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Assessing the Challenges of Postgraduate Research: Perspectives from University of Zululand

FACULTY OF COMMERCE, ADMINISTRATION and LAW

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Declaration

I, Bukhulubenkosi Nathaniel Mthethwa declare that this dissertation is hereby submitted to the University of Zululand, in the fulfillment of the requirements for the degree of Masters of Public Administration. It has not previously been submitted for a degree at this Institution or any other university. I further declare that this is my work and that all material contained herein has been therefore acknowledged.

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Mr Bukhulubenkosi N. Mthethwa **Date**

Dedication

This dissertation is dedicated to my parents, Mrs Mathombi Joana Mthethwa and Mr Dida Mthethwa, who were continuous sources of support throughout the writing process. I further dedicate it to my son, Bukhonabenkosi Nkazimulo Mthethwa, and Nomfundo Kubheka for being supportive throughout the time of writing. I would also like to dedicate it to my siblings, especially Mr Muziwenhlahla Mthethwa, Ntombikayise Mthethwa and Zamokuhle Ephraim Mthethwa, for supporting me financially and emotionally, without them this dissertation would not have been a success.

Lastly, I would like to dedicate this dissertation to all the postgraduate students and also the undergraduate students who wish to pursue postgraduate studies. I assure you, this thesis is worth the read.

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I thank everyone for their kind support during my times of stress and thank them for being my comfort at these times. I appreciate the support given to me by the postgraduate students of the University of Zululand and the academic staff that participated in this project. I also appreciate Prof. I. Kasseram for his continued support and words of encouragements during the development of this report.

On a final note, I also want to show my appreciation for my siblings Ntombikayise, Muziwenhlahla, Zamokuhle, Siphiwe, Nozipho, Sambulo and Sibusiso, for believing in me, and for their continuous support and understanding during my studies.

Abstract

Universities the world over are recognised as institutions for the development of knowledge, learning and innovation. The purpose of postgraduate research is to foster the ability to efficiently investigate niche subjects during the research process. The point of postgraduate research is not necessarily to innovate or expand knowledge but to produce academic-research scholars. Most postgraduate research comprises basic research, applied, and collaborative research (Mutula, 2009).

This study assessed the challenges of postgraduate research drawing on perspectives from the University of Zululand (UNIZULU). As a comprehensive university, the focus on UNIZULU provides an opportunity to understand how the challenges of postgraduate research from a previously disadvantaged South African university environment can be addressed. The study seeks to understand students' and academic staff's insights about the challenges facing postgraduate research with reference to UNIZULU. It adopts a mixed-methodology approach by generating data from questionnaires, interviews and focus-group interviews. Four primary questions were directed to 34 study participants to gather data relevant to the challenges experienced when conducting postgraduate research. The questions sought to understand these challenges from two sides (students and authorities).

The findings of the study reveal that the challenges facing postgraduate research include a lack of supervision and mentorship, understaffed university, a lack of research-writing skills, a lack of funding, quality control and status recognition (as mentioned by the participants). The study traces the postgraduate challenges to a number of sources such as the university being understaffed, funding issues, a shortage of postgraduate facilities and the mismanagement of research documentation. The study concludes that the institution should implement cohort supervision and create its own funding scheme. Doing so would address the issues arising from the postgraduate research challenges. The study further suggests that the KZN education sector, and specifically UNIZULU, reviews its postgraduate research policies, especially on issues related to funding and housing. Such an undertaking would justify the huge annual investment needed to sustain postgraduate research.

List of Tables and Figures

List of Abbreviations or Acronyms

AAU	-	Association of Africa Universities
ACL	-	African Computerized Library
AEA	-	Atomic Energy Agency
AISA	-	Africa Institute of South Africa
AJOL	-	African Journals Online
AODL	-	African Online Digital Library
APA	-	American Psychological Association
ARL	-	Association of Research Libraries
ASUNET	-	Ain Shams University Network
BEE	-	Black Economic Empowerment
CHE	-	Council on Higher Education
CHET	-	Centre for Higher Education Transformation
CSI	-	Corporate Social Investment
CT	-	Computer Technology
DHET	-	Department of Higher Education and Training
DoE	-	Department of Education
DST	-	Department of Science and Technology
EFAL	-	English First Additional Language
EJ	-	Electronic Journals
FA	-	Faculty of Arts
FCAL	-	Faculty of Commerce, Administration and Law
FE	-	Faculty of Education
FGI	-	Focus Group Interviews
FPSM	-	Firend's Problem Solving Model
FSA	-	Faculty of Science and Agriculture
GCP	-	Global Code of Practice
GDP	-	Gross Domestic Product
GUNI	-	Global University Network for Innovation
HDC	-	Higher Degrees Committee
HEIs	-	Higher Education Institutions

HESA	-	Higher Education South Africa
HIV/AIDS	-	Human Immune Deficiency Virus/Acquired Immune Deficiency Syndrome
HRC	-	Health Research Committee
HSR	-	Harvard Style of Referencing
ICLs	-	Income-Contingency Loans
ICT	-	Information and Communication Technology
ILO	-	International Linkages Office
IMF	-	International Monetary Fund
IP	-	Intellectual Property
IROP	-	International Recruitment of Health Personnel
ISFAP	-	Ikusasa Student Financial Aid Program
IT	-	Information Technology
KCDM	-	King Cetshwayo District Municipality
KZN	-	KwaZulu-Natal
NCHE	-	National Commission on Higher Education
NDP	-	National Development Plan
NPC	-	National Planning Commission
NRF	-	National Research Fund
NSFAS	-	National Student Financial Aid Scheme
ODA	-	Overseas Development Agency
OJS	-	Open Journal System
OPACs	-	Online Public Access Catalogues
PhD	-	Postdoctoral Degree
PPP	-	Public-Private Partnership
PSET	-	Post School Education and Training Sector
RD	-	Research and Development
RIO	-	Research and Innovation Office
RU	-	Rhodes University
SA	-	South Africa
SABINET	-	Southern African Bibliographic Information Network

SAG	-	South African Government
SARUA	-	Southern African Regional Universities Association
SETGCDS	-	Science, Engineering and Technology Human Capital Development Strategy
SPSS	-	Statistical Programme for Social Sciences
SSA	-	Sub-Saharan Africa
TVET	-	Technical and Vocational Education and Training
UJ	-	University of Johannesburg
UKZN	-	University of KwaZulu-Natal
UL	-	University of Liverpool
UNDP	-	United Nations Development Program
UNESCO	-	United Nations Educational, Scientific and Cultural Organizations
UNISA	-	University of South Africa
UNIZULU	-	University of Zululand
UP	-	University of Pretoria
USA	-	United States of America
USAf	-	Universities of South Africa
USIU	-	United States International University
UV	-	University of Venda
UZF	-	UNIZULU Foundation
UZPO	-	University of Zululand Press Online
UZREC	-	University of Zululand Research Ethics Committee
WB	-	World Bank
WHO	-	World Health Organization

Table of Contents

Contents Page(s)

CHAPTER ONE: INTRODUCTION AND BACKGROUND

1. Introduction

Universities the world over are recognised as Higher Education Institutions (HEIs). These places are known customarily for the development of knowledge, learning and innovation (Scott, 2012:10). For the purpose of this study, understanding the meaning of research and postgraduate research is vital. Postgraduate research can be defined as a formal area of study that is pursued by an institution or organisation of higher learning. By definition, the term “postgraduate” conveys the suggestion that the candidate is undertaking either an Honours, Master's, or Doctoral degree at an accredited tertiary institution (Cambridge University Press, 2015). Whereas the term “research”, connotes innovative and precise work, attempting to expand human knowledge, including the generation of information about people, culture, society, and the use of learning to devise new applications (OECD, 2015).

Postgraduate research involves numerous procedures but generally requires those self-proclaimed to belong to such programmes to have accomplished a bachelor’s degree or a diploma (Postgraduate Research, 2009). According to Cambridge University Press (2013), research involves the meticulous study of a subject, in order to ascertain (new) information or reach a (new) understanding. The term “research” is used to designate a number of similar and often overlying actions involving a search for facts or evidence (Oxford Dictionary, 2016). Postgraduate databases are measured as channels through which many institutions improve their research volume and produce the highly developed skills essential for a useful economy, and to deal with different matters such as the present global financial recession, climate change, poverty lessening and drought.

Whether one is an undergraduate or a postgraduate candidate, conducting an investigation or research is a fundamental part of what it is to be a scholar-practitioner. These practitioners possess advanced abilities to reliably influence social change (Schwiesow, 2003:43). When conducting research, postgraduate students, however, encounter challenges. This study essentially examines the challenges of postgraduate research at the University of Zululand (UNIZULU) with the objective of advancing possible ways of mitigating the effects of these stumbling blocks. Undeniably, students do encounter various challenges during the process of

compiling their research paper. Little research has been done in articulating these challenges and, specifically, the factors that cause these problems in the context of South African HEIs.

One may therefore argue that these problems usually arise when students have to choose a research topic, which is an especially difficult part of research because a research topic needs to give a brief overall description of the thesis or dissertation. This study explores the issues that arise in postgraduate research from the context of UNIZULU, specifically: it will analyse the challenges encountered by postgraduate candidates and the sources of such challenges. Research challenges in HEIs are not a new phenomenon in the world. In fact, they cut across time and space. According to Phelps (1993:19), In terms of time, “postgraduates’ research challenges are as old as the educational institutions themselves”. Ultimately, the challenges that are encountered by postgraduates have existed for quite a long time.

As Malekela and Davidson (1994) also point out, postgraduate research challenges can be traced as far back as the middle Ages, and even before then. In terms of place, postgraduate research challenges in HEIs are an international phenomenon which affects continents, states and institutions. An investigation done by the Association of Africa Universities (AAU) concludes that “part of the students who commence postgraduate studies do not finish them within a given window period” (Golde, 2001:25). If the completion period is considered alongside the completion rate, then an even smaller percentage of postgraduate candidates in the social and human sciences finish their research papers within the two-year window that current funding regimes reflect (Mutula, 2009). This is due to the fact that there are so many problems that postgraduate students face, while, at the same time, little attention has historically been given to facilitating students’ completion rates in their postgraduate studies.

On the topic of postgraduate research challenges, numerous studies have concentrated on the postgraduate-supervisor relationship (Lamm, Clerehan and Pinder, 2007:25; Armitage, 2006:76; Dysthe, 2002:87). The fundamental subjects (themes) covered by the above-mentioned studies include, *inter alia*, the dissimilarities between the postgraduate student and supervisor expectations. This study will also critically examine the challenges introduced through the process of

postgraduate research supervision. McCormack (2004) conducted a prolonged investigation of a group of postgraduate research scholars. His study affirms that there was a large gap amongst postgraduates' understanding about research and what was anticipated, in contradiction to what supervisors were offering. In more or less all circumstances this gap was so utter and complete that the finishing point for the research became a contentious issue. Furthermore, Armitage's (2006) study into supervisor roles focuses essentially on the connections or relations of postgraduate candidates and their supervisors, and the organisation where the thesis or dissertation is hosted. His study highlights interesting perceptions concerning assignable and interpersonal features relevant to these relations and the desire to cope and manage attitudes and construct or build trust.

Moreover, according to Bitchener et al. (2006) the challenges of postgraduate research are often more difficult and problematic since some supervisors have unspoken knowledge or information about the techniques to compile the thesis or dissertation that they somehow do not transfer or communicate to students. Burnett (1999) discusses the benefits of using small clusters or collective-group supervision in assisting postgraduates' enculturation into an exact discipline. Their understanding of the research process is enhanced through their having established a support system. Supervisors sometimes do not understand how lonely or solitary postgraduates can feel throughout their research study and "international students, specifically, can indeed encounter a sturdy sense of social segregation" (Burnett, 1999:21). Action circles and small, group gatherings can be supportive in compelling students to share both problems, resolutions, and in bolstering their self-confidence.

The South African Constitution of 1996, the 1997 Higher Education Act and White Paper ordered the State and its institutes to realise the philosophical and essential aims communicated in and through higher education. It was anticipated that their broadminded and advanced practical realisation would hugely benefit the revolution and improvement of higher education for the good of the general public (Constitution of the Republic of South Africa, 1996). Nevertheless, the challenges of postgraduate research are escalating each and every year. Mouton (2010) notes that, from 2013 to 2015, the percentage of postgraduate research challenges, from the South African perspective, has risen to 22% compared to 15% of 2012. Mouton further mention

that seven out of 10 postgraduate students are facing multiple challenges (Mouton, 2013).

This study intends to create an analysis based on the available literature, as well as the experiences of the study participants. Again, it must be stressed that postgraduate research challenges are not isolated to African universities but have also been a provocative subject in the universities of other non-African countries (Ivester, 2013). This study also recommends evidence-based policy making and challenge-management practices aimed at addressing the challenges of postgraduate research. Perspectives reflected here are based on the experiences of postgraduates from the University of Zululand but the lessons learned from these experiences are applicable to HEIs throughout South Africa. This will help fill-in the gap identified by this study in the course of the literature review.

Using an integrated mix of research approaches, data collection methods and analysis, this study included 34 participants. Interviews, focus-group interviews and questionnaires were used to obtain data relevant to the study's objectives and research questions. Semi-structured interviews, focus-group interviews and questionnaires were conducted at UNIZULU in order to gather qualitative and quantitative data in accordance with the motivation of the study.

I have reviewed the institutional basis on what routes one must follow to conduct proper research.

1.2 Clarifications and Justifications of this Study

Countless studies have been conducted with respect to the challenges of postgraduate research. The majority of these reviews all around the world have not concentrated on Higher Education Institutions (HEIs). Therefore, this review will help close that gap.

1.3 Problem Statement

Whether you are an undergraduate or a postgraduate student, doing research is an important part of being a scholar-practitioner with the abilities (skills) and integrity to effect social change. Historically, researchers have faced a number of research challenges from selecting a topic and finding study contributors, to staying sane

throughout the process. Keeping up-to-date with one's studies as a postgraduate student has been recommended as an effective prophylactic for some of the kinds of research challenges faced by students. The annual research report in the University of Zululand reveal that majority of postgraduate students face a number of challenges when conducting research (Research Office, 2013:10).

As indicated by Mouton (2011), postgraduate education in South Africa is confronting an assortment of issues with regards to locally conducted research. In 2011, for example, South African HEIs enlisted 480 000 undergraduate students, more than 49 000 Master's students and a little more than 13 000 Doctoral candidates. In that year, there were only 9 800 Master's graduates and 1 560 Doctoral graduates. In 2012, the awarding of Doctoral degrees decreased to 1 101 (DHET, 2012). Postgraduate enrolments and the eventual awarding of these degrees are poor and profoundly deficient given South Africa's financial and social improvement needs.

Additionally, they limit the change of the social arrangement needed to usher in a new era of postgraduate researchers. However, South Africa has made some changes due to Government's substantial investments in research and development (R & D). Authors such as Aspland, Edwards, O'Leary and Ryan (2014:46) support the perspective that postgraduate students in universities world-wide are, without a doubt, confronting various difficulties when conducting research. Moreover, Zakri's (2010) review demonstrates certain gaps in connecting research with the advancement needs of society, specifically recognising a lacuna in that the majority of the studies have never looked at comprehensive universities – this study intends to fill that gap.

By filling this knowledge gap, this study contributes to understanding the challenges of postgraduate research, offering possible solutions to address these challenges. Currently, the greater part of the literature is computerised; to access it one therefore needs the internet. The existing literature is inadequate to understand the postgraduate research problems at UNIZULU in the sense that none of the studies that have so far been conducted on this particular issue have actually focused on comprehensive universities. This study intends bridging this gap by including the perspectives of the UNIZULU students. According to the respondents in the questionnaire compiled for gathering the quantitative part of this research, it is

difficult to access the Internet at University of Zululand. It is also worth bearing in mind that some postgraduate students do not have access to the Internet at their off-campus residences. Such issues raise various questions which require further investigation.

1.4 Objectives of the Study

In relation to this study, the following research objectives were formulated:

(i) To assess the challenges encountered by postgraduates at the University of Zululand
(ii) To interrogate the extent to which these challenges impact postgraduate research at the University of Zululand
(iii) To offer possible suggestions as to how to address these challenges encountered by postgraduate students at the University of Zululand

1.5 Research Questions

The study asks the following questions:

(i) What are the challenges encountered by postgraduate students when conducting research at UNIZULU?
(ii) How do these challenges impact the research productivity of postgraduate students at UNIZULU?
(iii) In what way can the challenges experienced by postgraduate students be addressed?

1.6 Proposition

In an argument or debate, a proposition is a statement that confirms or rejects something. A suggestion may function as a premise or a conclusion in a syllogism or enthymeme (Carveth, 2006:37). Since this study is a based on a problem statement that seeks to understand and assess the challenges of postgraduate research and sources of these challenges as they relate to funding agencies, the study itself has raised new questions about the supervisor's role which could become the topic of useful future research. Many postgraduates do not feel that they can raise the issue of the particular challenges with their supervisor (or supervisors) either because they are under the impression that all students have difficulties, and they do not want to

damage their relationship with their supervisor, internal examiner, or other staff in the institution. In some cases, the student may be reluctant because they have raised problems in the past without finding resolution.

1.7 Research Methodology

According to Myers (2009) a research method is a strategy of query, which changes from essential expectations into a research design and data collection. This study applies both qualitative and quantitative methodologies, i.e. a mixed-research method in order to view the phenomenon is broader lences. Futhermore since it seeks to explore (understand) research challenges experienced by postgraduates and the sources of these challenges when conducting research at UNIZULU. In this mixed-method study, qualitative research structures (features) play a greater role than the quantitative data features since quantitative features are present only in the analysis and interpretation of statistics (data). Even though each approach has its own methodology derived from diverse logical (philosophical) norms that shape the means researchers approach problems, collect and analyse data, the study intends to use both of them in conjunction. This is because these two approaches are complementary, and their joint application enhances both the dependability (reliability) and validity of a research paper (Babbie et al., 2000:35).

The use of both research approaches guarantees not only methodological rigour but also underscores the study's legitimacy in an attempt to test whether its final answers are valid given that the study's focus is on an underdeveloped area within its field. Moreover, I will make use of the descriptive research design. In this design, the researcher describes the issue at hand while testing the available research proposition in order to recommend ways to address these challenges.

Prior to the write up of this study, questionnaires were distributed, and individual interviews and focus-group discussions were conducted at UNIZULU. In addition, this study made use of a case study as part of its broader methodology. The unit of analysis is the public university (UNIZULU).

Studying a phenomenon in an ordinary environment through different viewpoints can usefully supplement the available data. For the purpose of this study and since I, as the researcher, was not able to interview and distribute questionnaires to a large number of students, non-probability sampling was selected.

1.8 Ethical Considerations

Doctors confront moral quandaries while carrying out their everyday duties. So do social researchers when individuals are asked to participate as study members in a study or investigation. In conducting this type of research, researchers need to be aware people tend to be defensive of their own position and that of their institution or institutions (Polit and Hungler 1999:132). Directing an investigation requires mastery and ingenuity, as well as sincerity and trustworthiness. This needs to be inculcated in order to put human subjects at ease while also showing consideration for their feelings and beliefs. In the course of undertaking this study, participants' rights to self-assurance, secrecy and informed consent were observed.

Researchers need to ensure their study members create trust with them; advance the uprightness of research; make reparations for unfortunate behaviour and mistakes that may injure their associations or institutions, and adapt to new, difficult issues (Israel and Hay, 2006). Authorisation and freedom to lead ethical research on campus was obtained from the research committee of the University of Zululand (UNIZULU). Contributors' consent was obtained prior to commencing interviews. Researchers need respondents to sign informed-consent forms agreeing to the terms of the study before gathering any information, whether personal or otherwise. This framework comprises a standard arrangement that recognises the sanctity of human rights (Sarantakos, 2005). Therefore, study members were required to sign a consent form and they were informed of their rights to wilfully agree or decline to participate. Further, they were assured that were they to discontinue participation in this study, it would not result in any financial loss or other punitive action.

Participants were informed about the motivation behind the study, and the strategies that would be used to gather information. The respondents were likewise guaranteed that there were no hidden dangers and or costs associated with their participation. The right to privacy was observed throughout this study, which is why participants' names have not been recorded in this document. When subjects are guaranteed anonymity, it implies that the data they give will not be freely available in any way, showing consideration for their privacy (Pilot and Hugler, 1995). In this investigation, confidentiality has kept through the assurance that all of the assembled data has been considered, and care has been taken not to reveal subjects' personality traits or other identifying features when detailing or distributing the study (Burns and Grove,

1993:45). Additionally, the ethical rule of self-assurance was observed. Participants were dealt with as autonomous in that they were fully informed about the purpose of this study, enabling them to voluntarily decide what to share and what not to. Finally, information was provided to participants about myself, as the research agent, and this study, in case participants wish to make contact regarding further inquiries or protests arising in the future.

1.8.1 Permission to Conduct the Study

Authorisation to direct the study was sought from and allowed by all faculty deans and the UNIZULU Research and Innovation Office authority (see Appendix A – Ethical Clearance Letter). The academic-staff in all UNIZULU faculties responsible for directing postgraduate students, likewise, took an interest in the study and were informed about it. Their participation was also requested and granted.

1.8.2 Principles of Research Ethics

The ethics of benevolence and reverence for people's self-worth (respect for others) was observed throughout all stages of the data gathering process. Participants were made cognisant that they would not receive any type of remuneration for sharing in the study, and their commitment was thus of their own volition and free will.

1.8.3 Principle of Beneficence

This rule is meant to guard against opportunities for mischief against study participants and the misuse of personal information (Polit and Hungler 1999). No physical harm occurred during the filling out of questionnaires or during the interview sessions. As the researcher, my mobile phone numbers were given out to all respondents in the event that any of them would wish to talk about anything arising as a result of their participation. In the event of a participant registering feelings of unease or nervousness, their feelings would be registered and referred to an advisor as part of this study.

1.8.4 Principle of Respect for Human Dignity

This principle incorporates the right to self-assurance and to full disclosure (Polit and Hungler, 1999). Respondents' rights to self-assurance were regarded in light of the fact that they could choose freely, with no intimidation, regardless of financial or safety considerations, whether or not to participate in the study. They had the right

not to answer any questions that caused offense; to reveal or conceal private information, and to request clarification about any part of the process. The right to full disclosure was observed in the way in which I, as the researcher, explained the study and its aims and objectives at the outset, as well as the way in which participants were clearly informed of their right to take part or decline. This was conveyed in the form of a letter (see Annexure B – Consent Form). Every participant needed to deliberately consent to the arrangement. To this end, the consent forms were collected and stored prior to the commencement of the questionnaires and interviews. Further, it has been ensured that no signed consent form can be connected to a particular questionnaire. This guarantees respondents' anonymity. This level of confidentiality is being managed securely, as evident from the fact that no names have been revealed in the research report. Any participant who wishes to acquire a study report was free to contact me, as the researcher, to supply a copy of the report.

