction**

There was a mixture of views from the participants regarding training offered by the library. On the one hand, some felt that only postgraduates had access to training on OA, and this was unfair to undergraduates. However, other postgraduates still felt that there are no training programmes tailored for postgraduates to enable them to become more aware of the resources they can access on their own. Perhaps researchers are not really aware of the initiatives that the university has in place, and this needs to be changed. This is especially important as the knowledge stage, according to Rogers' (1983: 166) is where the desire to get more information about an OA would begin,

The information librarians specified that bibliographical instruction is only mandatory for undergraduates, yet it is essential for any researcher to be able to make wise use of an institution's library and resources. An interesting matter was raised when it was pointed out, during an interview, that researchers need to be taught to embrace electronic resources as a whole before they can even be introduced to OA resources. This is in agreement with Renwick's (2003:22) argument that holds as true today as it did when he wrote, that the ability to use e-resources efficiently depends on basic computer skills, knowledge of what is available, how to use it, and the ability to define a research problem. If efficient and effective use is to be made of a library's resources, then user-training will have to increase in both intensity and coverage.

This translates as well to ensuring that library staff are abreast of developments and are regularly trained to keep up with new trends. This was attested to by the participants of this study who said that ignorance about OA resources and publishing prevented them from making use of them. Their inability to distinguish between good and poor quality resources has resulted in the majority painting OA resources with the same brush: they are free, therefore they must be inferior. Thorne (2012:3) puts it succinctly when she declares that information literacy is not just about finding 'the right' information, and being 'information literate' requires more than the ability to work analytically with information. It also demands that we know how to interpret and internalize information in creative and meaningful ways. If evaluating information resources can be incorporated within the bibliographical instruction curriculum, researchers will be better placed to make independent resource choices.

### **5.2.9 Greater visibility/citation counts**

An opportunity that researchers acknowledge, but are yet to take full advantage of, is the increased visibility that OA brings. Some respondents highlighted that while publishing in OA journals does enhance visibility, and raises the chances of being cited, they would not necessarily publish with an OA publication owing to fear of inferior peer-review. Swan (2010:1) reminds us that increased citation rates do not come simply because of easier availability, as citability rests upon the quality, relevance, originality and influence of a piece of work. Research reports that add little or nothing to development or thinking in a field earn little or no attention from other researchers, even if they can be readily accessed. The junior researchers in the current study had a more positive outlook, and indicated that they would deposit their publications with OA repositories, and consider publishing with an OA journal. This was so that future researchers could have free access to their work in an effort to enhance science, not just for the benefits of greater visibility, reputation building and increased citation rates, as cited by Creaser, et al. (2010:155).

Saxby (2006:2), in a survey conducted on the Nucleic Acids Research online submission and peer-review database, found that 88% of respondents agreed or strongly agreed on the principle of free access for all, and 80% believed that readership of an OA journal is larger than a subscription access journal. 78% agreed that the unrestricted reuse of their article after publication was important. In confirmation of how rapidly researchers are increasingly turning to journal articles as reference material owing to speed of publication, Kumar and Reddy (2012:47) discovered that there are more citations from journals than there are from books

and technical reports, and that journal articles accounted for 40% out of 397 citations. This does not exclude developing ways to make technical reports and books more accessible, and even now, some book chapters can be found freely available as OA chapters, especially in compilations.

In a study that looked at articles in four disciplines (philosophy, political science, electrical and electronic engineering, and mathematics), Antelman (2004:372) found that freely available articles have a greater research impact, and scholars in diverse disciplines are adopting OA practices and being rewarded for them. Davis, et al. (2008) observed that articles assigned to OA were associated with 89% more full-text downloads, 42% more PDF downloads, 23% more unique visitors, but 24% fewer abstract downloads than subscription-access articles in the first six months after publication. It is really simple mathematics: the more often a paper is downloaded, the more it is likely to be read, used and cited.

#### **5.2.10 Efficient publishing method**

Regardless of whether one publishes in OA publications or not, the fact is that OA has the potential to change the way we conduct and disseminate research. Researchers in the current study indicated that making use of OA resources had greatly influenced their research output as it has given them access to current, relevant and readily available research results. They said that access to recent work had helped to shape their own research agendas, and enhanced the source materials for their literature review work. Prosser (2004:23) shows that in some subject areas, online preprints make results available months earlier than they would have been in the old, print-only system. The more rapidly results can be disseminated the more impact they can have on the advancement of human society – particularly in the life sciences. Researchers, who previously worked in silos, with access to the world's institutional repositories and other OA mediums, can now collaborate much more easily. As Abrizah, Noorhidawati and Kiran assert (2010:6), OA repositories can transform the research enterprise from one of isolation and marginalization to one of inclusion and international cooperation.

Warlick and Vaughan (2007) add another dimension to publishing OA when they remind authors that copyright restrictions on authors may be removed and authors retain rights rather than automatically transferring them to the publisher. The advantage works both ways: for an author and for a researcher seeking information.

Great strides are being made in the OA movement, and while it may not be appreciated now, researchers in need of resources will make use of the OA resources and make advances in their research endeavours, leaving those who think OA is inferior lagging behind. OA does not centre on just journal articles; it is so much broader than that. In 2014, Elsevier launched an Open Data Pilot (Wise, 2015) that gives authors the option to make their supplementary data files publicly available under a CC-BY license, which is mainly gold OA. This gives researchers the opportunity to view and use the data for themselves, instead of just the results and conclusions gained from them.

### **5.3 Controversies in OA publishing**

Research is like a two-sided coin – one cannot discuss OA publishing without touching on the matter of predatory OA publishers. The issue of predatory publishers was highlighted particularly by researchers who have had an opportunity to present at international conferences, and immediately afterward are inundated with invitations to publish in obscure journals. Publishing can be a lucrative business, and unfortunately OA publishing is being abused by unscrupulous individuals and corporations. Butler (2013:433) cites Beall (an academic librarian who has made it his goal to expose predatory publishers) as asserting that the goal of predatory OA publishers is to exploit the ‘author-pays’ model by charging the fee (for peer-review, editing and website maintenance) without providing all the expected publishing services. Butler (2013:433) writes that Beall estimates that such publishers publish 5-10% of all OA articles, and typically display ‘an intention to deceive authors and readers and a lack of transparency in their operations and processes’. Authors who have been so deceived have complaints that include:

- poorly reviewed papers
- papers that have not been peer-reviewed at all
- authors placed on editorial boards they did not agree to serve on
- authors not informed clearly that publication of their article would include a fee, only to face an invoice when the paper has been accepted. (Beall, quoted in Butler, 2013:433)

This clearly indicates how careful authors need to be about their submissions. A thorough understanding of the process and a written contract/agreement are crucial before one commits to a publisher.