1.9 Feasibility (Resources)

This research has no special resource implications. Current resources are adequate since the study is based at UNIZULU; neither travel grants nor additional institutional resources allocations were required. Accessing information was much easier than in other postgraduate research projects since the research did not require any travel from one point to another for information gathering. Since I, as the researcher, am a postgraduate student at this very institution, I am also familiar with the challenges pertaining to research, and as a result, this study was highly feasible.

1.10 Intellectual Property and Innovation

Other than the usual copyright issues, I do not expect any special intellectual property challenges to arise from this research.

1.11 Knowledge Dissemination

My research topic, the research methodology, and the thesis structure have been chosen to open up the possibility of publishing articles from the material generated. I foresee submitting an article to an accredited journal, covering the topic under investigation ("Challenges of Postgraduate Research: Perspectives from University

of Zululand"). I will also seek to present my paper both locally and internationally, since the research challenges outlined here are experienced globally.

1.12 Outline of Chapters

Chapter One: Introduction and Background – This chapter presents background details for the study and it is segmented in the following manner: background of the study; clarifications and justifications of the study; the problem statement; objectives of the study; research questions; contribution of the study; ethical considerations; research methodology; outline of chapters, and the conclusion.

Chapter Two: Literature Review – This chapter focuses on a mixture of scholarly research and a literature review that situates this study within current research in the same field. The chapter reviews work based on postgraduate research challenges. It also reviews existing literature on the challenges of postgraduate research presented in studies that have been conducted in recent years. By understanding the challenges of postgraduate research at the University of Zululand, this study intends to review these challenges while offering suggestions for overcoming them. The Literature Review focusses on postgraduate research at universities, taking a closer look at these challenges from global, national, provincial and local perspectives. The sources of research challenges and their social and political impact add impetus to this chapter, with further bearing on this study's Case Study. It also details what previous authors have failed to say, providing validation for the study and its outcomes.

Chapter Three: Research Methodology – This chapter introduces the research methodology by outlining the choice of research design, sampling methods and provides a detailed description of the data-collection methods, instruments and processes.

Chapter Four: Data Presentation and Analysis – This chapter presents and discusses this study's findings on the challenges of postgraduate research at the University of Zululand. It seeks to inform evidence-based postgraduate challenge prevention and management strategies in HEIs in order for this study to meet the core objectives. This chapter provides a clear picture of the views of study participants on the topic under investigation, supported by the available literature.

Chapter Five: Summary of Findings, Conclusions and Recommendations – This chapter presents the summary of findings, recommendations and conclusions of the study. It contrasts the findings of the study with the research questions. This chapter concludes with the final summation of the information gathered. Conclusions, recommendation and findings, as well as summaries and opportunities for further research are also provided.

1.13 Conclusion

The purpose of this chapter is to outline the problem under investigation and also to provide a background to understanding postgraduate research that has been conducted at the University of Zululand. This chapter further serves as an introduction to postgraduate research challenges and an explanation of why it is necessary for this study to be conducted. It further introduces the research methodology used in order to obtain useful information for answering the research questions. Outlining how this study contributes to a larger body of knowledge also serves as a way to determine its feasibility. The chapter also demonstrates that all ethical considerations to be followed are fully understood. The following chapter presents and discusses the Literature Review.

CHAPTER TWO LITERATURE REVIEW

2. Introduction

This chapter reviews existing literature on the challenges of postgraduate research, presenting studies that have been conducted in recent years. By focusing on understanding the challenges of postgraduate research at the University of Zululand, this study intends to review these challenges while offering suggestions for overcoming them. Postgraduate research is not always expected to deliver awe-inspiring results, discoveries or developments but more often than not, it functions as a kind of training exercise for conducting orderly research (University of KwaZulu-Natal Research Office, 2009:11). Toncich (2006:75) argues that the objective of postgraduate research is not to make breakthrough inventions or major scientific discoveries; rather it is a device by which postgraduate students embark on finding out how to complete a systematic study in view of scholarly work done in the field. In a sense, the goal is not to prove the originality or novelty of the investigation. As a result, more emphasis is placed on methodical investigation than on how much knowledge is improved. As per Botha and Simelane (2007:67), “In most South African HEIs, research is moreover not available in book form or computerised, making it mostly unreachable”. This influences the essence of this study in the sense that if information is made inaccessible it then becomes a problem or a challenge for postgraduate research students. These and other challenges are being reviewed in this chapter.

The Literature Review covers postgraduate research at universities, taking a closer look at these challenges from global, national, provincial and local perspectives. The sources of research challenges and their social and political impact on postgraduate research will add impetus to the review of the challenges of postgraduate research, with emphasis on this study’s Case Study. This chapter also takes note of the theoretical framework that supports the focus of the study. Moreover, it can be argued that “theories are principles and doctrines that have been proved or are yet to be proved with evidence, but which form the basis of analysing social problems” (Mertens, 1998:76). Therefore, this chapter will also look at problem-solving theory, enabling an understanding of how problem-solving theory helps to explain the focus

of this study. Postgraduate research challenges from global perspectives are discussed next.

2.1 Postgraduate Research Challenges: Global Perspectives

As has been previously stated, universities the world over are recognised as HEIs where it is considered customary to develop knowledge, learning and innovation (Scott, 2012:10). Within these universities, postgraduate databases are considered to be channels through which HEIs improve their research volume and produce the highly developed skills essential for a vital and dynamic economy. A resilient economy is necessary for maintaining fiscal health in the face of a variety of challenges, such as the global financial recession, climate change, poverty and drought. The research quality of a university is determined by, among other things, the quality of its library services, the excellence of its Information and Communication Technology (ICT) infrastructure, a helpful institutional framework, having capable and skilled staff, and the variety and usefulness of its of postgraduate programmes (Mutula, 2009). In the event that an institution does not have these attributes, the implication is that research in that organisation is extremely poor.

Other different research qualities upon which a university's research output can be judged include: the level of research financing; relations with the intercontinental or worldwide academic discipline groups, and industry enrichment or grants for undeveloped agents. Other qualities include mentorship projects and consolidation, the use of ICT in training and research, the accessibility of electronic local content, helpful institutional archives (resources), universal students and faculty fellows, and the amount of group and integrative research being conducted (DoE, 2015). These factors enhance the quality of research worldwide since they enable postgraduates and other researchers to access information using ICT. In one way or another, relations with intercontinental academic discipline groups help to make it easier to conduct research in a short period of time.

It can be said that, to upgrade the nature of research, it is imperative that seminars and workshops are inherent to postgraduate projects. These enable postgraduates to communicate their information and exercise their abilities in different spheres.

Spheres such as time administration, project administration, business correspondence, oral examination, thesis writing, and mindful research ethics, arranging research expositions, citing, referencing and research methodology (University of Liverpool, 2011:87). Research spaces or workshops play a pivotal role as research support systems. It is therefore important that HEIs enforce such programmes in order to improve the quality of research at universities.

As Noted by Mouton (2012) in universities, there should be programmes designed for postgraduates to support postgraduate students and supervisors. These programmes and workshops may help inculcate skills such as time management and thesis writing. While postgraduate programmes are important for both students and supervisors, Dong (1998:369) argues that postgraduate students and supervisors (lecturers) regularly differ in their assessments of how much support was offered throughout the writing process. In her study, she establishes that postgraduate students' experiences of the support given by supervisors are not the same as what supervisors think they have offered. This, yet again, supports the argument for the need to classify postgraduate students' outlooks[1] from the start and to contribute clear assistance on the role and contribution to be made by the supervisor.

Additionally, Drennan and Clarke (2009:85), in their study of what postgraduate students expect from the supervisory relationship, identified: quick feedback; providing a balance between direction and individualism; reliable meetings; suitable research knowledge of the supervisor, and capacity to propose or recommend unconventional designs if problems arose. Both Drennan and Clarke argue that research is tedious and lonely, which is why supervisors should attempt to give speedy feedback at all times. It can also be said that, in most institutions, postgraduate students are being supervised by someone who is either a lecturer or holds another role (or roles) at the institution. This means that some supervisors have so much to do that they end up being unable to give speedy feedback at all times. It would be considerably easier for postgraduates if institutions would employ lecturers who would specialise only in supervision and academic research. This alone could help improve the quality of research at HEIs since supervisors would be enabled to provide fast feedback and support postgraduates at all times.

[1] Refers to the views and perceptions of postgraduates on supervisors' responsibilities

Drennan and Clarke (2009:56) additionally note that there is evidence that the quality of supervision differs from one postgraduate to another, with one of the issues identified as the cause of this variability being the absence of collaboration between the supervisor and the postgraduate at the application stage. On the subject of the supervisory relationship, Lumadi (2008:29) also writes about alterations in expectations among postgraduate candidates and supervisors. Lumadi argues that postgraduate students expect a lot from their supervisors without realising that supervisors are not hired solely for the purpose of supervising.

Authors such as Dong (1998), Lumadi (2008), and Drennan and Clarke (2009) convey the need for supervisors to understand postgraduate students' problems from the starting point and to offer clear supervision and commitment to those whom they supervise. This is why it is important for postgraduate students to sign a Memorandum of Understanding (MoU) with their supervisors from the earliest stage, in order to understand what supervision is and avoid issues that might arise in the process.

Nevertheless, postgraduate research challenges are not restricted to developing countries but rather are experienced similarly in the developed world. Developed countries such as, New Zealand, Germany, the United States, Australia, and Canada have made some coarse progress in their attempts to address similar issues related to research challenges (Scholtz, 2007:143). These countries have attempted to address postgraduate research challenges by creating an online-tutor program where postgraduates are able to voice the challenges they face in conducting research. This has improved the quality of research in these countries in the sense that they are able to address the challenges of postgraduate research. It can be argued that postgraduate students worldwide experience similar challenges when commencing research in any field of study. No doubt, the standard of research in developed nations has been driven by Information Technology (IT) in ways that make the research process less demanding and quicker.

For example, a literature review, such as this, can now easily be conducted through the Internet and using various software packages since analysed data are readily available online and in off-line archives. However, the use of IT in research is hampered by an absence of assets in numerous African nations (Mugenda,

2015:67). High costs have kept Computer Technology (CT) beyond the reach of many teaching staff and students. However, there have been attempts by foreign investors to donate computers to African institutions, especially sub-Saharan African institutions but the need is overwhelming compared to supply (Mugenda, 2013). Such initiatives have also been hampered by a lack of supportive infrastructure such as electricity in rural areas, lack of proper maintenance and replacement of hardware, and the lack of computer skills among users. There have also been cases where organisations in developed countries offload used computers to institutions of learning in Africa, some of which are in poor working order and quickly become obsolete (Njuguna, 2014). Some donated computers work for only a short time before failing, leading to donors being accused of using the third-world countries as a destination for their e-waste – a practice harmful to human and animal life (Mutula, 2012).

Additionally, Shuttleworth (2008) points out, research can be subdivided into basic, applied (or action), collaborative and contract research. Taking a different view, Oosterlinck (2016:65) says that globally, most universities have a structure that is moderately hostile to society's major issues that require an interdisciplinary approach. Most often, academic research suffers because of the additional time being spent on the collection of data, more so than on data analysis and reportage. When analysing data, everything should be clear since findings that are not clearly presented and explained for the end user to understand are of little value in terms of their application.

Oosterlinck (2016) notes that HEIs' structures are most unhelpful when it comes to the problems facing society, to the extent that they cannot deal with public problems particularly well. It is also common to find students wanting to cover a number of objectives in a single project, which calls for rich data collection and investigation (analysis), making it challenging to relate the objectives of the study. Such studies frequently lack focus. Continuing the discussion of postgraduate research challenges, Zakri (2006:54) points out the primary challenges which influence postgraduate research; these challenges are grouped in three categories namely: "research capacity (ability), research productivity (output) and research utility (value)".

In many universities in Africa there are insufficient facilities intended to help postgraduates all the way through the research process. This lack of facilities highlights one of the challenges noted by Zakri, namely “research capacity” (see Mouton, 2010:60). This is why Zakri refers to research utility in connection to the challenges of postgraduate research. Zakri also observes that when universities are not fully equipped with the necessary knowledge for solving research-related challenges, the problems faced by postgraduates are exacerbated. While Zakri’s study establishes gaps in associating research with development priorities, this study contributes to understanding the challenges of postgraduate research. For instance, there are poor relations between information fabricators (teachers or supervisors) and knowledge consumers (students or postgraduates) on one hand, and between information production and innovation on the other. Clearly, research studies that are carried out with the desire for the award of a qualification are bound up with other distinctive problems. In some institutions of higher education, teaching staff are ill-equipped in their knowledge of computer technology, resulting in the poor transmission of such skills to research students.

The lack of modern ICT infrastructure and skills in the education system in many countries in Africa does not portray a good image of education development on the continent (Isaacs and Hollow, 2012). Consequently, the education sector should take the lead in advancing information technology in society in order to enhance development in other sectors. This should reduce dependence on foreign skills and support while also creating employment for Africa’s youth. The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2015) notes that Internet use has evolved into a major force for decreasing the cost of doing research as well as a method for expanding skills and proficiency without dependence on printed material.

According to Cambridge University (2016), universities need to keep up-to-date websites that provide information on every one of their training opportunities as well as potential ones. Other universities should likewise operate through intelligent linkages between institutions by expanding their own resource pool (UNESCO, 2015:54). Nevertheless, from a global perspective, many institutions are reaping the benefits in terms of internal and external communication in relation to courses offered, examinations, registration and general management promoting efficiency

and accountability (Barnes and Walker, 2010). Such systems result in improved access, monitoring and tracking of students' information, and quality affirmation by extension.

Information Technology has also made great strides in Open Research access, offering a hub for delivering quality education to areas and students that have, up until now, been forgotten or discarded. In the future, it is a near certainty that this type of information dissemination will reach even the remotest regions (Mutula, 2009:76). The issue under investigation needs to be looked at from many different angles therefore the next heading introduces a closer look at the challenges of postgraduate research that are specific to Africa.

2.2 Challenges of Postgraduate Research in Africa

Different parts of Africa have a noteworthy research output. While sub-Saharan Africa has not yet made a significant contribution to the world's research output, the issue remains a substantial concern for the region (Boshoff, 2009). The low level of research output from Africa is exacerbated by the way that research gathered in Africa is not easily accessible worldwide. Distribution of African research content is severely restricted because international publishers tend to be guided by profit margins (Arunachalam, 2011:133). This prejudice, noted by Arunachalam, relegates Africa into being a silent and invisible supporter of research production. Consequently, it may be argued that there is an "access drought"[2] (Mngomezulu, 2010:55) in African research. The access drought makes research conducted in Africa and published in international journals hard to find, because of monetary (financial) restrictions, which worst affect those African investors and other developing societies that need it the most.

The access drought opposes the African research plan or objective which is to search out for African resolutions for Africa's sustainable development (DHET, 2015). This research plan or strategy is primarily concerned with issues such as: dry seasons (drought), nourishment protection, scarcity, well-being, agricultural science, HIV/AIDS, capacity building, business enterprise, innovation, markets, and leadership in Africa. It is further hindered by the absence of access to reliable and applicable data for sustaining African research (Africa Institute of South Africa,

[2] Access Drought refers to information that is made unreachable and inaccessible for end user.

2011:360). This prejudicial situation can be addressed by employing methodologies and processes (such as that of the Open Journal System) that will allow for the free flow of scholarly literature to and from developing countries (Zvavanyange, 2012). In the period 2006-2013, Africa produced a little more than 170 000 items that showed up on the SCOPUS database, with South Africa producing 20 249 items more than the second highest producer, Tunisia, with 7 692 items. This is shown more clearly on table below.

Table 2.1 Scopus Database 2006 - 2013

	Country	↓ Documents	Citable documents	Citations	Self-Citations	Citations per Document	H index
1	South Africa	20249	18684	21418	5833	1.06	361
2	Tunisia	7692	7231	4585	1340	0.60	144
3	Algeria	6377	6126	3791	1064	0.59	125
4	Nigeria	6141	5733	3763	848	0.61	153
5	Morocco	5694	5374	3739	1352	0.66	151
6	Kenya	2527	2292	3224	503	1.28	201
7	Ethiopia	1962	1874	1461	333	0.74	115
8	Ghana	1922	1804	1609	297	0.84	119
9	Uganda	1431	1307	2043	346	1.43	145

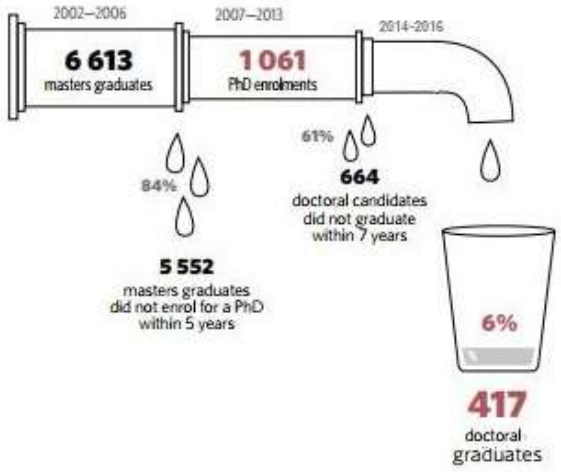
Data Source: Scopus Database

The more important issue is what proportion of this investigation (research) production is accessible to researchers on the African continent? What amount of this research is hidden away behind unreasonable payment costs? Libraries, as significant contributors to the production of knowledge, have a commitment to strengthen the African higher education space by developing situations that will advance access to information for researchers. As a result, they may positively impact the generation of new information or knowledge. Research and growth in developed states was adversely influenced when there was a move in focus from higher to basic education by the World Bank and the International Monetary Fund between the 1980s and part of the 1990s (Isard, 2005). Presently, this is intensified by the sub-par measurements of students' achievements in postgraduate studies (Mouton, 2012). In most HEIs in Africa, postgraduate research is organised poorly

(Scholz, 2012:87). While on the quality of research, Manyika and Szanton (2011:26) opine that “It takes about six to eight years for most postgraduates to finish a Doctorate degree in most African HEIs due to insufficient resources such as funding and administration in the endorsement procedure”. Figure 2.1 below presents the progress of 2002 Master’s graduates to 2016 Doctoral graduates (14 years).

Figure 2.1 The Progress of 2002 Masters Graduates to 2016 Doctoral Graduates (14 years)

Figure 2.3.1 Progress of 2002 masters graduates to 2016 doctoral graduates (14 years)



Data Source: (Cloete et al., 2015: 75)

The diagram above reveals an exceptionally worrying picture of normal interruptions of researchers’ studies. As the figure depict, the typical study trajectory from a finished bachelor’s to a finished Doctoral degree can be anywhere between 12 years (shortest period) and 25 years (the normal and most extreme period). However, the issue is not only a leaking pipeline at each level of the framework. The pipeline is also continuously contracting at what might be viewed as a disturbing rate. This proves that research is inadequately organised in Africa and still confronts challenges that include: use, demand, and supply with regards to research capacity. The challenges of research in Africa are not absolutely academic; they are also created by governments to some extent.

The governments specifically, that cannot establish processes that recognise the significance of active research into the activities that could improve research

administration and the efficient use of public resources. Consequently, research has been given insufficient attention and capital spending by governments and HEIs. These accrue in a deficiency of training among student researchers, a preference for synthetic research instead of creative and innovative kinds, and a theoretical strategy towards tutoring research resulting in incompletely equipped personnel who are unable to meet international standards (Mwiria et al., 2013:13).

In addition, inadequate remuneration of researchers has reduced the number of staff from HEIs that are able to contribute towards profit-making research for the private sector in African nations (DHET, 2015). This has had a depressing effect on the excellence of research concerining the abilities of students (and staff), the services offered by HEIs, and the calibre of research, in Africa, and, by extension, globally. In any case, the use of ICT will help streamline the research process and produce better results. There is a need to inspire collaboration amongst private and public institutions and to stimulate partnerships in the African region and provincially.

The Task Group on the Future of Graduate Research Supervision at the University of Botswana note that the achievement of postgraduate degrees at the University of Botswana ranged from 14%-37% of the aggregate number of students who were registered for Master's, M. Phil and Ph. D. degrees (University of Botswana, 2013). Features affecting the proportion of degree awards were established. These included openness with the supervisor; commitment with respect to both supervisor and the postgraduate student; work technique; and the rate of recurrence of consultations between the supervisor and the student (Mutula, 2012).

Moreover, few studies concentrated on identifying challenges in the relationship between postgraduates and supervisors. From the perspective of supervisors, postponements in finalising postgraduate projects were caused by idleness on the part of candidates, substantial teaching loads for faculty staff, a poor research culture and poor institutional support. Additionally, other factors include the lack of research expertise on the part of students, some students expecting supervisors to do the work for them, red-tape in the examination process, and delays in securing research permits (University of South Africa, 2009:96). Simply stating the problem is not the overall goal of this study.

This study presumes to assess postgraduate challenges and then offer suggestions for overcoming such challenges. While other studies concentrated more on the supervisor-student relationship, Maxwell and Symth (2013) argue that postgraduate students are sometimes unacquainted with proper language use, a considerable impediment in any area of study. Language plays a fundamental role in enhancing research quantity and quality in Africa since it is important to understand the language one is writing in before initiating an investigation (Horning, 2014).

HEIs in most African countries are predominantly hindered by issues of change in accordance with complex academic traditions, types and dialogues. Such issues include the absence of English language proficiency stemming from students from second-language environments, poor scholastic teaching abilities, and even obstacles developing from the students' negative state of mind and attitudes towards scholarly written work (Canagarajah, 2011; Ismael, 2013; Clarence-Fincham and de Kadt, 2011; Ramanathan and Kaplan, 2012). For this reason, it is essential for African HEIs to provide their particular teaching techniques by combining African language (spoken and non-spoken) teaching aids wherever possible. Cresswell (2014) argues that the prospectus resources and methodologies cannot be without culture because culture is a part of people. In other words, prospectus designers should free themselves from their own cultural commitments.

To be more precise, research approaches must be tailored to the desires of the students and those of general society (Creswell, 2014). One way by which Africa may look to itself is through an assessment of methodologies and techniques for traditional African training for developing the youth through the practice of life-long education. Investigation into such methodologies may reveal elements that can be endorsed straightforwardly or with a slight make-over (United States International University, 2012:75). Previous studies have shown that students who confront only a few issues when writing a long paper frequently need to have somebody edit or alter their work, as opposed to looking for their own comprehensive educational development (Kane, 2012). This supports the evidence that students and departments regularly overlook the genuine mission of the study focus, which aims to build up the author, not just the content (Archer, 2010). Some of the reviews on this manner concur that postgraduates at times face challenges, especially in African

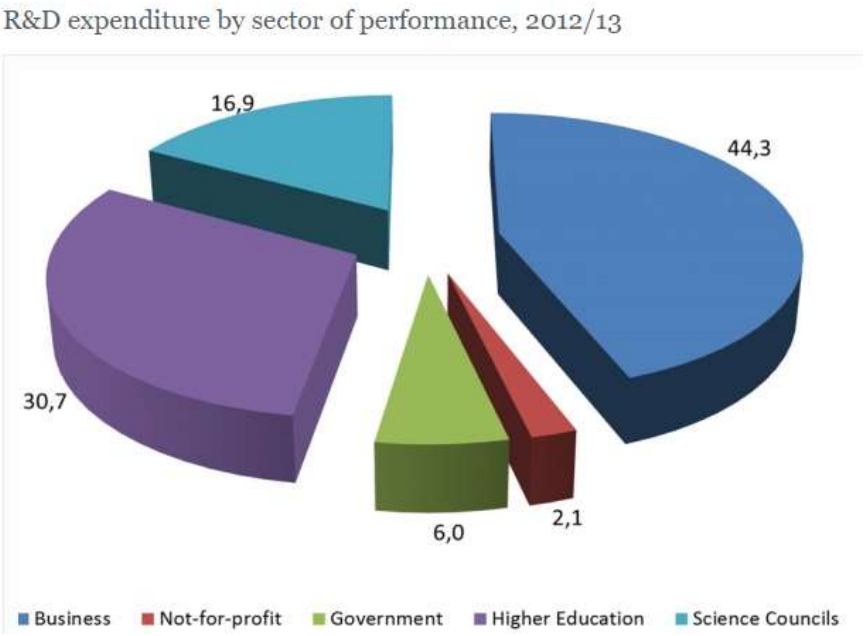
countries, even though South Africa, Tunisia, Algeria and Nigeria have produced a significant number of items in the research database.

Nevertheless, it can be argued that even though postgraduate research faces challenges from time to time, especially in Africa, there are still opportunities for research in Africa. It is important to discuss the opportunities for research in light of this investigation. The following subsection will outline opportunities for research.

2.2.1 Opportunities for Research

Notwithstanding the challenges confronting postgraduate research, particularly in Africa, there are still substantial rays of hope. Some governments in Africa are recognising the significance of research and are developing support mechanisms for research conducted at universities (Global University Network for Innovation, 2013:115). The following Research and Development (R&D) survey demonstrates that South Africa spent R23.871 billion on R&D in 2012/13. In nominal terms, this is 7.5% more than the R22.209 billion reported in 2011/12 (HRC, 2017). According to figure 2.2, the survey covers the R&D performed inside South Africa in five areas, in particular: the government, science councils, higher educational institutions, business enterprises, and not-for-profit organisations. This is shown in a greater detail in the chart below (see figure 2.2 below)

Figure 2.2 Research and Development Expenditure



Data Source: DHET DATABASE

As noted on the pie-chart above, South Africa now spends considerably on R&D since the second largest portion (30.7%) is spent on Higher Education. The South African government seeks to sponsor innovative work by increasing the country's investment in R&D by 100% from the R29-billion of 2014/2015 to about R60-billion a year by 2020. As far as the rate of Gross Domestic Product (GDP)[3] growth is concerned, this investment should see an expansion from 0.77% to 1.5% (Department of Science and Technology, 2016). This was promised by Science and Technology (DST) Minister Naledi Pandor at the release of the "Research and development Survey 2014/2015" in Pretoria. This is the most recent version of the DST's study of R and D in South Africa. Worldwide, support for research in Africa is also coming in from foreign-aid organisations, for example, the Overseas Development Agency (ODA), which donated $105.5 billion in 2012. This figure increased to $130 billion in 2014 (HRC, 2014). Since researchers need funding, the donation has provided a number of opportunities for research in Africa.

Moreover, postgraduate students are now easily retrieving hundreds of scientific and professional journals, papers, documents, encyclopaedias, reports, presentations and lectures from facilities such as African Journals Online (AJOL), which makes it less demanding for them to conduct direct research (UNISA Research Office, 2014). This shows substantial progress rather than the norm (prevalent just a couple of years back, in the early 1990s) where students would rely only on encyclopaedias as the source of rich knowledge since there was a lack of ICT infrastructure. Various bibliographic digital libraries, for example, the Southern African Bibliographic Information Network (SABINET), Ain Shams University Network (ASUNET) in Egypt, the African Computerized Library (ACL) and the African Online Digital Library (AODL), have made it possible to enter and use resources that incorporate computerised theses and dissertations, e-books, and databases.

This makes it simpler for postgraduate students to conduct research, on the grounds that more literature has been made accessible via databases. Postgraduate students can now access research done by different researchers in different universities through institutional repositories; this demonstrates some improvement in African research.

[3] the total value of goods produced and services provided in a country during one year

Furthermore, a number of universities in Africa, like their counterparts in the rest of the hemisphere, are progressively using their web-based Online Public Access Catalogues (OPACs) as access points, not only to provide access to data outside of their libraries, but also to their own local computerised content (DoE, 2015). For example, the University of Zululand Library's OPAC is used to provide access to digitised, full-text, past research-report papers. Libraries are additionally modifying or translating a version of their collections into microelectronic catalogues through digitisation or the subscription to e-journals, as a strategy to make them more accessible and to enhance resource sharing (Youngman, 2012:76).

Researchers and publishers are now obliged to make their journals available through Open Access so that they can be simply and widely accessed (Association of Research Libraries, 2011:38). These tools are desirable to guarantee that researchers and students who are engaged in research know and understand what other students are doing elsewhere. This enhances a sense of affiliation, the sharing of information, and the sharing of best practices. It is indeed notable that there have been some opportunities for research in Africa. However, there have been other constraints in terms of financial support for African research. The next section discusses the financial constraints that close off opportunities for research in Africa.

2.2.2 Financial Constraints

The level of financial growth of countries in Africa hinges on the rate at which they are able to produce facts through research, and how they gradually use this data to reinforce their social, civil (political), commercial (economic) and technical structures. Notwithstanding financial restrictions, this affects almost all features of research comprising its tasks, procedures, partakers' truthfulness, as well as the distribution of outcomes (Mutula 2010:32). This is the reason why industrialised states capitalise immensely on forming institutions and systems that sustain the research actions related to ground-breaking discoveries and inventions such as the Internet.

Unfortunately, governments in Africa spend very little money on creating an environment conducive to research, conceivably because of other competing objectives, including food security, health care, education and other basic social services. In a few states, public services, for example, electricity, communication

networks, water, social services and transport systems, are either insufficient or in a shocking state. Ideally, HEIs play a considerable role in the discovery, storage and distribution of knowledge, so their core services do not immediately impact other areas of development in a directly tangible manner.

In light of this, postgraduate programmes hardly receive adequate funding to construct a holistic research base, yet students doing postgraduate studies are expected to conduct research as part of their programmes (Mugenda, 2008:65). One method for supporting research in universities is through fundraising. However, fundraising efforts in African institutions are highly restricted as the basis of funding collection, along with the lack of a proper research culture. Privately owned businesses in Africa rarely conduct research, especially when compared to private-sector spending in the industrialised world. There is a need to have cooperative research amongst numerous universities as well as the private sector to improve research activities and help provide the impetus for current research in local universities (Zahlan: 2011:74). On the matter of private funding, it has been demonstrated that collective research can sometimes be a challenge in connection with the issue of copyrighting results and innovations (Mugenda, 2008:87). Such enterprises are plagued with uncertainty among the various contributors and many do not reach resolution. However, such enterprises have been fashionable to a substantial degree at sub-local level (Weiler et al., 2013:187).

A few postgraduates are unaffected by money-related troubles while others feel pressurised to maintain a high standard of living in order to keep up with their campus mates from well-off backgrounds and stay fashionable (Mouton et al., 2013:98). It is even more regrettable when students allow themselves to go to any lengths, including extortion (fraud), to complete their research. Such fraud might entail the replication of full research papers, which students hand in to their supervisors, getting entire recommendations and even complete projects, through unethical means. Another form of fraud is the use of other students or even outsiders to complete research or other projects (Kogan and Ulrich, 2012:25). Postgraduate students and academic researchers should be made aware of the fact that plagiarism is an offence and that it infringes on individuals' capacity for self-improvement, and worse, it can permanently erode a particular school of thought. More often, postgraduate students come to their supervisor with a full proposal to

their initial meeting which raises more questions than answers[4]. It is therefore important to view the problem under investigation from a South African perspective. This is dealt with in the in the next sub-section.

2.3 Postgraduate Research Challenges: Perspectives from South Africa

In South Africa, the transformation of Technicons into universities of technology in 1997 created an extreme lack of research skills (UNISA, 2014). The Minister of Education under President Thabo Mbeki's government, Naledi Pandor, argued in 2006 that "postgraduates' drop-out and completion rates in most HEIs were poor not only due to poor pre-varsity education, but also due to destitute supervision, coaching and training (teaching) at the universities" (Department of Education, 2006:109). The above study concerns the essential subject of this study premised on the fact that the principal focus is on postgraduate research challenges. The study that the former Minister's statement arises from outlines some of the causes of research challenges. It demonstrates that poor supervision at universities affects postgraduates and that the challenges that they face are not exclusively being triggered by poor varsity education. It is noted in the study that some of these challenges are caused by the absence of facilities for postgraduate students.

The Southern African Regional Universities Association (SARUA) has noted that there was a 60% university dropout rate in South Africa from 2012 to 2014 (SARUA, 2014:63). This high drop-out rate does not reflect a good picture for South African HEIs and therefore it had become imperative to understand why dropout rates had become so high, as well as asking the question of whether all of these dropouts were caused by postgraduate research challenges encountered by students when conducting research?

For example, Jordaan et al. (2014:321) carried out a study on research skills in South African universities, pointing out that postgraduates encounter a huge collection of challenges related to writing, information-recovery skills and creating original or unique work. It can be argued that there is an absence of research skills among South African researchers. It may be argued that this lack is caused by some

[4] Proposal that is full of plagiarism

of the same challenges affecting universities themselves, for example, a lack of subsidies (funding). The condition of research at universities of technology in South Africa from 1998 to 2009 was poor due to the shortage of research skills, under-qualified supervisors, and supervisors working in fields outside their specialisations (Govinder, 2013:109). Drawing from existing literature, this brought about low research outcomes and normally discouraged students who would have chosen to continue with their postgraduate studies.

The University of Stellenbosch's 2007 Annual Report noted that “many South African universities confronted challenges related to student access and success; backlog with regard to facilities, equipment and other capital; and decreasing government subsidies, impelling universities towards far reaching structural changes” (University of Stellenbosch, 2007:16). The review emphasises that without access to information there is no success. In other words, the only way that South African universities will be able to improve the quality of their research is through making information available online without denying access to information. In this way, students will be capacitated to compare and contrast what is done by other students and scholars within the southern African region.

Looking at these issues from another perspective, Moahi (2012:88) in an investigation of library and information science research in South Africa between 1980 and 2011 found that most research was of an expressive nature and lacked the practical rigor that would make any impact on national development. She noticed that the nation had seen minimal cross-disciplinary research attempts, and more often, no joint efforts or collaboration amongst practitioners (supervisors) and academics (students). Additionally, at the University of Pretoria in South Africa, the library offers right of access to its institutional resource that contains privately created content (Pienaar and Daventer 2007:143). Rhodes University, also in South Africa, publishes electronic theses and dissertations, making them accessible on the university’s intranet. Generally, computerised content is gradually being made available in Africa as numerous tertiary institutions, particularly universities, turn to e-learning. Such computerised content comprises a diversity of learning resources that varies from plain text to multimedia. Libraries play a pivotal role in strengthening research skills and shifting students away from plagiarising by encouraging them to read.

In the year 2013, HEIs in South Africa released reports on copyright infringement (plagiarism) concerning students at both undergraduate and postgraduate level, and lecturers. The greater part of these students were made to repeat courses or precluded from the qualification totally. However, the lecturers were given notice or required to resign (DHET 2013). This was mainly credited to sophisticated ICT systems that have resulted in similar challenges for universities worldwide. ICT is helpful but some students (and even lecturers) misuse it for cheating.

Most universities around the globe are fighting plagiarism. Nonetheless, it can be argued that for students and knowledgeable scholars in this novel age, technology creates a considerable enticement to plagiarise (Smith, 2007). Plagiarism-detection organisations, such as Glatt and the Turnitin Company, have been formed precisely to combat plagiarism by making it easy to spot in documents that are submitted electronically. However, a poor research culture is also to be blamed on circumstances where the perception of research is related to accomplishing academic requirements only, without the desire to solve a problem (DHET, 2012:184). Universities all over the world design research plans each and every year to boost research skills among research students. In addition, in East, Central and South Africa, syllabuses are generally not suitable.

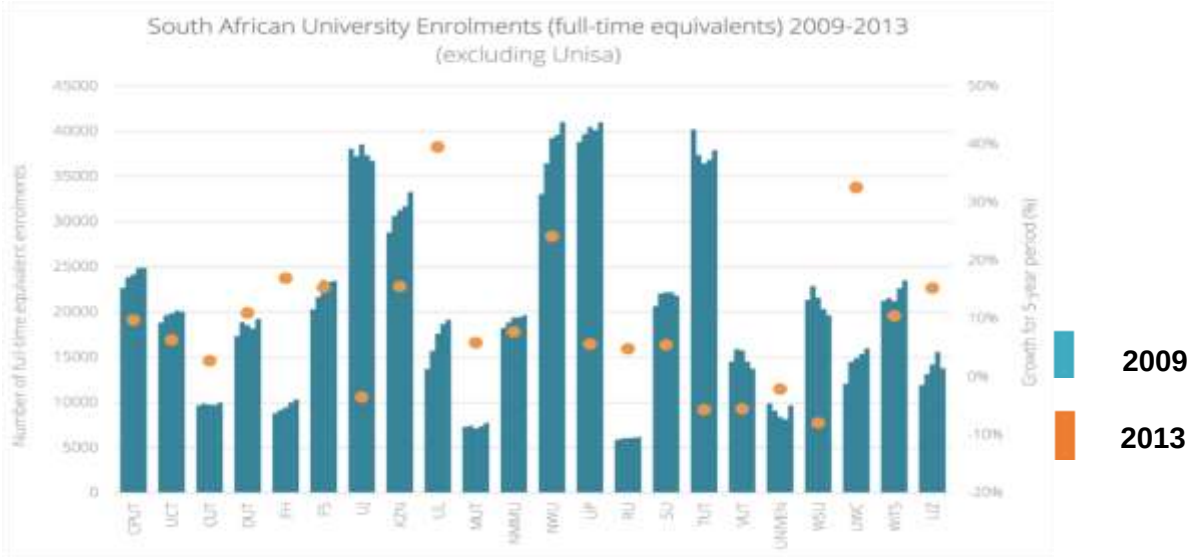
This is in spite of the fact that increasingly, the complex worldwide environment demands academics to work with others across disciplines in order to address rising needs that cut across traditional disciplinary boundaries. For example, the University of Venda in South Africa initiated broad changes of its syllabus from 2010 that included a mixture of original information and innovation, from such assorted fields as traditional arts and crafts, traditional cosmetics, traditional foods and medicine, knowledge of the environment, and African civilisation. These courses of study are geared to be learner-focused, issue-based and project-driven (University of Venda, 2014:54).

Additionaly, it can be argued that postgraduates are familiarised with research only at an advanced stage with restricted or no practical experience. This ends up being more onerous for working students who face financial and time constraints, as they have to take care of their families and are engaged at their work places. Their time for searching for information, especially at postgraduate level is limited.

As indicated by Mouton[5] (2011), postgraduate education in South Africa is confronting an assortment of issues with regards to research in South Africa. In 2011 South African HEIs enlisted almost 480 000 undergraduate students, more than 49 000 Master's Students and a little more than 13 000 Doctoral students. In that year, there were just 9 800 Master's graduates and 1 560 Doctoral graduates. In 2012, the production of Doctoral graduates decreased to 1 101 (DHET, 2012). Postgraduates' enrolments and outcomes are poor and profoundly deficient in connection to South Africa's financial and social improvement needs. Additionally, they limit transformation for a new era of postgraduate researchers.

In South Africa the Government has invested substantially in research and development. Authors such as Aspland, Edwards, O'Leary and Ryan (2014:46) support the point that postgraduate students from universities from around the world are without a doubt confronting various difficulties when conducting research. While Zakri's (2010) review reveals that there are gaps in connecting research with advancement needs, it also recognises a gap in that the majority of the studies never look at comprehensive universities. This study sets out to bridge that gap. The figure below shows the South African University enrolments for 2009 to 2013.

Figure 2.3 South African University Enrolments (Excluding UNISA)



DATA SOURCE: DHET

[5] A director of the University of Stellenbosch's Centre for Research on Science and Technology (CREST)

The figure above shows University enrolments in South Africa from 2009 to 2013. It emphasis how challenges confronted by students affect the institutions themselves. The blue bars reflect the year 2009 and the orange dots reflect an increase or a decline by 2013. The figure demonstrates that in a few universities, for example, the University of Johannesburg plotted as “UJ”, there has been a decline in the quantity of enrolments, since, in year 2009, and the institution enrolled more than 35 000 students. This figure declined by 30% in year 2013 which means the institution enrolled fewer students that year.

The graph above provides a clear picture that university enrolments were influenced by some similar factors, borne out by students’ perspectives on these matters. These challenges prompted a decline, for the most part, across wide-reaching HEI environments. Consequently, this graph opens up a question as to whether postgraduate research challenges do have an impact on university enrolments. The response to that question will be thoroughly articulated in the following chapter which will focus on Data Collection and Analysis. According to the Department of Higher Education and Training (DHET) Annual Report (2015/17:45), postgraduates have a tendency to choose institutions with a view to what they offer their postgraduates (fringe benefits). The following discussion contextualises postgraduates’ research challenges within the province of KwaZulu-Natal.

2.3.1 KwaZulu-Natal in Context

Research plays a pivotal role in the total accumulation of novel information and is vital to the productivity of all HEIs. One of the principal obligations (missions) of higher education in the province of KwaZulu-Natal (KZN) is to improve, generate and circulate information (knowledge) through research, and to deliver services to the public, via a continuous stream of competent new researchers who support ethnic (cultural), communal (social) and economic development (DHET, 2016:98). Through research, higher education contributes to the improvement of the organisation of facilities (Mutula, 2010). However, in numerous South African provinces, postgraduate research is confronted with various challenges. This study confines itself mainly to the close insights arising from the KZN area only. Universities in KZN do their best to overcome the challenges confronted by research students. Additionally, the University of South Africa (UNISA) and the University of KwaZulu-

Natal (UKZN) have up-to-date information in their libraries for improving postgraduate research and enhancing students' research with the required information which meets their instructive level (UKZN Research Office, 2010). In both of these institutions, there are programmes that are designed strictly for postgraduate research students to improve their research skills and abilities, which may help postgraduate students, overcome research challenges. At UNISA and UKZN, researchers also have the capacity to access research studies that were done previously by different students or researchers, through institutional repositories. This makes it easier for postgraduate students to search for the available literature online using the institutional repository archives without having to go inside libraries and spend lot of time searching for books, which may also be out-dated.

Nonetheless, research statistics reveal that the province of KZN has produced numerous skilled researchers who are recognised nationally (Research Office UNISA, 2013). This offers grounds for the assumption that research students have within them the fortitude to persevere against even the most severe challenges that they confront when conducting research. These researchers have gained recognition while upholding the standards of the province and flying the flag high with regard to research. However, concerns about inexcusable completion rates and the nature of research supervision (Burnett, 1999) have subsequently propelled the move, globally, away from the conventional model of Doctoral supervision to the cohort model, which advances shared and intelligent learning using an organised programme (Tareilo, 2007).

Moreover, research shows that cohorts provide social and enthusiastic support, reliability and a shared belief system (Mandzuk, Hasinoff and Seifert, 2003). While trying to boost support for its Doctoral students, the Education Faculty of UKZN has received traditional student supervision, balanced with cohort workshop sessions, which run simultaneously. These cohort sessions, which supplement the help offered to students by coordinated supervision, draw on the skills of experienced and fledgling supervisors from inside the Faculty, who also act as cohort supervisors. Moreover, students inside the cohort benefit from the direction offered by peers as they explore the different stages in the research process. The seminar sessions likewise take into consideration the constant examination of students' work in

advance, both by peers and cohort supervisors. Bringing students inside a specific cohort together six weekends a year (Friday evening to Sunday evening) over three years, the courses increase the one-on-one supervision that proceeds alongside the seminars (Vithal, 2009; Samuel and Vithal, 2011).

Seminar sessions focus on proposal improvement in the primary year, filed-work and information generation in the second year, and information analysis and research paper writing in the third year. The seminars are intended to give students chances to chair sessions, develop their thoughts for civil argument and dialogue, and give and get feedback in a robust but caring environment (Vithal, 2009). As indicated by Vithal (2009), the cohort programme, notwithstanding support for Doctoral students, also provides opportunities to co-supervisors to be tutored and drafted into supervision by working closely with their more experienced colleagues. Therefore, it can be argued that, institutions in Africa should consider using cohort supervision programmes, which a large number of students and supervisors could benefit from.

While other authors have engaged on the student-supervisor relationship, Kearney (2008:76) indicates that "South African Education and postgraduate research confronts challenges of petition, funding, quality and returns on investment (output) with detail to supporting students". The author underscores the fact that postgraduates do not have the right research skills available to them at the outset, and as a result universities' research programmes may be organised ineffectively.

Pertinent to the problem under investigation, is the fact that, currently the greater part of the available information is digitised, which means that in order to access it one needs the Internet. Sometimes this is not available at the University of Zululand since some postgraduate students do not have access to Internet because they reside off-campus. Consequently, it is difficult for postgraduates pursuing a Master's or Doctoral degree to conduct research while they reside off-campus. Such issues raise new and different questions, requiring further investigation. As has been already mentioned, the universities in KZN have stood firm and fought postgraduate-research challenges. The University of Zululand guarantees that there are sufficient workshops to improve the research skills of research students by creating spaces for postgraduates or research students through the institution of the library. When all is said and done, the point of this study is to tackle postgraduate challenges as well as

making the problem under investigation something that can ultimately be overcome in a research setting. The table below demonstrates the level of input from supervisors (KZN DHET, 2015). Table 2.2 was taken from the DHET database, in a report about student-supervisor relationships, where students were voicing their opinions about supervisory feedback.

Table 2.2 Supervisory Feedback in KwaZulu-Natal

Feedback	Once a week	In Four weeks	Once a month	Hardly Gives Feedback
Percentage	45%	35%	12%	8%

DATA SOURCE: DHET DATABASE 2016

The table above demonstrates that the students-supervisor relationship is as yet not an issue. In the table, 45% of students said that their supervisors provide feedback once a week. It can therefore be argued that most postgraduates prefer that their supervisors provide feedback at least once a week. However, it can also be said that some students generally take more than two months to compile a chapter of their thesis or dissertation. It is therefore unfair for students to expect their supervisors give feedback once in a week on work they have been doing for a couple of months. What should be borne in mind is what can be done to improve postgraduate research writing skills, which will ensure that they are able to complete their work in a given period. While the majority of feedback is provided once a week, 35% of students are given feedback in four weeks' time. That is not ideal since research is tedious and time consuming for researchers working in isolation.