Researchers at the University of Zululand are not compelled to attend workshops held by the library on publishing and OA – it is a matter of choice. Yet this freedom of choice leaves some

researchers ignorant of the best publishing practice. The world has evolved, and so have the methods of defrauding even the highly intelligent. While librarians and information professionals can educate, it is also up to the researchers themselves to keep abreast of developments, and not be misled by the desire to see their names in print. Lareau (2014:1) believes the rise of predatory publishers can be attributed to four factors:

- i. evolution of digital distribution technologies
- ii. the transformation of the scholarly publishing business model through the adoption of OA models and the creation of article processing charges (APC)
- iii. the culture of 'publish or perish'
- iv. general lack of awareness of predatory publishers among academics. (Lareau, 2014:1)

With the right skills, genuine researchers can spot predatory publishers before they get cheated.

Like all controversies, not everyone agrees with Beall's assertions (cited in Butler, 2013:434), or the methods with which he determines the 'predatory status' of publishers, with some arguing that even genuine but new publishing concerns which are still going through learning curves have been unnecessarily labelled as such. In the same paper, Butler (2013:433) cites the director of DOAJ (Bjørkshauge), who feels that questionable publishing probably accounts for less than 1% of all author-pays OA papers – a proportion far lower than Beall's estimate. Butler (2013:435) recommends doing the following due diligence checks before submitting a research paper to an unknown publication:

- Check that the publisher provides full, verifiable contact information, including an address, on the journal site. Be cautious of those that provide only web contact forms.
- Check that a journal's editorial board lists recognized experts with full affiliations. Contact some of them, and ask about their experience with the journal or publisher.
- Check that the journal prominently displays its policy for author fees.
- Be wary of e-mail invitations to submit to journals or to become editorial board members.
- Read some of the journal's published articles, and assess their quality. Contact past authors to ask about their experiences.

- Check that a journal's peer-review process is clearly described, and try to confirm that a claimed impact factor is correct.
- Find out whether the journal is a member of an association that vets its members, such as the *Directory of Open Access Journals* ([www.doaj.org](http://www.doaj.org)), or the Open Access Scholarly Publishers Association ([www.oaspa.org](http://www.oaspa.org)).
- Use common sense, as you would when shopping online: if something looks fishy, proceed with caution (Butler, 2013:435).

This is a matter that requires a researcher's/author's ability to make informed decisions when it comes to evaluating not just a potential research source, but also a potential publisher. This knowledge cannot be overemphasized.

## 5.4 Conclusion

This chapter has discussed the findings of the study and compared them to what other studies have discovered. It details the perceptions of the researchers at the University of Zululand in terms of what the study's findings were, and how these tie in with other similar perceptions from across the globe.

It was found that researchers at the University of Zululand have varying opinions about the concept of OA. The teaching staff enjoys access to current research material through the OA initiative, though there is still not enough representation of all they require as there are fields such as Computer Science whose relevant papers are still found mainly in the subscription databases. Academics are also wary about the issue of predatory publishing, and suggest that checks and balances are put in place to avoid use of these unscrupulous organizations.

The PhD candidates who have found the OA databases to be beneficial in preparing their research papers enjoy their ease of access, but others in this category feel that the quality is low.

The Master's students also had varied opinions, believing in the quality of the research available, yet acknowledging that the ratings tend to be lower as 'quality research is being submitted to databases that pay for the work done'. The fact that OA databases are accessible



from anywhere is time-saving as some of the subscription databases will only be accessible via Internet Protocol (IP) address authentication.

The Honours students have had the least exposure to OA databases, yet are the most positive in their view of them. They have enjoyed access to theses by other researchers, and have been able to better shape their research. However, this is the group that needs the most training as they are not yet able to fully evaluate information resources appropriately.

There are researchers who believe that OA databases have enabled them to meet the information gap they were experiencing in terms of a lack of sufficient research material, particularly when it came to access to electronic theses and dissertations. However, other researchers think that OA is not a good idea as it enables a lot of plagiarism, and they would not want their work plagiarized. This suggests that there is a need for researchers to be educated about OA, and told that plagiarism is uniform across the globe, whether from a proprietary or OA publication. The copyright laws governing acknowledgement of sources and appropriate citation thereof still maintain the integrity of intellectual property. It is up to a researcher to be ethical in his research and cite reference sources appropriately, otherwise he or she can plagiarize OA documents as much as other sources. The method of access will not change a dishonest researcher.

This also applies to library staff, which requires rigorous preparation to be effective in their training and promotion strategies in order to break the resistance not only to OA, but to electronic resources in general.

While the university continues to strive to bring its researchers up to date with current research materials and methods, there is a need to exhaustively promote these initiatives to reach as wide a population as possible. Otherwise, although the resources may be there, without the knowledge that they exist they will remain underused and fail to benefit the very researchers they are intended for.

The following chapter will provide concluding remarks and recommendations resulting from the study.

## CHAPTER SIX

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 6.1 Introduction

This chapter summarizes the findings of the study, and provides recommendations and conclusions. It also suggests possible future research areas. This study aimed to investigate the awareness and use of OA resources by researchers at the University of Zululand. Key findings are summarized by objective. The objectives of the study were:

1. To determine the level of awareness of scholarly OA resources at the University of Zululand.
2. To determine the extent of adoption and use of scholarly OA resources by researchers at the University of Zululand.
3. To determine the strategies in place to bring about OA awareness.
4. To determine the barriers against and factors in favour of OA at the University of Zululand.

#### 6.2 Summary based on the research objectives

##### 6.2.1 To determine the level of awareness of scholarly OA resources at the University of Zululand

- *Are researchers at the University of Zululand aware of OA resources at their disposal?*

The study established that the level of awareness of OA as a concept and OA databases/resources was not as high as it could be. Participants were not aware of even the university's own OA repository, UZSpace, thus indicating that awareness by the university population at large is minimal. The majority of researchers who were knowledgeable about OA were from the computer science and library and information science fields. These two groups attended conferences more regularly than other disciplines, and after presenting at

conferences, were invited to publish in OA journals thus being introduced to OA from another dimension.

The study established that participants to the study tended to confuse OA with 'free' in the sense of 'free from peer review'. This assumption can be verified by the responses to the request to provide examples of OA databases that the researchers use – only to be provided with names of search engines. Researchers either used their professional society's websites as a guide to research material (including conference presentations), or took to Google to do the searching for them. Thus while they were in fact using OA resources, they are not aware of the 'mother database' that stores these resources in perpetuity.

The study revealed a preference to use the easy route of accessing information by using search engines, and not going to specific databases. The respondents declared that the electronic databases the university subscribes to are not relevant to their fields of study, presumably because the university 'does not consult' during the collection development phase with the departments concerned.

Researchers who attended bibliographical instruction tended to be more knowledgeable than those who did not, and this is perhaps a reflection of the willingness to learn from others. Most researchers tended not to attend bibliographical instruction because of prior instruction, and their presumption that because they had already used one academic library, there was no need to adapt to the nuances of the University of Zululand's.

### **6.2.2 To determine the extent of adoption and use of scholarly OA resources by researchers at the University of Zululand**

- *Are the OA resources used and valued?*

The study revealed that the extent of adoption and use of scholarly OA resources seemed to be influenced to a certain extent by the field of study. The field of computer science, for example, focused more on the use of conference proceedings as being more relevant and current than journal publications. The argument in this particular case is that advances are swift and journal publications take long to review, accept and publish.

Important concerns were raised about the quality of OA resources by those aware of their existence. The worry is that once research is made easily and widely available it can be prone to misuse and abuse, thus exacerbating the levels of plagiarism. Academics seemed to be wary of the OA resources because they are not well favoured by the University of Zululand as publications to submit research articles to. Thus, as academic instructors, they do not actively promote their use for research purposes by their students. Another concern noted was in the field of ETDs. Researchers agreed that while it is worthwhile to have them available, it can lead to a distortion of quality as not everyone whose dissertation is uploaded into a repository has received an excellent grade for it. So because even researchers with nominal passes are mandated to deposit their work, it lowers the standards of users who will use that work as reference.

The study established that OA resources were both intentionally and unintentionally used. The focus group discussions provided explanation suggesting that the figures of researchers who use OA resources could be higher than those recorded by the questionnaires given that once the concept of OA was discussed, respondents who had claimed not to be aware of OA resources realised that they had in actual fact, made use of them at one point or another. In the questionnaire responses, of the N=46 who understood the concept of OA, 23 (50%) frequently deliberately accessed OA resources. This was followed by 15 (33%) who access as needed while 3 (7%) rarely made use of them and 5 (11%) do not actively seek OA resources but accidentally come across them during their course of research.

### **6.2.3 To determine the strategies in place to bring about OA awareness.**

- *What strategies does the university have in place to bring about awareness of OA resources?*

The library has several activities that in engage in to highlight and promote issues around OA resources and bring about its awareness to the researchers at the University of Zululand. The library has promoted OA awareness through various strategies, namely:

- i. promotion of OA week
- ii. permanent posters and displays on OA
- iii. providing mandatory bibliographical instruction to first-year undergraduates
- iv. Providing bibliographical instruction on request to the different library clientèle
- v. Holding workshops to educate and promote OA

- vi. Working together with the Research Office to promote OA during workshops held for postgraduate students by the Research Office

The study found that while the library did have several strategies in place, a lot more aggressive action still needed to be taken to ensure that researchers become fully conversant with OA resources and issues surrounding them. From the librarians' point of view, they are doing as much as they can to bring about awareness and promote use but you can only educate someone who is willing to learn.

#### **6.2.4 To determine the barriers against and factors in favour of OA at the University of Zululand.**

- *What are the challenges and opportunities faced by researchers regarding the use of OA resources?*

The most prominent yet subtle barrier against OA is fear – fear that the resources are not as scholarly as the proprietary publications. After all, researchers asserted, anyone can post anything on the web these days. Researchers who have been approached by OA publishers also felt that the preliminary acceptance of their work was too easy, suggesting that there was not enough rigorous peer review done by the journals. Researchers would rather not risk their reputations by being aligned with obscure publications that are not well known or accredited by the Department of Higher Education and Training. This reluctance to publish in OA journals or submit to OA archives by researchers highlights that beyond sharing research with peers or across the globe, there are still practical considerations that are taken into account when selecting which journals to submit manuscripts to. Beyond the desire to disseminate knowledge is the consideration of how it will affect the career of the author.

The challenge posed by the list of approved journals with which to publish is also an area that institutionalizes a barrier. As long as an institution is not inclined to publish with a certain journal, the researchers funded by that institution cannot submit papers to it.

Factors in favour of OA are led by the most obvious benefit – free access to scholarly material. Like all educational institutions, the University of Zululand cannot subscribe to all publications. This creates an inability to cater for every intellectual taste, and opens up opportunities for exploring OA resources. Some researchers were aware that proper OA entails rigorous peer-

review, and were free to promote these resources to their colleagues and students, as evidenced by participants who indicated that their colleagues or lecturers were the catalysts in their use of OA resources. There is a dedicated library team that is knowledgeable about OA resources, and they just need to be taken seriously by the researchers.