Also worth noting is that 12% of students are given feedback once a month, and 8% hardly get any feedback due to supervisory issues which originate from postgraduate research challenges. Given these figures, it can be argued that the challenges of postgraduate research are sometimes brought about by the institutions themselves, since, in some KZN institutions, there are staff shortages. This becomes an issue in cases where one lecturer ends up supervising many students at the same time. Such a situation may hinder supervisor's ability to provide timely feedback. Institutions with assistance within faculties and different departments should

therefore try, by whatever means available, to open up spaces for communication between students and supervisors. In that way, some research challenges can be well articulated and understood at the earliest stage, and be dealt with.

For the purposes of this study, it is also important to understand the research capacity within the province of KZN. Therefore, the following sub-section looks at research capacity in greater detail.

2.3.2 Research Capacity (KZN)

Research capacity is debatably informed by practical abilities (skills) and the experiences of those involved in research. Due to a severe lack of local funding for research in African states, there is considerable rivalry for those small global funds available for short-term research projects. Training in research methodology has also been lacking, which is evident from ineffectively organised teaching personnel, higher teaching-staff-to-student ratios, and students' inadequate exposure to practical research (Zakri, 2006:59). Researchers have inclined to prefer synthetic research that does not delve into the obscure, as opposed to unique research that prompts advancements and innovations. They primarily concentrate on gathering and investigating what has been done by others.

This is in opposition to the traits of original research, in which the researcher works creatively and inventively though building on the advancements of others in order to yield novel ideas and practices. As a result, generating a well-educated populace has been slow in developing countries (UNESCO, 2005:43). Additionally, it is fundamental to ensure the logical, optimum use of man power.

At undergraduate level, numerous institutions in KZN do not have satisfactory research programs. Most often students are familiarised with research at postgraduate level. In most cases, KZN students are quickly familiarised with the act of characterising and articulating the problem. Thereafter they lurch haphazardly into a range of different strategies (DHET, 2012).

In KZN, an insufficient skills base among researchers has made it difficult to conduct high-quality research, and an absence of Government investment in the research sector has meant that native researchers have not had the high level of training needed to meet global standards (Stephenson et al., 2008:66). Research is a labour

intensive and skills-oriented task, some of which must be undertaken through the involvement of others. It incorporates distinguishing, finding, and understanding many reports, developing devices, examining, solid data analysis, investigation and illumination (interpretation).

Tragically, programmes in numerous universities within KZN emphasise methodologies with only a passing interest in researchers' actual approach (DHET Annual Report, 2015/16:108). Education in South Africa was mostly inherited from foreign (colonial) systems. As a result, the sector has experienced severe problems in terms of scarce capacity in schools, attention to examinations, severe scarcities of teaching and learning materials, and the absence of skilled and experienced lecturers or supervisors (DoE, 2012:165).

In a few Universities in the province, postgraduate students are being supervised by somebody who holds only a Master's degree, raising a number of questions in light of the fact that it is extremely unlikely that a student's work can be regulated by somebody who is still on a relatively low level of the research hierarchy. A supervisor ought to be somebody with at lease Ph.D., who has some involvement in the candidate's specialist interest and has additionally worked in the relevant industry. From primary level, through to secondary and university level, students must be given the sort of training that teaches self-identification and the use (application) of what has been learnt to real-life situations. Postgraduate students must learn through description, conversation, investigation and serious consideration. Research should commence initially in primary and secondary schools where students acquire basic values and involve themselves in simple projects. At university level, the coaching (teaching), and supervision of students should be allocated to knowledgeable doctors (Mouton, 2012:43).

It can be argued that the poor certification rates of educational researchers in South Africa (SA) are frequently due to insufficient compensation. In SA, most highly proficient researchers regularly quit teaching and research in pursuit of other, more financially rewarding callings in business, industry and the legislature. Those who remain in the academy frequently settle on research with marginally irregular features, such as conducting educational research not in light of its value but rather on the grounds that it offers an opportunity to make a living (Atomic Energy Agency,

2016:143). This financial distraction has prompted a caustic battle among researchers for regular and unimportant benefactor-advanced activities or consultancies. The results of the commercialisation of research (Mutula, 2012), in the face of constrained finances, many research projects are supported by foreign agencies and hence more regularly pander to the interests of these donors and not those of African countries.

Numerous partnerships are made under the assumption that contributors know KZN's needs or KZN institutions' needs. These results in the perception that postgraduate researches would accept any help that comes their way regardless of the strings attached. Such institutional partnerships have made no genuine commitments to limit the workings of KZN organisations and the general human-asset base. Subsequently, in this time of globalisation, private enterprises with local investments propagate the notion that the Earth is more useful to the project of human development than it is to, say, meeting the needs of communities or even the general public.

On the other hand, the University of Zululand (UNIZULU) is profoundly perceived to be delivering some of the best students on record. Regardless of whether a researcher is an undergraduate or a postgraduate student, doing research is a basic part of being a research professional with the capacities (abilities) and trustworthiness to bring about positive social change. Fortunately, researchers confront many research challenges, from choosing a subject, to discovering study benefactors to staying mentally stable throughout the writing process. Remaining fully informed regarding one's studies as a postgraduate student has been prescribed as a powerful prophylactic against the type of research challenges confronted by students.

Research statistics show that the majority of postgraduate students at the University of Zululand face various challenges when conducting research (University Zululand Research Office, 2013:10). At this point, it must be recalled that UNIZULU is the main extended university north of the Tugela River in KwaZulu-Natal. It is not sufficient merely to teach a vast number of students to transform a nation. The organisation also needs to make progress toward academic and research dominance, pitting its intellectual "power" against the best in the nation in order to

address a wide range of challenges experienced by South Africa as a developing nation.

Moreover, as part of UNIZULU's drive to expand its compass and reinforce its academic and research centre, the International Linkages Office (ILO) has built up organisations with institutions of higher learning across continents. This has been done so as to build research, sport and leisure, scholarly trades, thought-provoking retreats and the advancement of new projects that are advantageous to the university group. Furthermore, it offers mentorship and supports programmes for staff and postgraduate students applying for beneficial trade projects and visits.

Current collaborators include Manchester University, the Netherlands Organization for International Co-operation in Higher Education, Philipps-Marburg University, Appalachian State University, University of Michigan, Jackson State University, Oxford University, University of Wisconsin-Milwaukee, Benedict College, Elizabeth Minority Health International Research Training, Italian Laboratorio dei Materiali, TASC and ELETTRA, and the American Councils for International Education (University of Zululand Press Online, 2016:11). Since, by now, an understanding has been reached about research capacity, it has become important to note the institutional support systems that enhance research capacity at HEIs. The following subsection will discuss institutional support systems in greater detail.

2.3.3 Institutional Support Systems

The Higher Education Act 101 of 1997 (SABINET, 2013) impacts the path by which support is conveyed to students who are enlisted in a licensed Higher Education Provider course (SABINET, 2013). This Act, as altered by the Higher Education and Training Laws Amendment Act 23 of 2012 (South African Government, 2013), endorses a structure that all universities must use to create and execute projects to support students. The Act aims to direct advanced education; provide a foundation, and organise the elements of a Council on Higher Education (CHE). In other words, it aims to provide: the foundation, administration and subsidies associated with an open, advanced education institution; the arrangement and elements of an autonomous assessor; the enlistment of private higher education foundations; quality affirmation and quality advancement in higher education; transitional courses of

action and the cancelation of specific laws; and for matters associated therewith (South African Government, 2013).

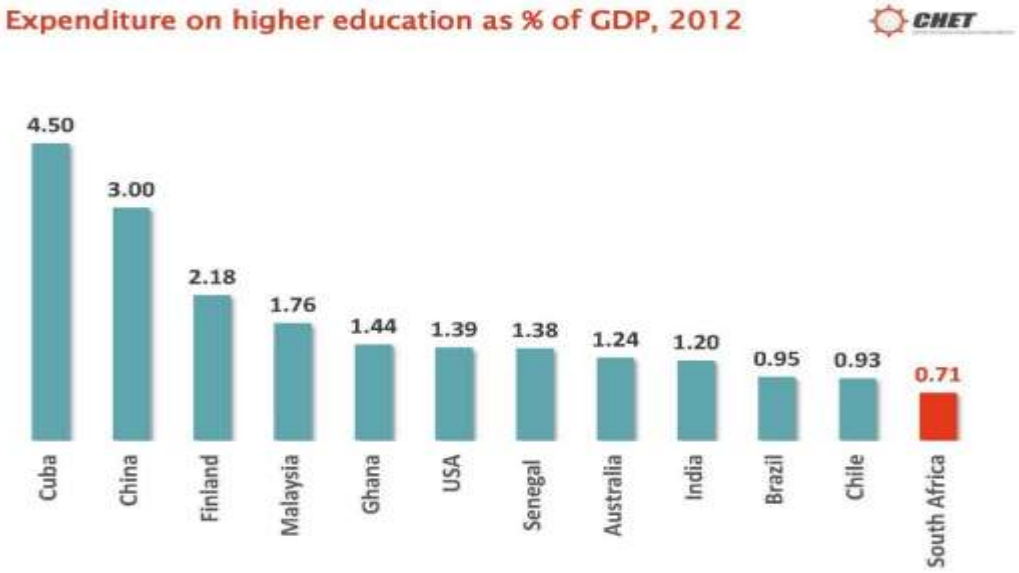
Financing these courses of action is however fluid with regards to political influences and in this manner, may change inside of the South African Government's spending and budgetary priorities. Universities in South Africa produce public goods to the degree that university training produces new learning, thus producing research that prompts new products and services, be they mechanical, social, political or helpful towards the objective of national improvement. Conversely, university graduates who get better-paying jobs according to the skills sets they bring to the labour market, take away the products and benefits arising from university education, putting them in the hands of the private sector (DHET, 2014).

Accordingly, if higher education produces both aggregate (open) products (i.e. available for developing the nation) and private products (of value to only a handful of people), it is reasonable to expect that the finance required for advanced education will derive mostly from the general population, and incompletely from private interest as students' tuition fees or some other instrument that might be settled upon at a later date. The university sector is underfunded and government spending has been declining in real terms. Considering the significance of the large national projects for the public good, of the sort generally undertaken by HEIs, universities must be adequately supported. Nonetheless, it is more often the case that the opposite is true. Some studies show that within research with grand social objectives, this underfunding is abysmal (Mouton, 2012). The essential wellspring of subsidy funding is the Department of Higher Education and Training (DHET), which has allowed for the useful advent of full-time students' equivalents (FTEs), and students fees.

For most universities, the state supports more than 66% of their overheads. Students' expenses and their share in university spending plans is commonly in the region of 30-40%, a sum amounting to about R30-billion per annum if the cost of settlement of students in homes is included (DHET, 2015). Moreover, the South African University System is ineffectively subsidised when contrasted with different systems as independently championed by Universities of South Africa (USAf). According to USAf, the level of financing for the South African higher education

system must be benchmarked against the financing levels of other effective higher education systems (USAf, 2014). Figure 2.4 below clearly shows different countries' expenditures on higher education, providing a clear picture of the above discussion.

Figure 2.4 Expenditure on Higher Education



Source: CHET Presentation (2012)

Taken from a Centre for Higher Education Transformation (CHET) presentation, the bar graph above (Figure 2.7) indicates government investment in higher education as a proportion of GDP for selected nations. For 2012, the proportion for South Africa was 0.71%. This was not as much as the larger investments made in Cuba, China, Finland, Iceland, Malaysia and Ghana, and furthermore altogether not as much as Senegal, Chile, Brazil and India. On the understanding that government's 2014/2015 spending on advanced education can be expected to be R24.2 billion (according to DHET's report titled Statistics on Post-School Education and Training in South Africa: 2014) and the ostensible GDP for 2014 aws R3.8 trillion (Stats SA, 2014) then South Africa's spending for 2014/2015 can be estimated to be 0.64%. This would represent a disappointing decline from the figures reflected in 2012 and 2014.

Considering the significance of the extensive national and public good arising from the activities of HEIs, their frameworks or systems must be funded at an appropriate level. It can be argued that institutional support systems play an important role in

ensuring that there is enough research support granted to institutions of higher education. However, it is important to understand HEIs value to the National Development Plan, which is discussed in the next subsection.

2.3.4 Value to National Development

The National Development Plan 2030 recognises that South Africa aims to overcome basic deficiencies of good-quality specialists, such as engineers, data innovation experts, criminology experts, analysts, organisers, bookkeepers, prosecutors and educational-module consultants (NDP 2030, 2016). Locating universities as the operational hub of the nation's national development, the Plan additionally recommends that to understand and solve both technical and managerial skills deficiencies, government needs to take a long-term view on skills improvement, and investigate career paths, coaching and close associations with universities and schools of administration. The NDP concedes that insufficient human capital development will stifle information generation and development. In line with the Plan, universities need to become operational hubs at the front line of innovation. Without decent levels of subsidies for education, South African universities will most likely fall far short of realising these national goals.

Over and above the production of information and human capital development, universities also add to countries' income, specifically by stimulating business, and, in a roundabout way, by producing work for different sectors through their own particular operations and the governments they expand. As indicated by a study published three years ago (Pouris and Inglesi-Lotz, 2014), in 2009, the university sector recorded having 112 797 individuals in its employ. Of these, 41 428 were permanent and 71 369 were on contract. These figures were up from 101 186 in 2004, and 108 697 in 2007. It should likewise be noted that due to the recession of 2008-2009, the remainder of the economy in South Africa shed 870 000 jobs. This concerns this study because finances have been identified as one of the challenges of postgraduate research. It also has bearing on universities’ ability to deliver on the objectives of the National Development Plan.

The challenges of postgraduate research in South African universities require a full articulation, taking into account various factors, whether historical or economic. Notwithstanding the need to overcome challenges and create opportunities, it is

imperative for advanced education pioneers to create a harmonious learning environment in order to assist students to adjust, interface with others and get the all-round coordinated support services they need to help them finish their studies. Given this, strong institutional support systems must, at the very least, include:

- The application of high ethical standards; ethical practice, showing strength of character by outrightly rejecting unscrupulous practices whether these be committed by a student, staff member, employee, board member or business accomplice.
- Offering no less than a semester-long university introduction programme where students can learn about and develop their aptitudes; find out about their learning style and individuality accessible assets, whether on the campus or in the virtual classroom.
- Match assets and resources accessible to on-site students with those accessible to online students, as an ideal.
- Maintain a high standard of and inviting offering, one which conveys to students working on-site that the university is highly organised, and also that it offers efficient and practical web-based services.
- Being proactive means not waiting until students are unhappy about something before taking action; advanced education pioneers must be purposeful in searching out students in order to find out how they are doing and how they can be helped in reaching their unique education, research and career ambitions.
- Responses to students' queries and complaints must be timeous.
- A well-prepared and remunerated workforce, including staff and student specialists.
- The framework must be fair and have clear avenues for improvement and career-development.
- Cross-curricular instruction and learning attracts grant funding, opening doors for students and staff.
- Students' papers need to be marked early in order to provide opportune and useful feedback that bolsters students' advancement.
- Establishing channels for input from students' on-campus, on the Web and from neighbouring institutions so that their special knowledge does not remain hidden.

- The use of innovation wherever possible in order to make staff and students' engagement with and access to administration a faster, smoother experience.
- Providing administration support so that staff and students are able to successfully balance their home and personal lives with their academic pursuits.
- Different introduction programmes for foreign students since their needs will be slightly different and they will require distinctive levels of administration since some will be new immigrants, exiles, and new permanent residents. Those inducted into these programmes as foreigners could also include exchange students, and even temporary staff members visiting from other universities or new, permanent staff.
- Full support for cross-utilitarian, cross-education and global advancement will open doors for the workforce – staff and students are to help encourage the receipt of grant funding, leading to elevated effectiveness across multiple levels.
- Financial support of research and other knowledge-generating exercises among students and the staff.
- A student advocate or ombudsman’s office needs to be established for postgraduate students in order to raise concerns specific to this group and resolve any issues they may have with other students or staff.
- Including students on transformed boards of trustees so they can gain from those encounters and speak to different students knowledgeably about the administrative process.
- Creating a repository for students to search for employment, temporary positions, tutoring opportunities, guidance opportunities, volunteering, finance and different avenues for opening doors.
- The creation of culturally sensitive instruction and learning conditions where assorted modes are used in order to maximise positive outcomes.
- Using electronic databases alongside a library for books on careers, budgeting, project completion, and other similar information.
- Challenging students through research apprenticeships, ventures, temporary positions, partnerships, extended stipends, and so on.
- Language acquisition support projects and assets for English as a Second Language and Adult Basic Education, for students who speak a different language at home or who are visiting from a foreign country.

- An accreditation, review and responsibility framework for shared educating and learning strategies inside the host university and reflecting strategies pursued by foreign universities (Mason et al., 2006).

It can be noted from above that South African institutions of higher education have great value to add to the National Development Plan. It is also important to note that an institution's research quality can be measured by its library facilities. Therefore, it is important to discuss the role of Academic Libraries in research. The following subsection looks at the role of Academic Libraries in postgraduate research.

2.3.5 Role of Academic Libraries in Postgraduate Research

A study of the research and expert writings on Academic Libraries and the role they play in research reveals three, frequently interconnected, themes:

- The learning goals and information-finding methods of researchers; frequently data from surveys used by researchers comes from libraries;
- portrayals of library services and facilities in the pursuit of research; some writings contain investigations of these facilities and services; and
- grades or standards of research collections established through master-library affiliations, for example, the Association of South-eastern Research Libraries and the Canadian Association of Research Libraries (ASRL and CARL 2010:80).

Libraries play a fundamental role in postgraduate research and research in general; it is therefore fundamental for an institution to have up-to-date library services and facilities. Since this study evaluates the challenges of postgraduate research, it is critical to look at the actual sources of postgraduate research challenges. These are discussed in the following subsection.

2.4 Sources of Postgraduate Research Challenges

The "sources" of postgraduate research challenges refer to the foundations of research challenges: the root problems which cause these challenges to exist in HEIs in the first place. The available literature indicates that there are various sources of challenges which affect postgraduate research. These sources can be recognised from alternate points of view. Sources of postgraduate research

challenges vary in degree. Meaning, sources of challenges in the natural sciences are not the same as those in the social sciences. For the purpose of this study, it is important that the sources of postgraduate research challenges are grouped under different themes. In this study the sources of postgraduate research challenges are therefore grouped in following three themes, namely; Economics-related, Environmental Challenges and Technological Challenges (DHET, 2016:55).

2.4.1 Finance

The normal challenges confronting postgraduate research in Africa stem from financial concerns. Numerous researchers work in organisations which are not financially stable. In such institutions, research facilities are deficient and obsolete by traditional standards. For example, the libraries of HEIs and other research organs are ineffectively supported, suffering under new budgetary restrictions each year. A well–stocked library is a critical component for academic distribution. In developed states, a system of libraries records up to 80% of the aggregate purchases of insightful books (Altbach, 2013:146). In sub-Saharan Africa, there are no productive systems for libraries which may similarly purchase academic books. Due to poor subsidising and ceaseless budget cuts, libraries in sub-Saharan Africa cannot figure out how to pay for journal subscriptions.

Lor and Britz (2005) argue that the information must be made available, indicating that new information is required to create new learning and understanding. In Africa, even extremely open journal titles fundamental for education and course work scarcely exist. Libraries affiliated to HEIs and other research institutions in Africa are regularly restocking their shelves with back-issues of journals, rather than investing in new and original content. It is essential for researchers to use current sources while referencing their work, and for most researchers in Africa this is problematic. The book racks of most academic libraries in Africa contain out-dated and antiquated photocopies of books which cannot profit academics or researchers, or make any particular scholarly or specialised advancement (Lor and Britz, 2005:76). Researchers rely on research laboratories to lead experiments, keeping in mind the end goal of creating the necessary outcomes for ultimate publication.

The problem is that laboratories in Africa lack up-to-date research facilities for conducting research. Research facilities are faced with mounting challenges each

year. Consequently, an absence of secure laboratories leads to the inevitable. Waast (2002:45) notes that a few states in Africa, for example, Nigeria, have withdrawn from various fields of science as a result. In other African countries, entire research capabilities have practically vanished, for example, disciplines in the agricultural sciences in Kenya and Côte d'Ivoire. Academic journals, books and the internet might be viewed as dynamic interfaces for research. The outright non-presence of scholarly journals and books, as well as under-equipped science laboratories and inadequate internet access make it difficult for researchers to make logical and academic advances by building on the commitments of others.

Web connections are mediocre and even poor in a significant portion of the local communities around Africa's HEIs. Institutions in which researchers are in business think that it is hazardous to safeguard internet networks. Either these internet connections are excessively costly for academic establishments, making them impossible to maintain, or the sources of electricity are poor and intermittent. Few establishments of higher learning in the area enable researchers to have unhindered and limitless decent Web access. Since this subsection is about economic postgraduate research challenges, it is therefore important to also include challenges that come about through financial crisis. Therefore, the following subsection looks at the lack of incentives, which is also a source of economic challenges to postgraduate research.

2.4.1.1 Lack of Incentives

The real nodes of information (knowledge) development and insightful correspondence in Africa are universities (Teferra, 2004:122). That notwithstanding, most universities in Africa face numerous challenges that limit the production of new information (knowledge) and academic publication. Research finance and financing is nearly non-existent; numerous universities in the region have seen enrolment of students rising while the compensation of employees and researchers has remained the same over long periods of time (DoE 2013:78).

Academics publish for a few reasons and one of their real intentions is that of career advancement in the hope of securing higher remuneration. Be that as it may, great inspirations can likewise urge researchers to publish in leading periodicals. Institutions of higher learning in Africa, which are the principal generators of

researchers in their locales, do not offer incentives to researchers to publish in academic journals. South Africa's Department of Education notes that a few correspondences with researchers who publish in periodicals say funding is the reason they do not publish more frequently. There are 273 South African journals currently listed by South Africa's Department of Education as meeting the minimum requirements for national financing, underpinned by the strategy of fulfilling or remunerating academics who publish using these channels (DHET, 2015).

The South African Department of Education likewise recognises various different periodicals distributed elsewhere in the world, with the end goal of subsidising (funding) the publication of research. Excellent remuneration and other monetary awards for researchers are an incentive. However, there are different incentives which create the ideal conditions for academic publication. For instance, maintaining the best substructure that establishments of higher learning ought to have and safeguarding the regard and straightforwardness related to advanced education can be a noteworthy incentive for researchers in sub-Saharan Africa. Such incentives may inspire researchers to want to publish, as well as improving overall learning. Sabbatical leave, which is bound to ensure that researchers have time and the right frame of mind for research and correspondence with their partners from different countries, is not a foregone conclusion in sub-Saharan Africa’s HEIs. The reason that not all of these incentives are attended to is the unavailability of funds.