### **6.3 Conclusion**

Major findings of the study indicate that:

1. Researchers at the University of Zululand are not aware of OA resources to the extent they should be. Fewer than half (46, 48%) confirmed their awareness even after a definition was provided. Most researchers who were aware of OA resources could not pinpoint one specific source but indicated that awareness came from several different sources such as the library (48%), colleagues and workshops (35% respectively) and lecturers (30%). This indicates that it is important for all stakeholders in the research system to promote and bring about awareness of OA: with all players involved, at some point, the benefits of OA will be understood and it will be accepted. Of the researchers (N=46) who were aware of OA databases, 28 (61%) consider them to be of good quality. and 35 (76%) would consider publishing in an OA publication. However, only 26 (57%) were confident of their information literacy skills. Of the researchers (N=50) who were not aware of OA before this research began, 42 (84%) indicated that they would start making use of OA resources.
2. While the researchers make use of several types of resources, there was an evident preference for OA journals with 67% respondents aware of OA indicating that they preferred these above all others. This was closely followed by 59% of these respondents indicating that after OA journals, online articles came next as their information or data source. This is due to the fact that some researchers initially search in specific open access journals then perform general searches for articles of interest using a search engine. While yet others who are not aware of specific journals, will simply perform random public domain searches for articles available along their area of interest. The focus group discussions highlighted that even researchers who were not consciously aware of OA made extensive use of ETDs as well. Researchers use these resources to build up on their knowledge of their areas of interest. They do not

actively self-archive and avoid publishing in OA journals as these are not supported by the institution's funding mechanisms; most of their work that is OA tends to be previous theses or dissertations that have been uploaded on institutional repositories.

3. The university has several strategies in place that include bibliographical instruction on first registration, and poster promotion of OA. The university library also works in conjunction with the Research Office to provide regular workshops on information literacy, and the librarians are prepared to assist anyone seeking individual or group training apart from these workshops. The library also takes advantage of the training sessions held by the Research Office to promote (without necessarily training personnel) their resources and services.
4. The University of Zululand, like any other institution, has a limited resource base and as such is unable to fully meet the needs of the researchers through subscription databases. While the university has staff members and a framework of infrastructure to support use of OA resources, the following were found to impede the adoption of the OA concept:
  - **Insufficient ICT resources:** While the university is making strides in improving its ICT infrastructure, it is still not able to support the large number of students and researchers currently at the University of Zululand. Some staff members are challenged by lack of dedicated resources for themselves, and this creates further strain on already strained resources. Researchers living outside campus have poor or limited access to the internet, creating a burden on the university's resources when they are on campus.
  - **Poor connectivity** was cited as a challenge to those researchers who have their own devices. There is intermittent access to the internet, and the signal strength fluctuates regularly. Some hostels/residences do not even have access to the university's Wi-Fi connection, according to respondents.
  - **Lack of search skills:** Researchers lack adequate skills that would enable them to evaluate sources so that they can make their own determination of

quality, and not be blinded by blanket negativity surrounding OA. This lack of research skills can be explained by the fact that while bibliographical attendance is quite high, it does not tally with awareness of all information resources. This could be a reflection on either the content of the instruction or the attitude of the attendees.

- **Delayed OA orientation:** Most researchers indicated that they had only become aware of OA at a postgraduate level, and admitted that throughout their undergraduate years they used only the more traditional sources such as books and hardcopy serials.
  - **Authority of information:** Researchers have been conditioned to believe that the impact factor and ratings of OA publications are low, and that '*quality research is being submitted to databases that pay*'. This is a challenge that can only be overcome by knowledge as some very prominent journals and repositories have become OA or partially OA, including the *British Medical Journal* and the PLoS (Public Library of Science), not to mention databases such as PubMed Central and institutional repositories across the world.
5. There is opportunity for growth in adoption of OA resources as effective information resources, and the current situation is that already electronic journals are the preferred information resource for researchers. This is promising for the future use of OA resources.
- **Training:** The information librarians are ready and willing to assist users with training in accessing and searching for appropriate resources. They are supported by the Research Office, and this requires active participation by the researchers so as to have not just able instructors but willing learners.
  - **ICT infrastructure:** Although the infrastructure has been blamed for being inadequate, there is still much that can be done within the confines of the current resources. Access to computers and Wi-Fi, regardless of how short the



period or erratic the connection, is better than no access at all. Given that the University of Zululand is a rural university, these challenges need dedicated staff and enough money to be overcome with time.

There is need for skills development so that researchers are able to evaluate the potential sources of information, otherwise they run the risk of citing research results that are not authentic. Researchers who have made use of OA resources would willingly submit their work to OA publications but these require careful evaluation so that researchers do not become embroiled in disputes about payment from unscrupulous publishers.

Research evolves rapidly, and there is a need to keep up with international trends. The challenge of insufficient funds for research information resources means that without the foresight of the OA movement, there would be even more of an imbalance in terms of scientific knowledge worldwide. While OA has not yet been totally embraced globally, there has indeed been an improvement in information sharing and access. It is only when researchers and the academic environment become less selfish and unnecessarily protective of discoveries that true science can be given free reign, and researchers allowed to participate equally across the globe.

OA publishing is a rapidly growing field with potential to add even more value to the research process. Eysenbach (2006:692) argues that OA to the research literature has the potential to accelerate recognition and dissemination of research findings, but its actual effects are controversial and need to be studied further. University of Zululand researchers are concerned, as are others worldwide, that free access to information could lead to distorted information. Similarly, there are many unreliable websites that profess to be professional, yet are providing misleading information. The potential is there, but because of lack of knowledge and proper training, there is a fear that fully embracing the OA phenomenon will cause good quality databases and publications to be viewed in the same light as the so-called predatory OA publications. This will cause perpetual undermining of true science in peer-reviewed quality OA publications, and turn the OA cause into a perpetual battlefield.

While there are OA journals and databases with questionable credentials, it is imperative on the part of the researcher him or herself, as well as the lecturers, to identify the trends in their

industry as more and more journals are providing an OA option. Thus while the journal itself might not be OA, some of its content might be; or after a certain period, previous issues might become available. However, if a researcher is short-sighted, and concludes that because the university does not subscribe to it is inaccessible, current information will be missed out on that cannot be recouped or profited from at a later stage.