As mentioned earlier, some challenges are caused by economic issues and there are also environmental and technological sources of postgraduate research challenges. The following section discusses the challenges that are brought about by environmental issues.

2.4.2 Environmental Challenges

Various environmental challenges impact publication and learning development in Africa. Knowledge development and inventions require a situation that favours open access to information, no limitations and unrestricted trade of and distribution of thoughts or ideas. Nonaka and Takeuchi (2011:37) as cited in Gibson (2009:146) believe that information is found in the environment itself, differing from the traditional epistemological understanding that knowledge exists inside the human mind. Associations with the environment open up the contradiction of deductive

reasoning with local knowledge systems, enabling a power-imbalance in the hierarchical ordering of information. Students are therefore affirmed when they create journals that are helpful resources for information.

In the 1980s, prominent researchers in Kenya received financial and career support for research and publishing based simply on the political adage of the then President of Kenya, Daniel arap Moi, who proposed the "Nyayo theory of adoration, peace and solidarity." Scholars who were incorporated into the project were supported, and even spoilt. There was nothing sensible or insightful in the theory, yet government monies were given to researchers who added to the project. These are matters that shape some portion of what Jaygbag (1998:231) calls “another influx of socio-economic change because of both inside and outside compressions which are yet to be completely secured and firmly put on individual best by African researchers.” Most postgraduate challenges in Africa are related to or initiated by universities. Such universities can be interpreted as despising autonomy and their role as channels for freedom of expression is either extremely blemished or non-existent.

2.4.2.1 Non–participation in Postgraduate Workshops

Frequent academic workshops are prearranged the world over. Presence in such workshops is indispensable for scholars (lecturers) working for institutions of higher learning and other research institutions in Africa. Pretty much all of the seminars are prearranged locally or inside the African region. However various postgraduates from the area cannot be available, either on campus grounds because they do not have enough money for toll and transportation, or their institutions lack the funding and assets to support postgraduates (Hohl et al., 2015). In workshops, academics have an opportunity to present and share their research results to their peers, especially those from different countries around the world.

These research results or discoveries may eventually be published either as seminar minutes or as articles in academic journals. Postgraduates in Africa find it excessively costly to participate in these workshops, making it impossible to support themselves monetarily (financially). Also worth considering is that these seminars and their institutions occasionally offer catering, with the cost of a meal potentially offsetting other costs. Indeed, even courses prearranged locally or regionally do not make sense for most researchers in Africa. Institutions of higher learning in the

region ought to do everything possible to enable researchers to be available to attend seminars prearranged locally, provincially and globally. Presence at or availability for such workshops allows academics to observe the present trends in their various specialist areas within postgraduate research (Rogers, 2012).

2.4.2.2 Brain Drain

There are few jobs in academic environments in the institutions of higher learning in Africa. As as result, the locale has catalysed a mass emigration of researchers to academic institutions in other assorted countries. Researchers instructed and educated by governments in the African region have drifted to North America, Europe, Australia, New Zealand, the Arabic oil–rich nations, and recently to Japan. Ironically, African countries can enhance or improve but cannot hold home-developed intellectual capital (Ondari–Okemwa, 2004:133). Nevertheless, South Africa has somehow benefited from this brain drain since a large number of academics within Africa often fly to South Africa from time to time.

Mazrui (2005:169) contends that, as the foundations of current black savvy civilisations and those supporting Pan-Africanism, African “intellects and academics” can consider a hypothesis a lofty societal standard. Zeleza (2005:87) explains that the academic African Movement plays and can play a leading role in African data generation. His contention is made on the basis that, in general, the present-day Movement, specifically its intellectuals, has the potential for the imaginative and liberal meeting of minds within Africa.

Governments in Africa have the experience to make some of the most powerful impacts on present-day discourse, if not for the unfavourable conditions that force researchers to go to other countries. Remuneration for academics in the region can be altered despite the fact that they may not correspond with those of academics in developed countries. Various African nations, for example, Nigeria, South Africa, the Democratic Republic of Congo, Sierra Leone and Botswana, are highly skilled with stable assets, which, if properly used can create magnificent benefits. These can then be used to increase the remuneration of local researchers and other incredibly capable authorities. Such benefits can likewise be used to build and stock libraries and laboratories, which researchers use for research and the production or generation of novel information (Spring, 2009:185). Nations in Africa have lost a

colossal measure of their informed and talented people through migration to more developed nations, which has harmed the capacity of such countries to escape destitution (poverty). Nigeria, Kenya, and Ethiopia are accepted to be the most affected by this issue.

As indicated by the United Nations Development Program, Ethiopia lost 75% of its talented workforce between 2005 and 2015. South African President Thabo Mbeki said in his 1998 “African Renaissance” speech:

> *In our world in which the era of new information and its application to change the human condition is the vehicle which moves human culture further away from boorishness, do we not have need to review Africa's countless educated people once again from their places of resettlement in Western Europe and North America, to re-join the individuals who stay still inside our coastlines!*
>
> *I long for the day when these, the African mathematicians and computer experts in Washington and New York, the African physicists, engineers, doctors, business directors and financial experts, will come back from London and Manchester and Paris and Brussels to add to the African pool of mental aptitude, to enquire into and discover answers for Africa's issues and challenges, to open the African way to the universe of learning, to hoist Africa's place inside the universe of research the data (information) for a new pool of knowledge and education (Mbeki, 1998).*

The past president’s speech demonstrates that Africa, as a continent, experiences brain drain and as a result, it can be said that brain drain is part of the challenges experienced by research institutions; incredible researchers are leaving the nation for better opportunities in countries outside the continent. Africa Recruit is a joint activity by New Partnership for Africa's Development (NEPAD) and the Commonwealth Business Council (CBC) to get skilled expat Africans to take work back in Africa subsequent to working abroad (Pflanz, 2012:10).

In light of the developing civil discourse regarding the flight of human capital social health-care experts, particularly from lower wage nations and including some higher wage nations, in 2010 the World Health Organization (WHO) embraced the Global

Code of Practice (GCP) on the International Recruitment of Health Personnel (IROP). The strategy is a system for all nations for the ethical universal employment of doctors, medical practitioners and other health experts. The flight of Africa's valuable human capital started to turn itself around itself around as a result of rapid advancement and development in numerous African countries, and the rise of an African white-collar class (Boeri et al., 2012). Between 2001 and 2010, six of the world's ten fastest developing economies were in Africa. Between 2011 and 2015, Africa's financial development began to reliably outpace Asia's.

This, together with improved technological advancements and infrastructure development, for example, fast internet and mobile telephones, has catalysed an elite, educated class, and the world of business driven by tech-start-ups and other new technologies, has brought about many African expats back to their nations of origin, as well as seeing more Africans continue to work in their native countries. Alongside numerous African countries, South Africa has been experiencing the flight of human capital for the past 20 years, since the end of Apartheid. This is believed to be causing harm to the provincial economy, and is counter-productive to the prosperity of the region's predominantly poor areas, desperately dependent on the medical field as a result of the effects of the HIV/AIDS epidemic.

The skills drain in South Africa has a tendency to reflect racial tensions exacerbated by Black Economic Empowerment arrangements, and has, as a result, caused a substantial number of white South African people to go abroad (Clemens, 2015). This issue is underscored by South Africa's request in 2001 that Canada must stop poaching its doctors and other uniquely skilled and experienced healthcare workers. Additionally, while South Africans choose to leave the nation of their birth, a substantial number of foreigners from Africa regularly migrate to South Africa looking for better job opportunities and working conditions. This has caused South Africa to profit from the brain drain as much as being disadvantaged by it. Research conducted by different scholars indicates that displacement and low barriers to entry have had a net positive outcome on human capital development in developing countries. This implies that there is a "brain gain" rather than a "brain drain" happening in South Africa.

More noteworthy still is that the resettlement of talented specialists prompts greater financial rewards and lifestyle improvements in the long term. As indicated by financial expert Michael Clemens, it has not been demonstrated that limitations on high-expertise displacement decrease deficiencies in the nations of inception (Clemens, 2015:29).

2.4.2.3 Language

Language is the method of conveying academic correspondence (Jaygbay, 1998). Language in education and research plays a key part in powerful educating and learning around the world. A student and teacher's proficiency in the medium of instruction decides academic achievement to a considerable extent (Cummins, 2012). In South Africa the far-reaching consequences of the decision to use English as medium of instruction in educational frameworks, and its pernicious effect on the academic accomplishment in different institutions, underlines the vital significance of language in research and education with a view to informing language strategy and practice which advances social equity and learning for all (Hinkel, 2011).

South Africa is a linguistically different nation whose history of language arrangement and practice in education has been formed, now and again fiercely, by ideological and political interests as opposed to educational concerns. Since the nineteenth century, English became the language of aspiration, national solidarity and freedom among black South Africans, despite its role in colonial domination (Alexander, 2005). The status of English has reinforced post-politically-sanctioned racial segregation South Africa at the same time that it has become the language of higher education (Lemmer 2010).

However, a noteworthy impediment to realising the value of education in the nation has been the profound failure of the schooling system to address the issues of black students who are learning English as an additional language, in that it is used as a medium for the instruction (and as such dominance) in all other subjects (Postma, 2011). In Africa, the authorised languages of correspondence for researchers are English, French and Portuguese, all of which are not completely understood by the majority of the students on the continent (PIRLS, 2011:66). The language of educational correspondence may not seem like a particularly dangerous vehicle. But

Jaygbay (2014) warns that it prevents some parts of the African population from contributing in high-level open exchanges of ideas and knowledge.

In Africa, almost the majority of countries use English and French as their official languages of correspondence. It is only Angola and Mozambique that use Portuguese for correspondence. Furthermore, most researchers in Africa adopt English, French and Portuguese as their additional languages. Academics are expected to communicate using languages that the vast majority of them did not grow up talking. Concerns like sentence structure and punctuation may even exclude African researchers from contributing to research periodicals published in Africa (Pearce, 2003:54). Such publications might be helpful for securing grant funding, yet, in the event that they are rejected by virtue of their poor language; they will not have the chance to receive any educational affirmation.

It might take a paersistent journal editor to understand that documents from academics or researchers in Africa may contain considerable verbal (language) issues, yet that ought not imply that researchers from Africa cannot be instrumental in developing specialist disciplines. Language as a test of postgraduate research concerns this study to the extent that language is the medium of correspondence and furthermore a vital instrument for undertaking postgraduate research. Hence, it is crucial for researchers to understand the language first before endeavouring to conduct an investigation. The following subsection discusses technological challenges in the context of this study.

2.4.3 Technological challenges

Electronic periodicals (journals) have ended up being considerable resources for data or learning transmission and educational correspondence. Academic publication in Africa could benefit from microelectronic production (publication). However, African countries do not have the innovative capacity to maintain electronic information exchanges and educational publications. Information and communication technologies in Africa are as yet in their infancy and may not be relied upon to support the ideal of regular access to electronic journals for publication. The technological challenges in African countries are similar across the whole of the African continent. Ahwireng-Obeing (2012:312) imagines that Africa is a “mechanical wild,” distant from the changes signalled by the Information Age, the sudden impact

of which has only just begun to be discovered on the continent. In view of specific difficulties, internet availability in Africa is poor in certain areas. Numerous universities on the African continent cannot pay for permanent internet connections. Internet availability requires a satellite framework and state-owned satellites in various locations are less than reliable. Many established phone lines are controlled by government organisations which are basically inefficient.

Tobin (1996:54) suggests that in a knowledge-based economy, data innovation system ought to be made with instruments, for example, information gathering, reference books containing learning resources, and groupware. Researchers must draw from the current pool of knowledge (data) to create new information or conclusions. The Internet ought to be widely accessible throughout HEIs and other research institutions in Africa, with the goal that researchers can customise it for collaboration and correspondence. Researchers within Africa can make use of the Internet to connect among themselves and with researchers elsewhere on the planet. Laszlo (2006:87) contends that “email licenses one to connect abroad, with no impedance from the opposing time zones.” Laszlo adds that emails as such are a casual strategy for exchanging material (data), which itself is a sign of methodical (scientific) joint efforts.

The literature review contained in this study guarantees that it is not a copy of another person’s thought. This study has not shifted from its intention, as outlined earlier; this study investigates the challenges of postgraduate research and subsequently it requires the guidance of information from other scholars who have explored postgraduate research challenges in the past. Most previous studies have not focused on comprehensive universities, this is a gap distinguished by this study, and this study will fill this gap by including the views of the students from the University of Zululand about the issue under investigation.

The reviewed work is relevant to this study since its intention is to assess the challenges of postgraduate research and all the reviewed literatures speak to that. As such, the work of Mutula 2009; Zakri 2010 & Mouton 2010, justifies the relevance of this study to the reviewed work. In essence, all the literature reviewed attests to the fact that postgraduate students are facing a number of challenges in relation to postgraduate research. The literature further specifies that a significant proportion of

the information in South African universities is not digitized; it is therefore made inaccessible to the end user.

However, it can be argued that, whenever there is a problem, there needs to be a theory in place providing a framework for articulating that problem. Bearing this in mind, the scaffolding or theoretical framework of this research study is explained in detail in the following subsection.

2.5 Theoretical Framework

In this study, the theoretical framework is informed, for the most part, by thinking about the challenges faced by postgraduates undertaking research at the University of Zululand, and the sources of these challenges. The challenges confronted by postgraduates have been there for a long time, it is accordingly critical for me, the researcher, to use a theoretical framework that fittingly connects with these challenges and maps conceivable methods for mitigating them. Problem-solving theory and the system theory of administration are used to illuminate the specter of postgraduate research challenges. The study accordingly proposes to address the issue in hand using problem-solving theory. The test case is the challenges of postgraduate research, including perspectives from UNIZULU.

2.5.1 Problem-solving Theory

What is the most ideal method for addressing the research challenges experienced by postgraduate students when conducting research at UNIZULU? In a Tom and Jerry cartoon, Tom and his “companion” are stranded in a log cabin in winter while a snowstorm blows outside. They have a major issue – there is nothing to eat. They walk about pondering what to do. Tom begins to daydream that Jerry is a chicken and so he tries to kill and eat the small rodent. He chases Jerry around the venue, as is the mainstay of the form, until they see an old garment. In the end they hit upon the idea of having the old garment for supper. With lavish elegance, they sit at the dining-room table and eat the garment as though it were a pleasant supper. They have tackled the issue of having nothing to eat. While their answer to the problem did not result in the cooking and consumption of a feast, this example reveals two critical components of problem solving.

Firstly, an issue exists when an objective must be accomplished and the means to solve it is not instantly self-evident. Second, critical thinking frequently includes trying out distinctive methods for resolving the issue. According to Larson (1983), an issue (problem) has four parts. To begin with, there is an underlying state. This is the individual's state of mind at the outset, when an issue is identified. Second, there is the objective expression; this is the objective that the individual wishes to accomplish. Third are the activities or operations that the problem solver can use to get into the right mindset, i.e. objectivity. Fourth, is the errand condition that the problem solver is working on. The undertaking's condition comprises the elements of the physical condition that can either specifically or by implication oblige or recommend diverse methods for tackling an issue (Newell and Simon, 2007:56). As indicated by Mayer (1990:76) problem-solving theory can be characterized as a unique scholarly methodology, focused on the revision of one specific state to a more conducive state where the determination procedure is not self-evident.

2.5.1.1 Characteristics of Problem-solving Theory

Robertson (2005:18) calls attention to a few qualities (characteristics) of problem solving. The first identifies the way that the solver knows ahead of time all the conceivable ways that he or she can take care of an issue. For example, he or she can focus on the systems individuals use rather thanon the nature of the issue, or can analyse how individuals improve after multiple attempts to resolve the issue. The second quality alludes to the way that the solver, for the most part, knows nothing ahead of time about the procedure that includes solving a specific problem, particularly with regards to the nature or difficulty of the problem. From this quality, it is possible to examine the possible solutions developed by the solver.

The third quality concerns the likelihood of examining the solution of one problem exclusively, starting with the initial problem then moving onto the next by looking at two problems' distinguishable features and then comparing them to see how they fit within a larger narrative. This allows for an examination of how individuals vary in their views about problems within various contexts. As indicated by Glasersfeld (1991), problem-solving approaches require unequivocal focus in the taking care of numerically ordered issues.

They also require the use of experiential and metacognitive techniques, for example, understanding the issue, formulating a plan, executing the plan, and thinking back on the process. Problem-solving approaches require a few assumptions from constructivists, to be specific, 1) the estimation of the problem as a method for finding a way to avoid conflict; 2) the significance of problem needs to be clearly explained; 3) the noteworthiness of explanatory methodologies that are ordinarily unsaid, however successful, and 4) the benefit of reflecting on the solution after the fact.

2.5.1.2 Problem-solving Strategies

Problem-solving methodologies are the means used to discover the problem or problems obstructing one's own particular objective (Sternberg and Frensch, 2010:56). Firend's Problem Solving Model (PSM) is functional in application and fuses the regular approach, with an efficient procedure of investigation, usage and appraisal cycle (Firend, 2014:67). Some would call this the “problem-solving cycle”. In this cycle one would identify the problem, characterize the problem, develop a procedure to solve the problem, catalogue what was learned through the problem-solving cycle, make sense of the resources at client transfer, screen one's advance, and assess the answer for precision (Bransford and Stein, 1993:98). The reason it is known as a cycle is that once one is finished with one problem, another typically arises. Blanchard (2012:23) takes a look at problem-solving from one of two perspectives. Firstly, taking a look at those issues that have one solution (like numerical problems, or certainty based inquiries), which are grounded in psychometric knowledge. The other is socio-passionate in nature, and answers are erratic in that they demonstrate characteristics of mutability (change). This second perspective relates to the issue under discussion in this study, i.e. the challenges of postgraduate research. The following systems are generally called problem-solving strategies (Wang and Chiew, 2010: 81):

- Abstraction: solving a problem in a pilot scenario before applying it to the genuine problem.
- Analogy: using an answer closely resembling a method used to solve another existing problem.

- Brainstorming: (particularly among groups) presupposing a number of gatherings where ideas are created, tested and consolidated until a solution is found. This study, for example, required the use of focus-group interviews, keeping in mind the end goal of getting different recommendations as to how to solve the problem under investigation.
- Divide and conquer: separating a large, complex issue into smaller, more manageable issues.
- Hypothesis testing: expecting a possible solution to the problem and attempting to demonstrate (or, in a few instances, discredit) the assumptions underlying the solution.
- Lateral thinking: moving toward plans in a roundabout way and innovatively.

This study is informed by a problem-solving framework that assesses the challenges confronted by postgraduate students, also taking into account the dynamics of transformation. There are general stages informed by problem-solving theory that are described differently by different researchers. Linhart (1976) suggests that the subject encounters three phases:

- The detection of the problematical situation within the present state of affairs; during this stage, this study identified possible pitfalls and characterized the problem; the problem is the challenges of postgraduate research. It has been simple to recognise this problem since I, as the researcher, have confronted some of these very same difficulties in the course of this research.
- The resolution process, where the matter is exposed to the properties of conditions and a scan is undertaken for the assets that can change the condition (object) concerning the essential point. This study required the search for the root causes of these research difficulties in order for the researcher to have the capacity to attempt to solve and steadfastly focus on the problem under investigation.
- The stage of affirmation of the uncovered property and its use in different challenges of a similar nature (Linhart, 1976:78).

This study affirms the uncovered property or rather the outcomes of the study. It guarantees its own validity by exploring reports about the postgraduate challenges in

the Literature Review. Problem-solving theory turns out to be a compelling guide to inquiry, since it enabled me, the researcher, to meet the principal objective of review through the use problem-solving theory. This objective is to evaluate the challenges experienced by postgraduate students at the University of Zululand by asking the following questions:

I. What are the challenges faced by postgraduate students at the University of Zululand?
II. How do these challenges impact the research productivity of postgraduate students at UNIZULU and South African HEIs broadly?
III. In what way can these challenges to postgraduate students' research be addressed?

All the research questions are fully addressed and problem-solving theory assisted to develop the knowledge framework for examining the problem under investigation.

2.5.1.3 Common Barriers to Problem Solving

Normal obstructions (barriers) to problem solving are mental concepts or ideas that block our capacity to accurately solve problems. These barriers keep individuals from addressing issues in the most productive way possible. Five of the most widely recognised elements that researchers have distinguished as obstructions to problem solving are confirmation bias (affirmation predisposition), mental set, functional (practical) fixedness, unnecessary constraints (pointless requirements), and irrelevant data (superfluous data).

- **Confirmation bias**

Within the field of science there exists an arrangement of key principles, the logical strategy (scientific method), which plots the way toward finding realities or truths about the world. This is achieved through having a fair idea of all the germane data and through fair-minded perception of, and additionally experimentation with, that data (Nickerson,1998). As indicated by this technique, one can most precisely discover the answer to an apparent question by playing out the previously mentioned steps. The scientific technique does not recommend a procedure that is restricted to researchers but rather one that all individuals can hone in their separate fields of

work and, in addition, in their own lives. Affirmation predisposition can be described as an unconscious or accidental adulteration of the logical technique.

Consequently, when one demonstrates an affirmation predisposition, one is formally or casually gathering information and afterwards watching and exploring different paths regarding that information, such that it supports an assumption that could conceivably be wrong. Inquiry reveals that experts inside logic-driven fields of study likewise encounter affirmation predisposition. Andreas Hergovich, Reinhard Schott, and Christoph Burger's investigation directed on the Web, for example, demonstrated that experts inside the field of mental research are probably going to see logical reviews that are compatible with their biased understandings more positively than studies that are incongruent with their established convictions (Burger et al., 2012:77).

- **Mental set**

Mental set was first described by Abraham Luchins (19 1942:54) in the 1940s and showed in his notable water-container tests. In these tests, subjects were requested to fill one container with a particular measure of water using different containers (normally three) with various extreme limits as instruments. After Luchins gave his subjects an arrangement of water container problems that could all be settled by using a solitary system, he would then give them a problem that could either be solved by using the same procedure as the one before, or a novel and less difficult strategy. Luchins found that his subjects tended to use a similar strategy that they were used to. It turned out that they had become acclimated to it regardless of the option of using a less difficult strategy.

In this way, mental set represents one's slant for solving problems, based on that which has been demonstrated successfully in past encounters (Öllinger et al., 2008). As Luchins' work reveals, the techniques for finding a solution that were successful in the past may not be sufficient or ideal for certain new but rather comparable issues. In this way, it is important for individuals to regularly check and move past their mental sets, keeping in mind the end goal of discovering solutions. This was again shown in Maier's (1931) test, which tested subjects' problem-solving ability by using a family-unit question (tongs) in an unusual way. Maier observed that subjects were frequently not able to see the question in a way that strayed from familiar

usage, a phenomenon known as a specific type of mental set (more widely known as “useful fixedness”, which is the subject of the following paragraph).