#### **6.4 Recommendations**

- There is a great need for the philosophy of OA to be widely disseminated and appreciated so that even publishers can change their funding models. Gold OA is not necessarily less profitable than the current subscription system. It could eventually mean the difference between a publication closing its doors or opening itself up to new methods of publishing. It is evident that the university (and probably all other academic institutions worldwide) must engage the researchers in training activities that will enlighten them and assist them in evaluating and choosing appropriate resources for their research. It would be ideal if this training could be compulsory, so that as they enter the University of Zululand workforce, or develop their researcher profile, they have a solid grounding in evaluation of information sources and services – including OA resources. Further recommendations are as follows:
  - i. There is a need for users to become aware of an innovation before they can actively use it, thus for more rigorous bibliographical instruction, ideally with compulsory information literacy training for researchers on first registration, with an emphasis on the different types of resources available (including scholarly OA resources). Follow-up information literacy training sessions with the support of the Research Office can even be structured to be web-based as researchers are not always available on campus at the same time.
  - ii. From the findings, researchers would like to receive more updates, and owing to the popularity of social media, regular email or social network promotions of recent OA publications in the various fields of study would actively promote OA. It is therefore recommended that the librarians pay attention to the use of social media as a platform for marketing or creating awareness of OA sources.

- iii. The challenges posed by the perceived inadequate ICT infrastructure can only be overcome by improved ICT infrastructure – not just in the number of computers available, but also through efficient connectivity and skilled staff.
- iv. Increased 'bring your own device' high bandwidth internet facilities/study lounges would help to reduce the congestion in the computer laboratories, while also encouraging those who can afford them to purchase devices that will assist them in researching, not just in typing out assignments.

### **6.5 Suggestions for further research**

- The impact of OA resources and resources on the quality of research output in South African universities. This can be determined through a longitudinal study of institutions.
- Effective marketing strategies to promote OA among students and staff in universities. This can only be done when the current strategies in place have been analysed and revamped. A small-scale, possibly in-house and library staff-led study, can accomplish this.

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## **APPENDICES**

### **APPENDIX I: LETTER OF ACCESS**

Friday, 12 April 2013

To: DVC - RESEARCH

From: Chiedza Pamela Mukuze

**Re: Request for permission to conduct research at the University of Zululand**

I am a student in the Department of Information Studies pursuing a Master of Arts in Library and Information Science. I am investigating the awareness and adoption of scholarly open access resources by researchers at the University of Zululand.

The aim of the study is to investigate the awareness and adoption of scholarly open access resources by researchers (both staff and students) at the University of Zululand. The understanding of what separates a scholarly resource from an ordinary resource will also be explored.

Through their participation I hope to get an understanding of the level of awareness of availability of technological innovations that improve access to freely available, current and relevant scholarly information for researchers in the academic arena. It will also highlight the importance and impact that use of open access resources has or can have on the quality and quantity of research conducted at the University of Zululand.

Participation in this project will be voluntary and confidentiality and anonymity of participants are guaranteed. I am hereby requesting to be allowed access to both staff and students of the University of Zululand engaged in research activities.

I look forward to hearing from you soon.

Thank you

Chiedza Pamela Mukuze (Researcher)



## **APPENDIX II: LETTER OF ACCESS TO LIBRARY STAFF**

The University Librarian: Mrs L. Vahed

University of Zululand

KwaDlangezwa

3886

Dear Mrs Vahed

**Re: Request for permission to interview Library staff at the University of Zululand**

I am a student in the Department of Information Studies pursuing a Master of Arts in Library and Information Science. I am **investigating the awareness and use of scholarly open access resources by researchers at the University of Zululand.**

The understanding of what separates a scholarly resource from an ordinary resource will also be explored.

I would like to interview all the staff members, particularly the Information Librarians, tasked with providing bibliographic instruction to postgraduate students and staff. If there are other members of staff who can assist with mapping the current Open Access environment at the University of Zululand, I would welcome being referred to them as well. Participation in this project will be voluntary and confidentiality is guaranteed.

I request to be allowed access to the Library staff that can assist in this research. I have attached the proposed interview schedule for your perusal.

I look forward to hearing from you soon.

Thank you

Chiedza Pamela Mukuze (Researcher)

## **APPENDIX III: ETHICS CLEARANCE CERTIFICATE**

**UNIVERSITY RESEARCH ETHICS  
COMMITTEE**  
(Reg No: UZREC 171110-30)



**UNIVERSITY OF ZULULAND**

Website: <http://www.unizulu.ac.za>

Private Bag X1001  
KwaDlangezwa 3886

Tel: 035 902 6887  
Fax: 035 902 6222  
Email: [MangeleS@unizulu.ac.za](mailto:MangeleS@unizulu.ac.za)

### **ETHICAL CLEARANCE CERTIFICATE**

Certificate Number	UZREC 171110-030 PGM 2013/65									
Project Title	The awareness and use of scholarly open-access databases by researchers at the University of Zululand									
Principal Researcher/ Investigator	CP Mukuze									
Supervisor and Co-supervisor	Prof. D Jacobs					Mr N Nkomo				
Department	Information Science									
Nature of Project	Honours/4 <sup>th</sup> Year			Master's	x	Doctoral		Departmental		

The University of Zululand's Research Ethics Committee (UZREC) hereby gives ethical approval in respect of the undertakings contained in the above-mentioned project proposal and the documents listed on page 2 of this Certificate. Special conditions, if any, are also listed on page 2.

The Researcher may therefore commence with the research as from the date of this Certificate, using the reference number indicated above, but may not conduct any data collection using research instruments that are yet to be approved.

Please note that the UZREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the documents that were presented to the UZREC
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research

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

The table below indicates which documents the UZREC considered in granting this Certificate and which documents, if any, still require ethical clearance. (Please note that this is not a closed list and should new instruments be developed, these may also require approval.)

Documents	Considered	To be submitted	Not required
Faculty Research Ethics Committee recommendation	X		
Animal Research Ethics Committee recommendation			X
Health Research Ethics Committee recommendation			X
Ethical clearance application form	X		
Project registration proposal	X		
Informed consent from participants	X		
Informed consent from parent/guardian			X
Permission for access to sites/information/participants	X		
Permission to use documents/copyright clearance			X
Data collection/survey instrument/questionnaire	X		
Data collection instrument in appropriate language		Only if necessary	
Other data collection instruments		Only if used	

**Special conditions:** Documents marked "To be submitted" must be presented for ethical clearance before any data collection can commence.

The UZREC retains the right to

- Withdraw or amend this Certificate if
  - Any unethical principles or practices are revealed or suspected
  - Relevant information has been withheld or misrepresented
  - Regulatory changes of whatsoever nature so require
  - The conditions contained in this Certificate have not been adhered to
- Request access to any information or data at any time during the course or after completion of the project

The UZREC wishes the researcher well in conducting the research.



**Professor Rob Midgley**  
 Deputy Vice-Chancellor, Research and Innovation  
 Chairperson: University Research Ethics Committee  
 11 November 2013

**CHAIRPERSON**  
 UNIVERSITY OF ZULULAND RESEARCH  
 ETHICS COMMITTEE (UZREC)  
 REG NO: UZREC 171110-30

11-11-2013

**RESEARCH & INNOVATION OFFICE**

## **APPENDIX IV: SURVEY QUESTIONNAIRE INFORMED CONSENT FORM**

### **Informed Consent Form for Researchers at the University of Zululand**

**Study Name:** Investigating the Awareness and Use of Open Access Resources at the University of Zululand

Dear Respondent

My name is Chiedza Mukuze; a postgraduate student in the Department of Information Studies at the University of Zululand. I am inviting you to participate in a study investigating the awareness and use of scholarly open access resources by researchers at the University of Zululand. You are welcome to confirm my details with my supervisors whose contact details are appended below. Please take time to go through the consent form. If clarification is needed, I will be happy to provide it either in person, via email or the contact number listed at the end of this page.

**Purpose of the research:** In summary, scholarly open access resources are an academic information resource that can be accessed anywhere online for just the price of the internet connection. I am interested in learning whether researchers (postgraduate students and academics) at the University of Zululand are aware of the existence of open access resources and whether they are making use of them in their studies.

**Risks:** There are no known or identifiable risks from your participation in the research.

**Benefits of the research and benefits to the participant:** The research seeks to explore the current knowledge and practical application of scholarly open access resources by researchers at the University of Zululand. This will assist the University in formulating strategies that will improve knowledge of and access to these resources, thereby enhancing the pool of academic information resources researchers can draw data and information from.

**Voluntary participation:** You will be asked to fill out a questionnaire which will take approximately 5- 15 minutes of your time. Please be reminded that participation is purely on a voluntary basis and

you reserve the right to withdraw at anytime during the study, without need of an explanation. Your decision not to participate will not have any adverse effect on your relationship with the researcher, now or in the future.

**Confidentiality:** Please be assured that the information you provide will be accorded the utmost confidentiality and anonymity, and will be used solely for the purposes of this study only. Neither your name nor individual details will be revealed or attached to your responses. Your data will be safely stored for a period of five (5) years and access will not be granted to anyone who is not directly involved in authenticating the findings. Thereafter, the researcher will personally ensure that it is appropriately disposed of.

**Dissemination of research findings:** The findings from this research will be used to complete the researcher's Master's dissertation and this will be uploaded onto the University's Institutional Repository (UZSpace) upon satisfactory completion. The findings might also be used to produce articles for publication.

I will be grateful if you could also assist with getting me in touch with fellow researchers. My contact details have been appended below. Please be reminded that you reserve the right to withdraw from this study at any time.

Regards

Chiedza Mukuze

Department of Information Studies (035)902 6484

Supervisors: Prof. J. Mostert and Mr. N. Nkomo

Student Number: 201100891

**chiedzap@gmail.com**

083 555 8239

## Part II Certificate of consent

I voluntarily consent to take part in a study investigating the awareness and use of scholarly access resources at the University of Zululand conducted by Chiedza Mukuze. I confirm that I have read the information sheet and have had opportunity to ask questions for clarity. I am aware that this is purely voluntary and am able to withdraw my participation at any time without any negative sentiments arising from either party.

Name of respondent:.....

Signature: .....

Student/staff Number:.....

**Date:** ..... **Place:**.....

I, Chiedza Mukuze (Student Number 201100891), do hereby confirm that I have accurately presented the nature of the research to the participant and have made sure that the participant is an informed and voluntary respondent.

Signature:.....

Date:..... Place:.....

## **APPENDIX V: SURVEY QUESTIONNAIRE**

### **SURVEY QUESTIONNAIRE**

#### **SECTION A**

*Please tick ✓ or mark with an x where relevant*

1. Gender                      Male ☐                      Female ☐

2. Which faculty and department are you in?

a. Commerce, Administration and Law ☐  
Arts ☐  
Education ☐  
Science and Agriculture ☐

b. Department: .....

3. Please indicate your designation and current level of study, if any:

	Honours	Masters	PhD Candidate	Post Doctorate	None
Part-time Student					
Full-time Student					
Research Assistant					
Part-time Lecturer					
Lecturer					
Senior Lecturer					
Associate Professor					
Professor					
Senior Professor					

Other.....

## SECTION B

Please tick ✓ or mark with an x where relevant, providing as much detail as possible where applicable.

1. Have you ever attended bibliographic instruction/ library orientation/user education?

Yes

No

☐

2. Did you find it beneficial?

Yes

☐

No

☐

Not applicable

☐

3. Are you satisfied with the Internet facilities on campus? If 'No' please give details.

Yes

☐

No

☐

.....  
.....  
.....

4. What determines the choice of academic information source in your studies?

Accessibility

☐

Authoritativeness

☐

Reliability

☐

Currency

☐

Relevance

☐

Availability

Other.....

**Open access (OA) is the free, limitless and unending access to scholarly research that has deliberately been made available across the globe via the internet including**



**electronic theses and dissertations, articles, eprints, full text journals, datasets, video and audio recordings. Notably, OA does not refer to online blogs or posts available without peer review nor journals whose access has been paid for by the university and are available via IP recognition or password registration, e.g. databases on the University library website.**

5. Are you familiar with scholarly OA databases in light of the above description?

Yes ☐ If 'Yes', please move to question **11**.

No ☐ if 'No', proceed with questions **6 – 10** and stop.