At the point when individuals stick inflexibly to their mental sets, they are said to experience obsession, an apparent fixation on or distraction by tried and tested strategies that are more than once unsuccessful. In the late 2000s, researcher Jennifer Wiley (2005:114) attempted to reveal that ability can work to create a mental set in people thought to be specialists in specific fields. In so doing, she discovered proof that the mental set created through ability could prompt the development of obsession. The greater part of the above review concerns this study as it may contain a similar circumstance with regard to South African HEIs as they are at present confronting various postgraduate difficulties which are also known by institutions themselves (Wiley, 1998).

- **Functional Fixedness**

Functional fixedness is a particular type of mental set and obsession, which was suggested prior in the Maier test, and moreover it is another path in which subjective predisposition can be observed throughout daily life (Maier, 1940:48). German and Barrett (2012:221) describe this boundary as the settled plan of a question frustrating the individual's capacity to see it serving different capacities. In more specialised terms, these analysts clarify that “subjects progress toward becoming "fixed" on the outline capacity of the items, and problem solving endures in respect of control conditions in which the protest's capacity is not illustrated”. Useful fixedness constrains the capacity for individuals to solve problems precisely because it makes people have an exceptionally limited mind-set.

Functional fixedness can be seen in different sorts of learning practices too. For example, research has found the presence of useful fixedness in numerous educational settings. Researchers: Furio (2009:34), Calatayud (2006:76), Baracenas (2010:43), and Padilla (2013:68), note that “functional fixedness might be found in learning ideas or conceptions and also in tackling science issues.” There was more emphasis on this capacity discovered in the educational field than in others.

Functional fixedness can influence problem solvers in no less than two specific ways. Since functional fixedness makes individuals use additional time than would otherwise be expected to solve a given problem, it wastes time. Furthermore,

functional fixedness frequently makes solvers make a larger number of endeavours to solve a problem than they would otherwise have made had they not been encountering this mental barrier. In the most pessimistic scenario, functional fixedness can totally prevent a person from understanding the answer to a problem. Functional fixedness is an ordinary occurrence, influencing the lives of many individuals.

- **Unnecessary Constraints**

Pointless limitations are another extremely common impediment that individuals confront while endeavouring to solve problems. This specific phenomenon occurs when the subject, attempting to solve a problem intuitively, puts limits on the job needing to be done, which thus drives him or her to strain to be more creative in their reasoning. The solver hits an obstruction when they progress toward becoming focused on just a single approach to solve their problem, and it turns out to be progressively more difficult to see anything other than the technique they have selected. Ordinarily, the solver encounters this when endeavouring to use a strategy that they have initially experienced accomplishment from, and they cannot resist the opportunity to attempt to make it work in the current conditions again regardless of the possibility that they see that it is counterproductive (Kellogg, 2003).

This issue can be immediately resolved through the development of a sound understanding of the problem. A couple of minutes of battling over an issue can bring about these sudden insights, where the solver rapidly observes the sum of the problem's parts without error (Cottam et al., 2010). Issues like this, for example, are most commonly solved by means of understanding the problem and can be exceptionally difficult for the subject contingent upon either how they have organised the problem in their mind, how they draw on their past experiences, and the number of times they juggle the data in their working memory (Meloy, 1998).

As a result of the nine-point plan having been successful in the past, the solver has erroneously organised the solution into a new problem in their brain. This adds an additional problem to the original one, hampering the subject's ability to find a solution still further. What is more? individuals experience internal conflict when they attempt to contrast the problem with earlier information, and they think that they should keep their mental train of thought on the tracks without stopping to see if

there are any new directions available. They do this on the grounds that attempting to imagine new directions outside of what is known and comforting to them puts a strain on their working memory (Weiten, 2011). Fortunately, the answer to the problem can still end up becoming plainly clear as long as the subject submits to the process where making incremental progress eventually provides the necessary enlightenment (knowledge) to find a solution. These modest developments occur without the solver knowing (Novick and Bassok, 2005).

- **Irrelevant Information**

Insignificant data is data introduced inside an issue that is inconsequential or immaterial to the particular issue (Kellogg, 2003). Inside the particular setting of the problem, immaterial data would fulfil no function in solving a particular problem. Regularly, inessential data is counter-productive to the problem-solving process. It is another common stumbling block that many people experience difficulty overcoming, particularly in the event that they do not know about it. Insignificant data makes solving generally straightforward problems considerably more difficult (Walinga, 2010). For instance, the general campus population that is not recorded as postgraduates at UNIZULU would not be among the people who I, as the researcher, would select for participation in this study.

The people taking part in this study would have normally needed to have been participating in one of the institution's research-office workshops. This could result in the data being irrelevant in the sense that anyone can attend a workshop and claim to be a postgraduate student. If I, the researcher, had interviewed such an individual, the research would then be affected by irrelevant data without my knowing. Researchers see that there is data present and they quickly believe that it should be used. This obviously is not the case (Vlamings, 2015). These sorts of inquiries are frequently used to test students taking inclination tests or subjective assessments. They are not intended to be difficult but rather, are intended to measure internal states in a way that perhaps does not always suit the task at hand.

Insignificant information is generally spoken about in mathematical problems and word problems, particularly where numerical data is taught with the end goal of testing the person meant to learn that information. Research depends, for the most part, on social-event data from review sources, and the issue that all researchers

face is the belief that the data given to them is important (DHET, 2014). As a rule, studies are withdrawn as a result of inessential data. One may conclude that researchers ought to, by any means, attempt to figure out how to test the usefulness of the data that they have collected.

2.5.2 System Theory of Administration

According to Rahim (2001:87), styles of handling challenges are determined by the source of the encounter (problem). Since this study aims to assess the challenges of postgraduate research, particularly at UNIZULU, it is important and necessary to understand how Systems Theory explains the processes of how institutions interact with postgraduate students. Within the System's Theory framework, attention is focused on the relationships instead of individual characteristics. This theory helps to understand research challenges in South Africa HEIs at three levels:

Firstly, it helps to generate knowledge on the wholeness of the institution system, which is looking at the entire system; it will basically look at the organisation of the institution and how the diverse portions of a system work together, looking at what forms are connected (Wilmont et al, 2001:32). A system is a set of items, processes and people, working jointly with an aim of achieving common goals. The system breaks down whenever any of its components are removed because various systems components work in concert with each other to attain the desired goal (Laszlo, 1996:54). Likewise, an institution of higher learning is composed of teachers, students, content, and contexts among its components. Removing any of these components leads to a system breakdown. They all should work together in order to attain the desired goal.

Secondly, it helps to look at how different parts of the entire system such as a Higher Education Institution (HEIs) work together, and how this relationship is affected when an external component is introduced into the system. HEIs are described by the relationships among their components (lecturers, students, research, learning, content, and contexts) as well as the relationship a system has with its environment (Frick, 1991:45). To avoid challenges there should be a productive relationship between postgraduate students and supervisors.

Thirdly, Systems Theory helps to look at the patterns inside the system, that is, looking at what patterns are connected. In essence, Systems Theory helps to theorise conflictual patterns caused by one or two departmental failures to impede their functionality. As such, it provides the basis of studying departments in an institution setting in terms of roles, processes, and patterns. In this context, it seeks to discover the rules that govern the system's behaviour within the system.

Systems Theory helps to also understand conflictual relationships in the entire system. This theory helps to understand this phenomenon by viewing the system which is used by HEIs, specifically UNIZULU. This gives us a clear understanding of whether the problem is with the system or the postgraduate students themselves. The use of Systems Theory aligns this study with the discipline of Public Administration.

The theoretical framework used in this study has produced ground breaking results. Using two theories boosts the findings of the study as some theories need to be backed up by other alternate theories. Therefore, this study has been strengthened because it uses problem-solving theory and the Systems Theory of administration. Moreover, using two theories does not pose any threat to the process and results of the study. Using problem solving theory and the Systems Theory of administration is in accordance with the public administration discipline standards on the grounds that the postgraduate research is a public problem in HEIs.

According to David Seeley (1981) postgraduate research depends on working on relationships with the students, institution and community groups. There is a rich history of Universities working together toward a common goal: the education of South Africa’s youth. Existing partnerships between universities, students, professional staff and communities are being sustained; new and exciting partnerships are being forged throughout the nation. The existing literature synthesises the current state-of-the-art techniques in postgraduate research. It looks at the programmes, practices, and their effects in the research and practice literature.

2.6 Conclusion

This chapter has reviewed literature on the challenges postgraduate research in HEIs from global, national and local (provincial) perspectives. In this chapter, it has been revealed that the key challenge that the public universities in higher education in South Africa are facing are postgraduate-research-related challenges. However, government is also trying to help improve research skills by investing in innovation, even though the government works within a limited budget, to ensure that services to the public universities are distributed and there is enough funding for research and innovation. Therefore, having read and reviewed literature on selected material relating to this study, it has been established that there is no study that focuses specifically on the challenges of postgraduate research in comprehensive universities.

This study aims to bridge this gap by incorporating the views of UNIZULU students, which is also a comprehensive university. The use of UNIZULU as a case study is motivated by the ease of conducting research and directly connecting with participants, since the researcher is also subject to these challenges. Nevertheless, the study necessitated the use of problem-solving theory as a structure which supports it. Problem-solving theory and Systems Theory best explains the focus of this study. Problem-solving theory and Systems Theory have been used in this study essentially to explain the operational characteristics and sources of postgraduate-research challenges in HEIs, and in the specific case UNIZULU as a case study. Given the stumbling blocks outlined by these theories, I, the researcher, deem them to be not harmful to or to have any other adverse effect on this study in any way. Also worth noting is that this study uses problem-solving theory in conjunction with the Systems Theory of administration. The next chapter focusses on how this study has been conducted (the research methodology).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter introduces the research methodology by outlining the choice of research design and sampling methods, and provides a detailed description of the data-collection methods, instruments and processes used. In this study, both qualitative and quantitative research approaches are used as methodological constructs to explore the challenges of postgraduate research, with perspectives from UNIZULU. According to Biyane (2007), research contains two primary stages: one is the phase of organising and the other is the phase of usage. In the organising phase, the researcher builds an outline, an appropriate plan for the research, and within the second phase, information is gathered and deconstructed. This chapter aims to provide a clear picture about the research methods and the instruments that were used to collect data for the study. Furthermore, the ethical considerations in respect to the respondents who participated in this study will be outlined in this chapter. UNIZULU is used as a Case Study to generate a body of knowledge in line with the objectives of the study as stated in chapter one.

3.2 Research Methods

This study adopts a mixed-method approach because it deals with the clarification of terms and concepts gathered by means of interviews and questionnaires. Creswell (2014) characterises mixed-method research as a way to manage research, including gathering both quantitative and qualitative information, incorporating the two types of information, and using specific strategies that may include philosophical assumptions and hypothetical structures. The main purpose of using these methodological lenses is to articulate people's insights, socially-constructed beliefs, norms and perceptions.

In this case, the aim will be to determine whether the challenges faced by students when conducting research are the reason some students are incapable of completing their research in a given period of time (Creswell & Clark, 2007). Hasse-Biber (2010) calls attention to some obstacles which need to be overcome with respect to using a mixed-method approach. One of which is that using mixed methods requires that the researcher be adequately versed in both qualitative and quantitative techniques. However, researchers typically have mastery in just a single technique (method). Additionally, she contends that, if the researcher cannot use

techniques (methods) effectively, the integrity of mixed method enterprises might be sacrificed. The study also applies deductive reasoning, starting with the analysis of dominant terms as sources of the challenges of postgraduate research. It moves from a general account of South Africa's Higher Education policy-making and actual implementation to focus on the details of students' responses to answer the critical question of whether South Africa's education sector may be blamed for postgraduate research challenges. The proposed methodological approach is in line with Creswell's (2003) acknowledgment that mixed-method research is used in various academic disciplines but is traditionally used in social sciences.

Qualitative researchers strive to achieve a thorough understanding of human behavior and the rationale behind it. This approach is more suitable as the study seeks to understand the challenges faced by postgraduate students concerning research. It explores every detail of the decision-making process, and usually, a smaller sample is required[6]. Qualitative research has several meanings, for example, the term can be used interchangeably with the terms such as naturalistic, ethnographic, subjective, and post-positivistic research (Babbie and Mouton, 2003). According to Wolcott (1990), qualitative research is geared towards gaining an understanding of human systems. In this study, the qualitative approach is conceived as the fundamental research procedure.

A qualitative strategy implies an investigation which produces idiosyncratic data; words spoken by people (Hanekom, 1997:99). The use of the qualitative approach is established through practices where "problematic research" is conducted, i.e. research that aims to observe public understandings, dogma, and points of view toward a particular subject or system. In this study, the qualitative approach was used as the primary strategy to aggregate the points of interest on the sources of postgraduate research challenges confronted by postgraduate students at UNIZULU.

The qualitative approach was supplemented with quantitative techniques to gauge the impact of associated factors developing from the study. This makes it a mixed-method study with both qualitative and quantitative element introduced in order to capture the affected group's insights and check recommendations. Hence, this study connects with a strategy that can be understood as "sequential-qualitative first"

[6] Data collection is time consuming therefore it is impossible for a researcher to reach a large number of students in a short period of time.

(Cresswell, 2003:211). Whenever qualitative and quantitative methodologies are grouped or joint together, the methodologies are used in sequential or concurrent order. In some cases, qualitative studies can be added to quantifiable ones, in order to gain an elevated understanding of the significance and consequences of what is discovered. More creative mixes are found in triangulation. The possibility of triangulation began from a discipline used by land surveyors, who judge the legitimacy of a model by combining measures from various points.

Numerous viewpoints can improve the interpretation of a phenomenon. For example, an elephant looks altogether different when seen from above or underneath. Somebody scrutinising a report may achieve an elevated understanding of what goes on in research organisations if pieces of information from different sources are viewed in conjunction with one another. Despite the fact that each style (approach) shares its own methodological peculiarity, since various philosophical suppositions shape the ways researchers approach issues, gather and interpret (analyse) results (data), the two techniques can be used in combination, and their joint use increases both the absolute quality and legitimacy of a study activity (Babbie, 2000). In terms of this study, the individual interviews were led from UNIZULU through the support of the Research and Innovation Office, in the year 2016, among postgraduate students, academic staff, faculty deans and deputy deans. All of these respondents were surveyed in order to guarantee that the information collected is valid, significant and dependable.

In addition, a number of sources were used. Sources were divided into primary and secondary sources, respectively. Primary sources included documented texts. Some of the documents were interviews, speeches and addresses by Ministers of Education and other officials, and research from relevant websites. Some of these documents were obtained from the archives of the Department of Higher Education and Training (DHET). Secondary sources used included a number of scholarly materials examining South African education’s role in postgraduate research. The materials included the works of leading scholars and analysts in the field in question (see Park 2012, Zakri 2012, Polit and Hungler 1997 and Scott 2012). Recent theses and dissertations postgraduate research challenges were also consulted; these include the work of Mugenda (2015) and Mngomezulu (2016).

3.2.1 Qualitative Research Approach

The qualitative research approach was used as the main approach in this study because of its faculty for interpretation and the fact that this study is being conducted in the era of information (Denzin and Lincoln, 1994). As per Creswell (2014), qualitative research is an approach for investigating and understanding the meanings of people or group's responses to a social or human issue. The qualitative approach is used to answer questions concerning the confusing nature of phenomena, in order to articulate and understand phenomena from the participants' perspective (De Vos et al., 2011). Prioritising the qualitative approach aligns with research, which investigates individuals' insights and attitudes about specific issues.

At the epistemological level, the qualitative approach requires interpretivism in light of the fact that a researcher interprets the information in view of what is observed by the participants after a deeper research process (Packer, 2011). In addition, at the ontological level, the study encourages constructionism, particularly while considering socially-built phenomena (May, 2002). Moreover, qualitative analysis concentrates on essential information (primary data) acquired through non-probability sampling and improves the development of a hypothesis about challenges facing HEIs in terms of organisation and administration. In handling the qualitative information, its quality is more vital than its volume. All things considered, the research problems in HEIs cannot be measured by virtue of the fact that it is a student-to-student or University-management matter. Simply compiling a quantity of postgraduate research challenges cannot reflect the nature and sources of the challenges.

3.2.2 Quantitative Research Approach

Neumann (2000:87) contends that one of major advantages of the quantitative method is the use of probability sampling, which offers a refined picture of the population under investigation. As Miles (1941) accounts, in a study which is for the most part qualitative, quantitative information can be combined with qualitative information. A research study identifies a representative population either during the compilation of their research design or during the information-gathering process. In like manner, the duration of the research and the time it takes to understand what has been discovered and come up with an all-inclusive problem-solution statement,

will depend on the information yielded by subjects (Miles et al., 1941). In addition, Creswell (1994) has given an exceptionally brief definition of quantitative research as a kind of research that clarifies myths using socially-grounded numerical data that is analysed or translated using experimentally based strategies (specifically measurements).

In this study, quantitative information is combined with qualitative information throughout the selection (sampling) procedure in the planning period of the study, through the accumulation of information and the data analysis process. This study also uses content analysis, which comprises the preliminary and continual noting of similarities and differences in the existing field of study that would corroborate the data. Hence, data is presented and interpreted. This study attempts to evaluate factors identified as contributing to the challenges of postgraduate research at the UNIZULU. Quantitative data can be transposed into numbers, in a prescribed, focussed, methodical procedure, aimed at attaining data and labelling variables, and their relationships (Brink and Wood 1998:05; Burns and Grove 1993:26).

In the quantitative part of this study, the focus is on controlling the considerable number of variables affecting the activities and responses of the participants. Respondents or research subjects are generally not allowed to express information that cannot be captured by the intended instruments (Henning, 2014:76). Quantitative methodology uses deductive rationale and is appropriate for an investigation of phenomena which are thoughtfully and hypothetically very much created; i.e. it tries to control phenomena. The research design is institutionalised by an established method and can be repeated. The information is acquired methodically and in an institutionalised way. Therefore, the unit of investigation is factors that are atomistic (De Vos et al., 2011:85).

3.3 Research Setting

The research setting alludes to the area of study, which is the place in which the study is conducted and based. In this study, information has been gathered at the University of Zululand (UNIZULU), KwaDlangezwa campus, which is situated within the King Cetshwayo District municipality[7](SARUA, 2012). UNIZULU is the main

[7] The University of Zululand is the fastest developing educational hub in northern KwaZulu-Natal. UNIZULU is an educational hub since its primary purpose is to provide education to people in educational settings.

University North of the UThukela River. Despite the fact that the UNIZULU has two campuses, for the reasons of this study, the researcher concentrated on the KwaDlangezwa site, UNIZULU's main campus. The map below (figure 3.1) shows the area of study in detail. The criterion for selecting UNIZULU is examined in section 3.4.1 (of this chapter) which concentrates on the population characteristics in the geographical area of this study. According to Yin (1994), the analysis of information is frequently directed inside the setting of its use, that is, inside the place where the action happens.

Stake (1995) considers a study as a search for limited information, underscoring the solidarity and wholeness of that context, however binding the regard for viewpoints that are relevant to the research problem. For this reason, a situation has its own character and limits. As a course of research, "case studies are the favoured methodology when 'how' or 'why' questions are being postured, when the researcher has little control over occasions, and when the attention is on a contemporary novelty inside" (Yin, 1994:01). This empowers the researcher to adopt a plan based on the experience, states of mind, assessments, recommendations, desires and conduct of the subject group towards salient issues (Babbie, 2000). In addition to this, questionnaires were distributed, and structured open-ended interviews were conducted with deliberately selected participants. This enabled me, the researcher, to collect first-hand information directly from the scholars and practitioners relevant to the field.

The study had a sample of 34 participants categorised as follows: nine UNIZULU academic staff from four faculties including the Research and Innovation Office, seventeen participants that were postgraduate students and eight respondents who were also postgraduate students randomly selected for focus-group interview. To clarify, this study comprised 25 postgraduate students and nine UNIZULU academic staff, including staff from the Research Office. This study focusses on the challenges of postgraduate research: perspectives from UNIZULU. Postgraduate students, academic staff, staff from the Research Office, and staff who are deans or deputy deans from all four faculties of the University were the target population for this study.

Figure 3.1 Map showing the area of study

Data Source: Department of Science and Technology

UNIZULU has four faculties (Education, Arts, Science and Commerce, Admin. and Law) with a total of 45 departments. Table 3.1 presents the enrolment summary at UNIZULU for both undergraduate and postgraduate students for 2016. For the purposes of this study, I will focus more on postgraduate students' enrolments.

Table 3.1 University of Zululand Enrolment Summary as at 2016

According to the table below, in 2016 there were 1 877 postgraduate students who enrolled at UNIZULU for that particular year. These students were enrolled for different postgraduate courses in different faculties. See the table below which outlines these enrolments in greater detail.

Table 3.1

For year: 2016
Until date: 31-DEC-2016
Submit

running query for year=2016, edate=31-DEC-2016

	1	2	3	4	5	
Undergraduates						Totals
faculty: Arts	1042	1231	1576	225		**4074**
faculty: CommLaw	1065	1293	1166	214		**3738**
faculty: Education	1060	1116	1392	1524		**5112**
faculty: Science	1036	869	750	219		**2874**
faculty: Other/NDP						**null**
Totals:	**4223**	**4509**	**4884**	**2182**	**null**	**15798**
Postgraduates						Totals
faculty: Arts	295	243				**538**
faculty: CommLaw	167	48				**215**
faculty: Education	605	205				**810**
faculty: Science	182	132				**314**
faculty: Other/NDP						**null**
Totals:	**1249**	**628**	**null**	**null**	**null**	**1877**

Data Source: (UNIZULU Registration, 2016)

Again, the institution enrolled 1 877 postgraduate students for year 2016 (UNIZULU registration, 2016). These figures were generated from all four faculties within UNIZULU.

The Faculty of Commerce, Administration and Law (FCAL) is transforming into a dynamic faculty at UNIZULU. The Faculty contains six scholarly departments: The Department of Accounting (including Information Technology), Business Management, Economics, Industrial Psychology (incorporating Human Resources Management), Public Administration, and The Law Department (Private Law, Public Law, and Mercantile Law). This faculty is the one with the least number of postgraduates enrolled for the year 2016 (UNIZULU Registration, 2016). The faculty enrolled 218 postgraduate students for 2016. This information is important for this study in order for both the researcher and the reader to understand the attributes of the population where the study is conducted.

The Faculty of Arts is the biggest faculty at UNIZULU. It has the second largest number of enrolled students and the most impressive student-to-staff ratio. The 18 departments cover an extensive variety of fields, from languages and linguistics to social sciences and the humanities. The Faculty of Arts stays faithful to the goal of excellence and development in all fields and supports many research projects. The faculty partly mirrors the focus of UNIZULU as a whole, in terms of: educational costs and research, and group benefits, especially in the humanities and social sciences. The Faculty of Arts enrolled 542 postgraduates for the year 2016. The Faculty of Education is the second biggest faculty at UNIZULU, accounting for the largest number of enrolled students (both undergraduates and postgraduates) in 2016, with 811 postgraduate students. Additionally, the Faculty of Science comprises thirteen academic departments and a Science Access Department. That faculty enlisted 314 postgraduate students for the year 2016.

3.4 Research Design

Polit and Hungler (1999) characterize the research design as a structure intended for leading the study such that the utmost control will be exercised over components that could interfere with the legitimacy of study outcomes. According to Mare (2007), a research design is a plan or procedure which moves from basic theoretical assumptions to indicating the classification of respondents, the information gathering

strategies to be used, and the information investigation to be done. Burns and Grove (2001) express the view that designing a study helps analysts (researchers) to arrange and actualise the study in a way that will help them get the desired results, therefore improving the odds of acquiring data that is relevant to the original research problem. Babbie (2007) states that a research design includes a collection of choices in regards to what theme is to be researched, among what populace, with what research techniques, and for what reason?

This study uses a case study research design to collect data. The problem under investigation required the use of a descriptive research design. Inarguably, research configurations are built from interpretive philosophical underpinnings or paradigms, in which analysts argue that human social life is qualitatively unique in relation to different things considered by science (Creswell, 2009). This model asserts that truth depends upon socially constructed beliefs, norms, and perceptions, and thus, there is no universal objective truth in social life. The study also used an exploratory research design. An exploratory research design is used to direct data or information for a problem that has not been clearly defined. More often than not, research comes to completion before a researcher has observed enough to make hypothetical analogies or propose an illustrative relationship.

This study is exploratory on the grounds that it investigates the sources of the challenges of postgraduate research at UNIZULU's KwaDlangezwa campus in the KwaZulu-Natal province in South Africa. The study necessitated identifying the sources of postgraduate research in order to recommend effective ways to deal with or address these difficulties. Therefore, data collection on the challenges of postgraduate research needed to incorporate perspectives from UNIZULU postgraduate students and academic staff. Data collected was used to assess these challenges.

The above-mentioned research designs complement each other in the sense that the case study research design, through reports of past studies, allows the exploration and understanding of complex issues regarding postgraduate research. The descriptive design aims to analyse the sequence of postgraduate research challenges after a certain amount of time has passed, whereas the exploratory

design aims to find answers to the questions of “what” and “who”; questions that will be further analysed in chapter four.

3.4.1 Population and Sampling

Polit and Hungler (1999) characterize a population as the totality of all subjects that fit in with an arrangement of the particulars, involving the whole gathering of people that is important to the researchers and for whom the study results can be summed up. As LoBiondo-Wood and Haber (1998) note, a sample as a segment or a subset of the study populace is chosen to participate in a study, based on discussions with the study populace (LoBiondo-Wood and Haber, 1998). This study targeted postgraduate students at Honours, Master’s and Doctoral levels, and also academic staff at UNIZULU. Relevant to the study is that certain eligibility criteria had to be met so that a specific end goal could be achieved, i.e. the collection of information in the least complex way. As indicated by Polit and Hungler (1999), eligibility criteria distinguish the characteristics between people in the general population and those that the researcher would want to participate in his or her study. In this study, participants are classified in three ways (see the table below):

Table 3.2 Study respondents in three categories

Categories	Description
Class 1	Postgraduate students registered for the 2016 academic year and engaged in conducting research at UNIZULU
Class 2	Faculty deans and academic staff in all UNIZULU four faculties, including the research office.
Class 3	Postgraduate students for Focus Group Interview at the UNIZULU postgraduate laboratory

Data Source: Own Compilation

The postgraduate students were structured according to their respective faculties keeping in mind the end goal of having the capacity to collect information in a highly organised and categorical manner.

As Black and Champion (1976) claim, a sample is a small group of constituents taken from a populace, which is thought to be illustrative of the populace. A sample size is characterised by Bailey (1987) as the quantity of representative respondents

chosen for interviews from a study populace. For the purpose of this study non-probability or convenience sampling was chosen since not every participant who falls in the three categories mentioned above had an equal chance of being included in the sample. I, as the researcher, used a convenience sampling technique in order to gather information from the people who were willing to participate in this study.

Moreover, since there were 1 883 registered postgraduate students at the UNIZULU for year 2016 (UNIZULU Registration, 2016) it was impossible for me, the researcher to interview every single one of these postgraduates. De Vos (1998), states that convenience sampling is the balanced solution in situations where it is difficult to distinguish every one of the individuals from a populace (De Vos, 1998:191). As indicated by Rescoe (1975:30) cited in Sakaran (2000:296), “sample dimensions (sizes) that are bigger than thirty and not more than five hundred (500) are appropriate for most research”. Observing these restrictions, the sample size that was used included thirty-four participants who were recruited for questionnaires, interviews and focus-group interviews.

3.4.2 Data Collection Instruments

Polit and Hungler (1999:267) characterize data collection as “information (data) gained or assembled through the procedure of an investigation or study”. In this study, interviews, focus-group interviews and questionnaires were used to obtain data relevant to the study’s objectives and research questions. The semi-structured interviews, focus-group interviews and questionnaires’ distribution were done at UNIZULU in order to gather qualitative data in accordance with the motivation of the study. The interviews and questionnaires have been used to legitimise causal clarifications for this study’s findings, also bearing in mind the responses of subgroups in a substantial populace. An observation checklist was used to investigate students’ cooperation, connections, operations and exercises in order to get direct data in accordance with the challenges experienced by postgraduates. Secondary data is described by Kothari (2004) as information that is currently accessible, which has been collected and examined. Information (data) was gathered through library research including different records, reports, books and journal articles.

This strategy for data collection incorporates uncovering manuscripts (documents) connected to the topic under investigation, in order to bolster the validity of the basic investigation. In this study, official records detailing the challenges of postgraduate research, research outputs and institutional enrolments were studied to understand whether there were any provisions for overcoming the challenges of postgraduate research in South African HEIs. Postgraduate-student statistics and annual postgraduate research data were also reviewed. These documents were examined and analysed using a programme called Statistical Package for Social Sciences (SPSS), which is an electronic computer program. This procedure took into account the correlation and classification of the information arising from these records.

All documentation that was analysed was easy to detect and access. Supplementary secondary data was acquired from the institution archives, and research institutions, these were duly verified and scrutinised to ensure they met the standards required to complete this research diligently. The data collected from these sources of information was used to test the uniform quality of evidence generated by means of the interviews, questionnaires and focus-group interviews. The questionnaire was used for postgraduate students, the interview guide was used for professional staff and academics and the focus group guide was used for postgraduate students. In this study there were 34 participants. Table 3.3 below shows the number of participants in this study according to participants' departments.

Table 3.3 Table Showing the number of the participants in this study

Participants Entity	Number of Participants for Interviews	Number of Participants for Focus Group Interview	Number of Participants for Questionnaires
Faculty of Arts	2	3	5
Faculty of CAL	2	1	3
Faculty of Education	2	2	5
Faculty of Science	2	2	4
Research Office	1	-	-
SUB-TOTAL=	9	8	17
	TOTAL = 34		

Data Source: Own Compilation

3.4.2.1 Semi-structured interviews

As indicated by De Vos et al., (2011) questions in semi-structured interviews are almost always open-ended. McMillan and Schumacher (2010) further point out that semi-structured interviews use open-reaction questions to acquire information on participants' suggestions, on how people think about their reality, and how they clarify or comprehend the critical events in their lives. During semi-structured interviews, the respondents shared their views and perceptions about the challenges of postgraduate research at UNIZULU. In this study, which used semi-structured interviews, I, as the researcher, had a plan to ask follow-up questions about the interviews; even so, the interviews were guided by the schedule. In this study, nine participants were selected for interviews and they were all interviewed.

The participants who were interviewed are grouped in Class Two of the categories of respondents, outlined on page seven. Specifically, I randomly selected two participants from each of the four faculties at UNIZULU. I also selected one participant from the Research and Innovation Office (RIO). Participants shared their perceptions on the way the interviews were conducted, and they identified an issue that I, the researcher, had not considered. The research study used the instrument of a survey to gain a substantial understanding of the participants' perceptions and points of view about the challenges of postgraduate research. Semi-structured interviews allowed the researcher and the participants' greater adaptability, allowing me, as the researcher, a chance to test or follow up on specific issues (De Vos et al., 2011). The reason for the semi-structured interviews was to collate qualitative information that addressed each of the three research questions mentioned in Appendix B (Semi-Structured interview schedule). The Focus Group Interview was held from the 10th to the 21st of July, 2017, and the participants were the academic staff from different faculties at UNIZULU including the Research Office.

3.4.2.2 Focus Group Interviews

FGIs were used to acquire top-to-bottom data from postgraduate students at UNIZULU on the challenges of postgraduate research, which influence incompletion rates in postgraduate educational settings. A selection of open-ended questions written in English on a sheet of paper served as a guide for the focus group interviews held at UNIZULU in order to test for understanding. It was essential to

have inquiries in this language in an effort to test and create more insights from study respondents, since UNIZULU is a multi-racial institution and English is the primary medium of education and communication, at the University and in the country.

One focus-group interview (FGI) was conducted in this study. In total there were eight participants for the focus group interview who were selected randomly from the postgraduate research laboratory at UNIZULU. No consideration was given to the faculty representation of selected participants. However, the participants were required to state their respective faculties on the FGI schedule that was distributed to them alongside the informed consent forms (see appendix C – FGI Schedule). During the FGI, there were two participants from the Faculty of Education, three from the Faculty of Arts, two from the Faculty of Science and one from the Faculty of Commerce, Administration and Law. These participants comprised the eight respondents who were postgraduate students randomly selected within the postgraduate laboratory, which is situated at UNIZULU's main campus in KwaDlangezwa. The FGI was held on the 28th of July 2017, and the postgraduates who participated were from different faculties of the UNIZULU. There was an attendance register the participants had to sign, see Annexure D (Focus Group Interview Register).

3.4.2.3 Questionnaires

According to Babbie and Mouton (2001:23), the term "questionnaire" entails a collection of questions; an ordinary questionnaire will likely contain the same number of statements as questions, particularly if the researcher is occupied with deciding the degree to which respondents hold a specific mentality or point of view. During the questionnaires survey, I used open-ended questions and close-ended questions for data collection with regards to the perspectives involving the topic under investigation (see Appendix A). The registration figures that was generated online from UNIZULU's registration website specified that the institution enrolled 1 883 postgraduate students for the year 2016, and these enrolments were generated from different faculties. More precisely, there were 542 postgraduates in the Faculty of Arts, 218 postgraduates in the Faculty of Commerce, Administration and Law, 811

postgraduates in the Faculty of Education, and 314 postgraduates in the Faculty of Science (UNIZULU Registration, 2016).

I, the researcher, therefore randomly selected five participants for questionnaires from the Faculty of Arts, Three from the Faculty of Commerce, Administration and Law, five from the Faculty of Education and Four from the Faculty of Science. These participants comprised the seventeen respondents who were postgraduate students randomly selected for filling out questionnaires. All questionnaires were distributed to the participants on the 22nd of May, 2017, and they were all collected by the 26th of June, 2017. The analysis of the questionnaires started on the 3rd of July, 2017, and concluded by the 8th of July, 2017.

Additionally, these postgraduates were selected as respondents to the questionnaires in order to answer the research questions. The aim or intention of the survey questionnaire was to collect information regarding research challenges and challenge mitigation strategies. All this was made possible during the data collection and analysis phase of this study. Information gathered from the questionnaires was broken down by using a descriptive statistical method from SPSS including rates (percentages) and charts. According to Creswell (2014), descriptive statistics are means, standard deviations and ranges. The questionnaires were organised well through the consideration of three factors, namely: the value of academic research; postgraduates' readiness and preparation, and ultimately research challenge mitigation strategies. There were two sections in the questionnaire. The first section concentrated on the participants' demographic information. This biographical information was vital to gather information on gender, age, race, research understanding, and level of study, faculty and level of research skill. Experience and postgraduates' capabilities as experts were vital to measuring respondent's abilities to conduct research.

3.4.3 Presentation of Data

The interviews, focus-group interviews, and questionnaires were intended for selected participants only and so study participants were required to answer all questions during the interview session. McMillan and Schumacher (2011) point out that, in research, the researcher chooses a sample of respondents from an objective populace and oversees a questionnaire or conducts interviews to gather data on

factors of interest. Primary sources of data are essential sources of information and are considered by this study to indicate novel (unique) social information from the study region through the use of data (information) gathering instruments. These instruments are the surveys, questionnaires, face-to-face interviews and focus-group interviews.

Semi-structured interviews and FGIs were used to gather qualitative information from the participants in all UNIZULU faculties including the Research Office. All those participating in questionnaires, interviews and the FGI were randomly selected in this study. Biographical data from the questionnaires and interviews was used to gather the quantitative information from the postgraduate students, UNIZULU academic staff and staff from RIO. The postgraduate students and UNIZULU academic staff are the primary respondents for this study and they have been selected with the end goal of understanding and answering the research questions.

I considered it fitting for the quantitative part of the study to be used in view of the quantity (number) of participants and because it was appropriate for covering the large number of postgraduates studying at UNIZULU in a short period of time and with less expense. The questionnaires were distributed to postgraduate students at the Honours, Master's and Doctoral levels. The participants were given seven days to answer the questionnaire and to finish them, and, on the agreed-upon date, the questionnaires were gathered for the purpose of data capturing. All selected participants were required to take part in the data collection process and they were required to sign a consent form. To ensure that the responses have not resulted in any partiality, the study contributors or rather participants' confidentiality (privacy) was extensively observed. What they said was just between me, as the researcher, and them. The information collected using semi-structured interviews and the FGI schedules was categorised using subjects or themes.

The qualitative information was investigated thoroughly in a narrative manner, and an outline of the interview conversations was recorded, highlighting the most critical and habitually specified emphases concerning the interview questions that were accumulated to address the study questions. De Vos et al. (2011) note that although quantitative-information analysis is a singular and complex process, it turns out to be generally quite simple, with clear well-ordered procedures, especially when guided

by computer programs designed specifically for this type of research. The quantitative information was analysed using a computer-based program called SPSS. In conjunction with SPSS, this study uses descriptive analysis and correlations to understand the relationships between variables such as age, gender, marital status and research knowledge. Graphs have been used to depict these statistics in a visual manner.

3.4.4 Description of Procedures

The Postgraduate students in all UNIZULU faculties, faculty deans or deputy deans and academic staff of each faculty were consulted, given information about the purpose of the study and given a chance to (or not to) agree to an appointment to discuss the research further. A letter addressed to the RIO was delivered requesting their permission for participation in this study. The RIO agreed to a meeting to discuss the focus of the research. Dates were agreed upon for the commencement of interviews. 17 questionnaires for gathering respondents' background information were hand delivered to respondents on the day of the interviews. Agreements were made with faculty deans (or their deputies) to meet and collect information from all of the respondents.

The respondents were required to fill in the questionnaire regarding their biographical information during the interview session. Participants were required, upon the commencement of the interviews, to sign an informed-consent form (see Appendix A). A postgraduate research report from the RIO was requested in order to understand postgraduates' performances from previous years to the present. This helped to verify whether the institution and postgraduates were implementing any strategy to address the problem in hand. The following subsection discusses the reliability and validity of the research instruments which were used in this study.

3.5 Reliability and Validity of the Research Instruments

Reliability expresses the study of consistency or rightness through which a device audits the position of what it is intended to quantify (Polit and Hungler, 1997; Uys and Basson, 1991). In the event that a study and its results are reliable, it indicates that the comparative results would be achieved if the study were to be recreated by different researchers using a similar technique. A pre-test using postgraduates excluded from the original research, with similar characteristics to this study, was

conducted in order to determine the clarity of and consistency of its conclusions. There was no real inconsistency distinguished since all respondents appear to be comfortable with the language of correspondence for the interviews.

Validity suggests the accumulation of study devices or instruments, in order to test what must be evaluated by the research or its preparation (Uys and Basson, 1991). Validity can be sub-divided into outside (outer) and inside (inward) validity. Reliability indicates whether the outcomes of a study can be considered robust (Babbie, 2001) and if a similar study could be conducted by an alternate group, whether the outcomes would be comparable or not. This research was compiled taking note of conventions used by various different research philosophy authors (Cooper and Schindler, 2008; Babbie, 2001). Cronbach's alpha is a test used in this study to determine the validity of the questionnaire. A level of more than seven is viewed as sufficient to proclaim a question or questionnaire viable (Pallant, 2007). However, Pallant goes ahead to state that, when measuring less than 10 units, it is normal to discover lower qualities, even as low as five.

I combined validity procedures by using both quantitative and quantitative methodologies which ought to elevate the study’s capacity to be evaluated based on accuracy. The study must also have the capacity to persuade the reader of that accuracy (Creswell, 2014). Quantitative and qualitative validity implies that the researcher checks the accuracy of their discoveries by using certain strategies, while quantitative and qualitative research’s dependable quality shows that the researcher’s approach is stable across various activities (Gibbs, 2007). The significance of the validity and reliability of this study is that it guarantees that the discoveries revealed are accurate, stable, and in accordance with the objectives of this study.

Keeping in mind the end goal to guarantee that the discoveries are accurate and stable, I, the researcher used a combination of three discreet instruments: questionnaires, semi-structured interviews and FGIs, as a component of the mixed-method approach. These were used to gather information, and quantitative and qualitative information analysis methodologies were additionally used to examine and to present information. This guarantees that the discoveries made are accurate and reliable. Triangulation, or the use of numerous techniques for investigating a

similar focus or phenomenon, is an organisation of work that elevates researchers above their individual predispositions. Such predispositions can originate from the work done using a single technique (McMillan and Schumacher, 2014:34). By combining at least two techniques, researchers can incompletely conquer the inadequacies that may result from the use of one, solitary approach. While looking to guarantee reliable quality and validity in qualitative research, I, the researcher, did consider triangulation.

3.5.1 External Validity

Burns and Grove characterise external validity as “how much the results can be far reaching outside the representation (test) used in the study” (Burns and Grove, 1999:191). This, as a rule, relies on upon the extent to which the study can be applied beyond the population sampling environment. Low external validity in this study suggests that the outcomes can be applied to postgraduate students attending comprehensive universities, otherwise called HEIs (Burns and Grove, 1997; Neuman 1997). The external validity of this study may have been compromised by choosing a reliable and handy sample (of postgraduate students who happen to attend UNIZULU, the institution which the research is being compiled for, in the information gathering phase).

There was no agenda in that the postgraduate students attending UNIZULU exhibit similar interests, dispositions and convictions with respect to the challenges of postgraduate research. It must be stated that the sample was not obtained arbitrarily, suggesting that not every postgraduate student in the study population had an equivalent shot of being incorporated into the study test.

3.5.2 Internal Validity

Internal validity is the degree to which factors or causes impacting the challenges of postgraduate research are an original reflection of reality instead of the effect of the impacts of incidental or chance factors, not really identifiable with the factors or causes affecting the challenges of postgraduate research.

3.6 Limitations of the Study

This study was limited to UNIZULU’s main campus in KwaDlangezwa, within the uMhlathuze region in the King Cetshwayo District at Empangeni, KwaZulu-Natal.

The degree to which the outcomes can be summed up are likewise restricted by this geographical condition. This notwithstanding, the study provides a decent examination of the phenomenon that was researched. Study limits can be understood as those qualities of strategy or approach that may affect or impact the application or interpretation of the consequences of the study. The constraints that I, the researcher, experienced included the restriction of the sample size, self-revealed information, access to postgraduate students, as well as methodological limitations.

3.6.1 Sample Measure

The amount of units (in this case, participants) used in a study is determined by the type of research issue being explored. UNIZULU registered a substantial number of postgraduate students and it was unrealistic to interview all students in order to get the insights needed to draw conclusions about the issue under investigation. That by itself restricted the generalisability of this study's outcome.

3.6.2 Self-revealed information

Self-disclosed information limited this study due to the fact that it can be only seldomly independently confirmed. At the end of the day, I needed to take what individuals said, regardless of whether it was in interviews, FGIs, or in questionnaires, at face value. In any case, self-revealed information contains a few potential sources of bias that ought to be noted as limitations, for example:

- Selective memory (recalling or not recollecting encounters or occasions that happened sooner or later than the remembered time);
- Telescoping studying events that happened at one time as though they happened at some other time;
- Attribution, i.e. crediting positive rationales and results to the self while ascribing negative rationales and results to outside forces; and,
- Exaggeration, in other words, talking about results or embellishing situations so that they appear more significant than is really the case.

3.6.3 Limitations of Qualitative Methodology

As indicated by Wright (2013), the qualitative approach has a relation to the existing general limitations of a study. In the first place, while observing, interrogating (interviewing), and experiencing documents and other research materials, researchers might be seen as nosy. In qualitative research, the researcher's participation may alter the responses or reactions of respondents, and as a result, produce partiality (bias) in the study (Creswell, 2009). In circumstances where evidence was not accessible to me, in line with the social contract between the researcher and the respondent, events were corroborated through the contemplation of earlier interview-responses in order to determine the compatibility of the data a forge a path ahead. The following subsection focuses on the ethical considerations of this study.

3.7 Conclusion

This chapter has outlined the research methodology used for this study. It went on to clarify the justification for selecting the mixed-method approach. Four primary questions were directed to a sample population of 34 study participants. Research techniques and systems (methods) followed in order to direct the study include the research design, the research method, validity and reliability, and data analysis. Procedures for administrating questionnaires were also explored. The study guaranteed that all ethical considerations, as laid out in the Research Manual, were observed. It is not unusual to use both the qualitative approaches and quantitative methodologies when attempting to determine the cause-and-effect relationships of the issues under investigation. This made this study a mixed-method study.

The target populace and area of study were also defined, and the validity tests used in this study are grouped from the simplest approach to understanding, since the purpose of any study is not to trap others but rather to make them understand why certain things happen by satisfying their interest. The nature of the problem under investigation requires the use of a descriptive research design and an explanatory research design. The primary reason for using both of these research methods was the need to examine subjects' insights, standards and discernment regarding the challenges of postgraduate research. However, these challenges are not the only reason why some postgraduate students neglect to finish their degree in a given

timeframe. A portion of postgraduate students do figure out how to finish their studies in time, even though they face these same difficulties.

The following chapter presents data analysis and an interpretation of the results.

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

4. Introduction

The previous chapter described and explained in detail the process, rationale, and purpose of the mixed method research design used for this study. As was outlined in chapter three, a combination of qualitative and quantitative research methodologies has been employed for the purpose of gaining more comprehensive responses to clarify particular circumstances of postgraduate research challenges. Furthermore, a theoretical framework based on an extensive Literature Review in chapter two confirmed the reliability and validity of the measuring instruments. This chapter presents and discusses the findings from the study on the challenges of postgraduate research at the University of Zululand. It informs evidence-based problem prevention and management strategies for HEIs. This enables this study to meet the core objectives. The chapter gives a clear picture about the views of the study participants on the topic under investigation and is supported by the available literature.

The presentation and analysis of data is organised into five main sections: the first section provides the demographic characteristics of respondents. The second section presents and critically analyses the sources of postgraduate research challenges while the third section discusses the challenges of postgraduate research. Section four investigates the impact of these challenges on research productivity. In the fifth section, I assess strategies for mitigating the challenges of postgraduate research, with the last section being the conclusion.