6. From the definition of OA given, do you think you will be making use of OA databases/resources anytime soon? Please explain, highlighting potential challenges and opportunities.

Yes ☐

No ☐

.....  
 .....  
 .....  
 .....

7. Whom do you think should be responsible for bringing about awareness of scholarly OA databases? Why?

Lecturers ☐

Library staff ☐

Research Office

Other.....

.....  
 .....

8. Which resources do you currently prefer to source research material from?

Books	<input type="checkbox"/>	Electronic journals	<input type="checkbox"/>
Theses and dissertations	<input type="checkbox"/>	General internet	<input type="checkbox"/>
Hardcopy journals	<input type="checkbox"/>		<input type="checkbox"/>

9. What is the reason for this preference?

.....

.....

.....

10. What challenges do you face in accessing research material in general?

.....

.....

.....

**THANK YOU FOR YOUR VALUED TIME AND INPUT**

11. Where and/or how did you develop OA awareness?

Library

☐

Lecturers

☐

Conferences/workshops

☐

Articles

☐

Colleagues

☐

Other.....

.....

12. How often do you **deliberately** access OA databases?

Frequently

☐

As needed

☐

Rarely

☐

Never, come across them by accident

☐

13 Which OA resources do you make regular use of?

Electronic theses and dissertations

☐

Online Articles

☐

Online Journals

☐

Online Books

☐

Online Datasets

☐

Online Audio/Video recordings

☐

14. What challenges do you face in accessing OA resources?

.....

.....

.....

15. What do you think can be done to minimise these challenges?

.....

.....

.....

.....

16. Has the availability of OA databases assisted you in your research output? Please give details.

☐

Yes

☐

No

.....

.....

.....

.....

17. What do you find to be the most appreciable aspect of OA databases?

.....  
.....  
.....

18. What is your opinion of the quality of OA databases versus other databases?

.....  
.....  
.....  
.....

19. Would you consider publishing your research in an OA publication? Why?

Yes ☐ No ☐

.....  
.....  
.....

20. Do you think you possess the necessary skills to make maximum use of

OA resources? Please give details of challenges and opportunities.

Yes ☐ No ☐

.....  
.....  
.....  
.....

21. Do you think the University of Zululand is adequately promoting OA databases? Please explain.

Yes ☐ ☐ No

.....  
.....  
.....  
.....

22. What do you think can be done to promote OA awareness?

.....

.....

.....

.....

23. Any additional comments regarding any of the issues raised above?

.....

.....

.....

.....

.....

.....

.....

**THANK YOU FOR YOUR VALUED TIME AND INPUT.**

## **APPENDIX VI: INFORMED CONSENT FORM FOR FOCUS GROUP PARTICIPANTS**

### **Informed Consent Form for Researchers at the University of Zululand**

**Study Name:** Investigating the Awareness and Use of Open Access Resources at the University of Zululand

Dear Respondent

My name is Chiedza Mukuze; a postgraduate student with the Department of Information Studies at the University of Zululand. I am inviting you to participate in a study investigating the awareness and use of scholarly open access resources by researchers at the University of Zululand. You are welcome to confirm my details with my supervisors whose contact details are appended below. Please take time to go through the consent form. If clarification is needed, I will be happy to provide it either in person, via email or the contact number listed at the end of this page.

**Purpose of the research:** In summary, scholarly open access resources are an academic information resource that can be accessed anywhere online for just the price of internet connection. I am interested in learning whether researchers (postgraduate students and academics) at the University of Zululand are aware of the existence of open access resources and whether they are making use of them in their studies.

**Risks:** You are invited to participate in a focus group with 6-8 other researchers familiar with open access resources. This discussion will be guided by myself, Chiedza Mukuze. It will start with me as moderator making sure you are settled and comfortable with the environment. I can also answer questions about the research that you might have. Then I will ask you questions on OA resources and give you time to share your knowledge. The questions will be about your introduction to and experiences with OA resources. You will not be asked anything you are not comfortable sharing. Of necessity, the discussion will be tape recorded but participants are encouraged not to refer to each other by name. The discussion will take place in the Arts Auditorium and only focus group members will be present. Participants will be encouraged to respect each other's privacy and confidentiality but this cannot be guaranteed. Apart from this, there are no known or identifiable risks from your participation in the research.

**Benefits of the research and benefits to the participant:** The research seeks to explore the current knowledge and practical application of scholarly open access resources by researchers at the University of Zululand. This will assist the University in formulating strategies that will improve knowledge of and access to these resources, thereby enhancing the pool of academic information resources researchers can draw data and information from.

**Voluntary participation:** You will be asked to participate in an audio-recorded focus group discussion with your peers which will take approximately an hour to an hour and a half of your time. Please be reminded that participation is purely on a voluntary basis and you reserve the right to withdraw at any time during the study, without necessarily giving an explanation. Your decision not to participate will not have any adverse effect on your relationship with the researcher, now or in the future. You will not be forced to speak or participate should you choose not to verbalise your position.

**Confidentiality:** Please be assured that the information you provide will be accorded the utmost confidentiality and anonymity, and will be used solely for the purposes of this study only. Neither your name nor individual details will be revealed or attached to your responses. Your data will be safely stored in a secure facility for a period of five (5) years to satisfy statutory requirements and access will not be granted to anyone except should the University's research ethics board require it for correlation to findings. Thereafter, the researcher will personally ensure that it is appropriately disposed of.

**Dissemination of research findings:** The findings from this research will be used to complete the researcher's Master's dissertation and this will be uploaded onto the University's Institutional Repository (UZSpace) upon satisfactory completion. The findings might also be used to produce articles for publication.

Regards

Chiedza Mukuze

Department of Library and Information Science (035)902 6484

Supervisors: Prof. J. Mostert and Mr. N. Nkomo

Student Number: 201100891

## Part II Certificate of consent

I voluntarily consent to take part in a study investigating the awareness and use of scholarly access resources at the University of Zululand conducted by Chiedza Mukuze. I confirm that I have read the information sheet and have had opportunity to ask questions for clarity. I am aware that this is purely voluntary and am able to withdraw my participation at any time without any negative sentiments arising from either party.

Name of respondent:.....

Signature: .....

Student/staff Number:.....

**Date:**..... **Place:**.....

I, Chiedza Mukuze (Student Number 201100891), do hereby confirm that I have accurately presented the nature of the research to the participant and have made sure that the participant is an informed and voluntary respondent.

Signature:.....

Date:..... Place:.....



## **APPENDIX VII: DEMOGRAPHIC CHARACTERISTICS OF FOCUS GROUP**

### **FOCUS GROUP DEMOGRAPHIC INFORMATION**

*Please tick ✓ or mark with an x where relevant*

1. Gender                      Male ☐                      Female ☐

2. Which faculty and department are you in?

a. Commerce, Administration and Law ☐  
Arts ☐  
Education ☐  
Science and Agriculture ☐

b. Department: .....

3. Please indicate your designation and current level of study, if any:

	Honours	Masters	PhD Candidate	Post Doctorate	None
Part-time Student					
Full-time Student					
Research Assistant					
Part-time Lecturer					
Lecturer					
Senior Lecturer					
Associate Professor					
Professor					
Senior Professor					

Other.....

**THANK YOU**

## **APPENDIX VIII: FOCUS GROUP DISCUSSION THEMES**

### **FOCUS GROUP DISCUSSION THEMES**

1. Are you aware of OA databases/resources
2. How did you first come to be aware of OA databases?
3. Which OA databases have you already used and what is your opinion about the academic value of these databases (*in your opinion are OA resources of a high enough quality that you can use it for your research*)?
4. Is there enough training or awareness made in terms of OA resource availability by the university? What strategies are in place?
5. Did you have sufficient background information on OA databases prior to use or did it develop as you got more familiar with them? What sort of information did you have and where did you receive it? Was it helpful in making a decision to utilise OA databases?
6. What are the challenges and opportunities faced by researchers regarding use of open access resources?
7. Which OA sources do you favour the most and why?
8. What is your most preferred academic information resource and why? Please do not limit responses to OA.

9. Would you consider publishing in an OA publication or submitting your work to an OA database?

**THANK YOU FOR YOUR TIME.**

## **APPENDIX IX: INTERVIEW INFORMED CONSENT**

### **Informed Consent Form for University of Zululand Library Staff**

**Study Name:** Investigating the Awareness and Use of Open Access Resources at the University of Zululand

Dear Respondent

My name is Chiedza Mukuze; a postgraduate student in the Department of Information Studies at the University of Zululand. I am inviting you to participate in a study investigating the awareness and use of scholarly open access resources by researchers at the University of Zululand. You are welcome to confirm my details with my supervisors whose contact details are appended below. Please take time to go through the consent form. If clarification is needed, I will be happy to provide it either in person, via email or the contact number listed at the end of this page.

**Purpose of the research:** In summary, scholarly open access resources are an academic information resource that can be accessed anywhere for just the price of the internet connection. I am interested in learning whether researchers (postgraduate students and academics) at the University of Zululand are aware of the existence of open access resources and whether they are making use of them in their studies.

**Selection of participants:** You are being invited to participate because of the bibliographic instruction you provide as an Information Librarian.

**Risks:** there are no known or identifiable risks from your participation in the research.

**Benefits of the research and benefits to the participant:** The research seeks to explore the current knowledge and practical application of scholarly open access resources by researchers at the University of Zululand. This will assist the University in formulating strategies that will improve knowledge of and access to these resources, thereby enhancing the pool of resources researchers can draw data and information from.

**Voluntary participation:** You will be asked to participate in an in-depth interview which will take approximately 30-45 minutes of your time. Please be reminded that participation is purely on a voluntary basis and you reserve the right to withdraw at any time during the study, without necessarily giving an explanation. Your decision not to participate will not have any adverse effect on your relationship with the researcher, now or in the future.

**Confidentiality:** Please be assured that the information you provide will be accorded the utmost confidentiality and anonymity, and will be used solely for the purposes of this study only. Neither your name nor individual details will be revealed or attached to your responses. Your data will be safely stored in a secure facility for a period of five (5) years and access will not be granted to anyone who is not directly involved in authenticating the findings. Thereafter, the researcher will personally ensure that it is appropriately disposed of.

**Dissemination of research findings:** The findings from this research will be used to complete the researcher's Master's dissertation and this will be uploaded onto the University's Institutional Repository (UZSpace) upon satisfactory completion. The findings might also be used to produce articles for publication.

Regards

Chiedza Mukuze

Department of Library and Information Science (035)902 6484

Supervisors: Prof. J. Mostert and Mr. N. Nkomo

Student Number: 201100891

**chiedzap@gmail.com**

083 555 8239

## Part II Certificate of consent

I voluntarily consent to take part in a study investigating the awareness and use of scholarly access resources at the University of Zululand conducted by Chiedza Mukuze. I confirm that I have read the information sheet and have had opportunity to ask questions for clarity. I am aware that this is purely voluntary and am able to withdraw my participation at any time without any negative sentiments arising from either party.

Name of respondent:.....

Signature: .....

Student/staff Number:.....

**Date:** ..... **Place:**.....

I, Chiedza Mukuze (Student Number 201100891), do hereby confirm that I have accurately presented the nature of the research to the participant and have made sure that the participant is an informed and voluntary respondent.

Signature:.....

Date:..... Place:.....

## **APPENDIX X: LIBRARY STAFF INTERVIEW SCHEDULE**

### **LIBRARY STAFF INTERVIEW SCHEDULE**

1. How often do you offer bibliographic instruction on use of e-resources to postgraduates and academic staff?
2. Is it mandatory for all postgraduate students to participate in bibliographic instruction? How do you monitor their participation?
3. Do you specifically promote use of OA databases to these two groups? Why?
4. What opportunities do you see for the promotion and use of OA databases at UniZulu?
5. What do you see as the major challenges regarding the use of OA databases among the postgraduates and academic staff?
6. Are you aware of any OA manifestos that the University is party to? Please give details, if any, and explain how they contribute to the awareness, use and promotion of OA sources among the users
7. What is the future of OA in academic research, in your opinion?

**THANK YOU FOR YOUR TIME AND COOPERATION.**