4.1 Demographic Social Characteristics of Respondents

In this study there were 34 participants grouped into three categories consisting of postgraduate students, professional staff, and academics at UNIZULU. The selection of participants was explained in the previous chapter. Questionnaires were distributed to 17 postgraduate students and nine interviews were conducted across four UNIZULU faculties including the RIO. The FGI was also conducted with eight postgraduate students from the postgraduate laboratory. All participants were selected randomly using the non-probability sampling technique. During the questionnaire survey, five questionnaires were distributed within the Faculty of Arts and the Faculty of Education respectively, three in the Faculty of Commerce Administration & Law and four in the Faculty of Science. The postgraduates

selected were used as respondents for the questionnaires in order to answer the questions from questionnaires. The aim of the survey instrument (questionnaire) was to collect information regarding research challenges and challenge mitigation strategies. The information gathered from the questionnaires was coded by using a descriptive statistical method including rates (percentages) and charts. I begin the interpretation of data with a presentation of the demographic information from the questionnaires.

4.1.1 Participation by Gender

At UNIZULU, student registrations up to 2016 demonstrate that female students outnumber male students by a proportion of approximately 2:1 (UNIZULU Annual Report, 2016). This study mirrors UNIZULU's demographic profile in the sense that the students who are the respondents for this study are registered postgraduate students of the University of Zululand. However, the gender imbalance did not pose any significant threat during information gathering in this study.

In this study, the number of male participants outnumbered the female participants with the total number of participants who are male numbering nine (52.9%) and eight women (47%). The table below depicts the gender of the participants visually (see table 4.1).

Table 4.1 Gender of Participants for Questionnaire Survey

Participants Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	9	52.9	52.9	52.9
	Female	8	47.0	47.0	99.9
	Total	17	100.0	100.0	

4.1.2 Participation by Age Group

Respondents' age groups were clustered into four categories: 20-25, 25-30, 30-35, and 35 and above. The table below illustrates the respondent's belonging to each of these categories. According to table 4.2, postgraduate students who are aged between 20 and 25 dominated the study, which constitutes 35.2%, while there were

five (29.4%) students, whose ages ranged from 25 to 30, accounting for 29.4% of the study population. The participants between of 30 and 35 years constituted 5.9%.

Table 4.2 Participation by Age Group (Questionnaires)

Participation by Four Age Groups					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	20-25	6	35.2	35.2	35.2
	25-30	5	29.4	29.4	66.7
	30-35	1	5.9	5.9	35.3
	35 ->	5	29.4	29.4	66.7
Total		17	100.0	100.0	

According to Gribble et al., (2011), the median age of the populace is characterised as that age that separates the entire populace in half. A populace might be considered as young if the median age is under 20, moderate if the median age lies somewhere in the range of 20 to 29 and old if the median is over or equivalent to 30 years (Hobbs, 2004). As indicated in the table below (see table 4.2) the median age suggests that this study has an average of between 25 and 30 years. This implies that the postgraduate students who participated in this study are young. Also, there were five (29.4%) respondents between 35 years and above; these are clustered as adult postgraduate students.

According to Ismail et al. (2011), Adult postgraduate students confront many challenges, such as family duties, work responsibilities, and related financial problems. These difficulties may influence their academic achievement negatively. Presently, HEIs accept all students without differentiating them based on age, sexual orientation and marital status. Given that adult students are exceptionally motivated to pursue their studies, they perform well since they are completely engaged in their research work (Quinn et al., 2007).

4.1.3 Participation by Race

Historically, South Africa's Apartheid government prioritised the higher education opportunities of white students while the other races were relegated and marginalised. This impacted the quality and programme offerings of the different

institutions, which were likewise segregated by race. The resultant impact was low support rates for black South Africans and more critically, for the most part, low completion rates among these students (DHET, 2016). After Apartheid racial segregation, the sector experienced incredible changes, seeing a sharp increase in black students' interest and participation in public higher education inside South Africa.

All public higher education institutions are currently open to every South African, regardless of their race (CHET, 2016). The University of Zululand is a comprehensive university mostly dominated by African students. Table 4.3 shows that 16 (94.1%) of the participants are Africans, and only one (5.9%) participant is Indian (see table 4.3 below).

Table 4.3 Race of the Study Participants in Questionnaires

Participants Race in Questionnaires					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	African	16	94.1	94.1	94.1
	Indian	1	5.9	5.9	16.8
	Total	17	100.0	100.0	

These demographics do not mean that African postgraduate students are most likely to face postgraduate research challenges, but merely that the majority of the participants in the study are Africans. Moreover, the results are consistent with the DHET 2016 statistics which show that African enrolments increased from 64% in 2012 to 70% in 2015.

4.1.4 Participation by Faculty

The registration figures generated online from UNIZULU's registration website specify that the institution enrolled 1 883 postgraduate students for the year 2016. These enrolments were generated from different faculties: 540 postgraduates in the Faculty of Arts, 219 postgraduates in the Faculty of Commerce, Admin. and Law, 810 in the Faculty of Education, and 314 postgraduates in the Faculty of Science (UNIZULU Registration, 2016). As was in the previous chapter, the study targeted 17 postgraduates across the four faculties. The study did meet its objective of 17

postgraduate students. The Number of Participants per Faculty table 4.4 below shows the percentages of study participants belonging to each of the different faculties.

Table 4.4 Number of Participants per Faculty

Participants per Faculty During Questionnaires					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Faculty of Arts	5	29.4	29.4	29.4
	Faculty of Commerce, Admin and Law	3	17.6	17.6	18.6
	Faculty of Science	4	23.5	23.5	22.6
	Faculty of Education	5	29.4	29.4	29.4
	Total	17	100.0	100.0	

4.1.5 Participation by Registered Qualification

The challenges of postgraduate research differ per degree. The table below categorises the participants of this study by their registered qualification. In total, as represented in table 4.5, there are five Honours students (29.4%), six Master's students (35.2%), and six Doctoral students (35.2%) as per this study's statistical findings.

Table 4.5 Participation per Qualification

Participants registered qualification During questionnaires					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Honours	5	29.4	29.4	29.4
	Masters	6	35.2	35.2	35.3
	Doctoral	6	35.2	35.2	35.3
	Total	17	100.0	100.0	

The challenges mentioned by Doctoral students are not the same as those faced by Master's and Honours students. Also, Wakeling's (2009) study likewise features substantial contrasts in rates of progression to a research degree across disciplines and in the relative size of the postgraduate-research-student populace by qualification.

As a result, it may be said that there should be postgraduate workshops and training designed from Honours level up to Doctorate level. These programs should vary in terms of scope, since postgraduate research has different academic stages, for example: Honours, Master's and Doctoral research.

The following subsection provides data collected from interviews that were held with the nine participants who are academic staff at the University of Zululand from four faculties, including the RIO. The selection of these participants was discussed in the previous chapter.

4.2 Challenges of Postgraduate Research

The analysis presented in this section is depicted in the form of descriptive analysis. The data section is clustered into four different themes: lack of funding, lack of supervision and mentorship, quality control and status recognition, and research and writing skills.

4.2.1 Lack of Supervision and Mentorship

Meanings and definitions of supervision differ. In the words of Abiddin and Ismail (2011:206) "supervision is a concentrated, relationally centred coordinated connection between the supervisor and the student". Again, Conrad (2003) thinks about supervision not just as far as the strategies experienced in a proximally coordinated connection between the supervisor and the student, but also in connection to the supervisor's capacity to unite research students to promote the creation of an insightful research group. Irrespective of the view one holds about supervision; it is its quality that is at the core of academic research discourse.

The point here is that, if given the opportunity, students would choose to be supervised by experienced supervisors. However, the nature and quality of research supervision is not a straightforward issue but instead a complex and multi-faceted phenomenon including many elements. At the University of Zululand, the lack of supervision is triggered by the fact that the university is understaffed.

Moreover, the respondents in this study also indicated that the lack of mentorship and supervision is a challenge overwhelming the institution. It can be argued that if

a postgraduate is not properly supervised or mentored, there is less chance of the student finishing in time. This is apparent from one of the respondents' statements:

> There are various challenges we are currently facing including the lack of mentorship and supervision. I have been doing my Master's for three years now and within these three years, I have had about four supervisors. Two left the institution, and the other one was too busy and over-extended with so many duties, so it took him time to respond (third-year Master's student).

This shows that supervision is an issue at the University of Zululand in many disciplines. The average period to finish a Master's degree is two years. The above-mentioned interview response shows that the lack of supervision has an impact on postgraduate students' academic life.

Lack of supervision is a serious problem. Undoubtedly, if students are well supervised and mentored, the challenges of postgraduate research will not be exacerbated. The university should hire academic staff and mentors in order for students to achieve their desired goals. Mentoring is a key component of postgraduate education (Rose, 2005) and it is the best approach to transfer skills and knowledge rapidly and motivate loyalty in an organisation (Abiddin, 2006). The mentor can be a brilliant source of ideas, and "can fill in as an educated analyst of the student's work" (Cohen, 2002:586). Cohen argues further that a mentor can be a trusted source of direction on individual issues. This notion is upheld by Mapesela and Wilkinson (2005) who maintain that there is a requirement for a customised mentorship approach in postgraduate-research supervision. In this context, mentoring offers academic students: scholastic direction, professional improvement, individual direction, and a general guide in terms of the socialisation of the postgraduate student (Thomas et al., 2007).

As proposed by Kram (1985), cited in Humble (2006:3), mentoring comprises two capacities: professional, i.e. preparing people for a career, and psychosocial, i.e. providing social assistance. According to Rose (2005:53), "Mentors give sponsorship, security, performance, visibility, leadership, acknowledgment, affirmation, and additionally coaching to their postgraduate students". Anderson et al. (2006) propose that the supervisor assumes a role in keeping up academic

standards. From this it can be understood that mentoring helps students to create deep-rooted skills and abilities, including “the act of providing guidance and help with a lesser experienced one, with the hopes of having the lesser experienced individual develop and create particular skills” (Jowett and Stead, 1994: 21).

Thomas et al. (2007) observe that most definitions of mentoring concur that it goes beyond simple career advancement, incorporating the workings of a solid individual connection between the mentor and the mentee, which has instrumental and cognitive dimensions. For the mentor to play a useful and important role, he or she should be knowledgeable, experienced, conspicuous and capable.

Since not all faculty members have these characteristics, they cannot all be rational choices as mentors (Thomas et al., 2007). Different properties that mentors and supervisors must exhibit include insight, uprightness, capacity, and an adept state of mind, high personal standards, energy and a readiness to share their accumulated knowledge (Abiddin, 2006). Underscoring this view Rose (2005) notes that the mentor and supervisor should be an instructor, counsellor and a master.

The lack of supervision and mentorship at the University of Zululand had caused some of the problems discussed by the participants. The following excerpts from some of the interviewees during the FGI were informative concerning the effects stemming from the lack of supervision and mentorship: “Each time I visit my supervisor; he always complains about time constraints. At one time he had to cut short our session so as to attend to an emergency departmental meeting. In another incident, we could not meet as he had gone out for a conference” (Focus Group Participant). It is clear that some of the supervisors find it hard to make time for their own students.

According to the above definitions, the supervisor should be a mentor. From the above-quoted participant, it is clear that the supervisor ended up posing new challenges for his student, rather than playing his designated role as mentor. Lack of adequate supervision is due to the fact that the university is understaffed; this is evident from one of respondents’ claims:

> “On two different occasions my supervisor had to cancel our appointments on account of conflicting responsibilities. At one time he said he had to prepare his class for an examination which the class

would take the following week. On another occasions he ended up sending me some hand-outs for reading, arguing that his schedule of activities was tight". (Focus Group Interview participant)

This shows that some of the supervisors have so many responsibilities that they do not have time for supervising and mentoring students.

In order to overcome this challenge, the institution needs to hire more academic staff. However, some supervisors are good at what they do,

> "My supervisor is good in terms of helping me to find literatures, but there is one thing about the way he corrects or comments on my work – he normally takes a longer time than what I had expected"
>
> - (Focus Group Interview participant)

Bearing the above statements in mind, one may argue that at the University of Zululand there is perhaps a problem regarding the lack of supervisors and supervisors with experience. In most cases, students are supervised by lecturers who do not have experience and who have just completed their Master's or who are working on their PhDs. During the FGI, one participant noted, "The challenge one faces is that the supervisors are always busy and they supervise more than ten students, they do not have time for each student, they tell us to come in groups, and they also do not give us the feedback on time".

The students' statements reflect deeply on Mouton's (2007:59), thesis that students see a perfect supervisor as one who provides insightful input as well as valuable feedback on their work. Continuing on the issue of input, a few students noted that too much negative criticism was exceptionally damaging to their research attempts. Twenty percent of all participants during FGI subscribed to this view. Adding to the discussion on the supervision of research, Taylor (2002:123) argues that input given by supervisors has a tremendous impact on postgraduates' studies, research ethics and implementation.

Thus, the viability and nature of developmental input that postgraduate students receive from their supervisors is essential to the accomplishment of their research aims. Powerful and effective feedback is recognised as a pivotal factor in students' successful completion of their postgraduate studies. Consequently, input or

feedback remains a basic condition for guaranteeing that the students gain ground towards completing their research studies. This clearly shows that the institution does not have supervisors with experience to help enhance postgraduate research. Postgraduates end up being supervised by students who are doing their Master's degree. This raises a serious question about how a student can supervise another student. Since Master's candidates are also students and they cannot supervise research students, they do not have required expertise in the field of research.

As one staff member from the RIO observes: "In fact, at this institution there is shortage of supervisors, and we get those kinds of complaints from the postgraduates from time to time" (Research Office interviewee). The respondent added that the institution is trying its best to solve the issue of the lack of supervision. Moreover, the supervisor has a major role to play in the coaching, guidance and mentoring of the postgraduate student. However, the respondent also noted that: "Postgraduate students must take personal responsibility to ensure that they meet deadlines" (Research Office interviewee).

Moreover, at undergraduate level, everything has a time and place, and one merely conforms to the timetable. By contrast, at postgraduate level, the students have to develop their own research timeframes, set their own deadlines and monitor their progress. What is clear is that the relative responsibilities of the student, the supervisor and the institution are often left unstated and implicit when they need to be made explicit. Effectively, a failure to make these issues explicit – and to make them the basis of a formal document or learning contract – might be an unwise omission by any supervisor in the age of the litigious student. Furthermore, supervisors are coaches whose principle obligation is to guide students in scholarly issues. Supervisors' provide guidance in issues such as the propriety of the research design, the validity of the research problem, and the quality and progression of the literature overview.

They also improve upon a proper hypothetical structure for translating the results of research, show their students how to manage unforeseen issues, and oversee the general creation of written work. For the most part, a competent supervisor will give as much careful consideration to a student's research programme as the student

does. While the supervisor is in charge of supervising the student, the student obviously must manage their own project:

> Postgraduate students at times do not have clear direction on how to go about their tasks due to inadequate or lack of consultation between supervisors and supervisees. Additionally, distant postgraduate students are unable to liaise with colleagues and members of their departments (second-year Doctoral student).

It can be argued that poor supervision limits postgraduates from getting clear direction, and that causes postgraduate students to spend more time than expected on writing research proposals. As one respondent indicated:

> The challenge of poor supervision results in a long process for proposals and it took us years to get proper supervision. I am doing a Master's degree for the third year and my proposal has not even gone through the Higher Degrees Committee due to poor supervision (third-year Master's student).

This, and other arguments, affirms what the Minister of Education under President Thabo Mbeki's government, Naledi Pandor, refered to in 2006 when she said: "the postgraduates' drop-outs and completion rates in most HEIs were immoral not only due to poor pre-varsity education but also due to destitute supervision, coaching, and training (teaching) at the universities" (DoE, 2006:55). In this regard, the respondents corroborate that poor supervision in universities affects postgraduate students. Respondents further indicated that a problem that postgraduate students confront is having supervisors whose broad responsibilities make them exceedingly difficult to get hold of. Respondents indicated that this is often caused by supervisors having an excessive number of students to supervise. Respondents hence communicated uneasiness with the level of support and direction that they get from supervisors, adding that this does not reflect their perception of an ideal supervisor.

4.2.2 Lack of Funding and High Dropout Rates

The Department of Education has issued a public statement bemoaning that the dropout rate had been costing the National Treasury R4.5-billion in bursaries and

subsidies to higher education institutions without the expected return on investment. It has determined that at a few institutions, the dropout rate is as high as 80% (DHET, 2015). Macfarlane (2016) argues that when the development of students between institutions is considered, half (50%) of all students drop out. Around one in every three university students and one out of two technicon students dropped out between 2011 and 2015. This dropout rate raises alarming concerns about the sector's capacity to create a suitable throughput rate.

The South African Education Report (2015), states that the high number of postgraduate drop outs in most HEIs are caused by a lack of funding for universities. Many public universities are underfunded and are unable to cater to students as a result. The University of Zululand is a comprehensive university with a large number of students coming from rural areas. The institution has experienced a considerable number of dropouts from the year 2014 (43%) to 2015 (58%), (UNIZULU ANNUAL-REPORT, 2015). This period was difficult for the institution since it had lost a large number of students. Students dropped out (especially those in postgraduate studies) due to a lack of funding. A Master's student in the Faculty of Arts indicated: "I lost a good friend of mine who had to drop out from this institution because he owed the institution*".* When one undertakes postgraduate studies, the need to spend time with friends and family is important since the postgraduate journey can be a very lonely one. As indicated by the above respondent, students lose their friends who drop out from the institution. This poses a challenge for postgraduate research in terms of production and human capital.

Recent evidence demonstrates that 70% of the families of higher education dropouts surveyed could be classified as having a "low financial status"[8] (DHET, 2016). Black (African) families were especially poor, with some guardians and parents earning less than R1 600 a month. However, a large number of the students originating from these families rely upon their parents or guardian for financial assistance to pay their fees and additionally supplement what they get from NSFAS to accommodate everyday costs and expenses.

A significant number of the individuals who had dropped out showed that they had attempted to increase their meagre financial assets, almost certainly adding to their

[8] Meaning they earn little; not more than the minimum wage of R1 600 per month.

feelings of anxiety and diverting them from their studies. Moreover, a respondent noted: “Some of the students basically drop out and go back home because of these challenges and some move to other universities, looking for better opportunities and benefits” (Faculty of Education interviewee). This means that some students elect to attend other universities in the hopes of finding better opportunities. When students move to other universities, the production of postgraduates is put at risk because the university might have fewer graduates.

However, the University of Zululand has been gaining and also losing students. From 2015 to 2016, the institution gained a large number of students coming from other institutions. These students were driven to the University of Zululand since it is the only university in KwaZulu-Natal with low tuition fees. Therefore, students from other universities in the province ended up joining UNIZULU. In this way, the institution was gaining in terms of enrolments; however some of the students from UNIZULU were moving to other universities hoping for better opportunities.

UNIZULU has a funding scheme known as the “UNIZULU Foundation”, this financial scheme was implemented in 2005 and its aim is to support students who need funding from the University. The UNIZULU Foundation has been a success since a large number of students have benefited from it. It also aims to decrease the University’s high dropout rates as students who have adequate funds are less likely to dropout or consider other institutions. Postgraduate research is for the students by the students, therefore when students end up dropping out, this causes a left shift on the demand curve for postgraduate research[9]. Postgraduate students are tomorrow’s scholars, it is therefore an obligation for an institution of higher learning to ensure that postgraduate students finish their studies and graduate, in order to contribute to a stable economy and conduct fruitful research for the benefit of the nation.

4.2.3 Research and Writing Skills

Academic writing is ordinarily characterised as “logical composition”, which can also be described as “organised research” honed and used by researchers at the level of higher education (Laghari, 2009). Vibrant and quality research has dependably been the foundation of higher education, attracting a wide scope of disciplines identifying

[9] The postgraduate inputs on the postgraduate research will be very low or decrease.

with the social sciences and natural sciences. Research is characteristically connected to academic writing. Teaching methods recognise that writing skills are highly important when it comes to composing an organised response to social and cultural phenoma in specific settings and communities (Woodward-Kron, 2007). Postgraduate students are expected to possess advanced English-language skills, particularly in academic work, to indicate mastery over the use of language and educational skill, through a sound academic vocabulary with the aim of producing quality content likely to be published in a research journal (Akbari, 2008).

A number studies led in different settings, such as Europe, Africa, Australia and Asia, in various circumstances, demonstrate extremely similar types of language challenges experienced by English First Additional Language (EFAL) students at tertiary level, in both English writing and research writing (HESA, 2014). The vast number of students in South African universities comes from very different academic backgrounds. The private schooling system, numerous public- or private-based schools and universities do not contribute to developing English language capability in students as expected. During the interviews with the UNIZULU academic staff, it was also indicated that students have problems with writing skills, but the research office is doing much to try to improve postgraduates' writing skills.

In academic writing, referencing and plagiarism is still a problem for a number of postgraduate students. Students are sometimes not fully aware about the dangers of plagiarism and the importance of acknowledging someone else's ideas (referencing). In this study, during the survey questionnaires, the respondents indicated that, apart from the above-mentioned challenges, referencing and plagiarism are also huge challenges they face from time to time. However, the University of Zululand RIO is trying its best to ensure that there are enough workshops designed for postgraduate students to enhance their research skills and abilities. These workshops aim to help postgraduate students with referencing and avoiding plagiarism; two major issues in academic research. According to Mugenda (2015), the available evidence (literature) has demonstrated that collective research has a challenge in connection with issues of the copyright and innovations.

However, it is more regrettable when students will go to any lengths, including extortion (fraud) and the replication of full research papers which they then submit to

their supervisors; this can entail, “getting entire recommendations and even complete projects for the sake of passing examinations, or using parallel students or even outsiders to do their studies” (Kogan and Ulrich, 2012:25). Moreover, according to respondents, students and academic researchers should be made aware of the fact that plagiarism is an offence and it impedes scholars’ ability to learn new things, resulting in a knock-on effect that could permanently destroy a scholar’s school of thought. Libraries can however be drafted into the cause of assisting students to avoid plagiarism and also to understand the importance of referencing. Libraries play a pivotal role in strengthening research skills and shifting students away from plagiarising by encouraging them to read.

According to the respondents, the University of Zululand Library has tried its best to ensure that there are workshops pertaining to plagiarism and referencing. As indicated by the participant in the Research Office: “Referencing software is important, and students should use a steady referencing framework, for example, Harvard, which endorses firmly how material should be introduced" (Research Office interviewee). As indicated by the respondents, postgraduates frequently begin reading to develop a broad frame of reference on their topic and to record citations for future use. Nonetheless, these citations regularly don’t have the writer’s name or the material’s year of publication as many postgraduates’ neglect to record the whole reference. Students therefore end up creating lists of sources that do not tie in with their content. Indeed, many students do not prioritise referencing and spend significant time toward the end of their studies attempting to find lost references. There is a number of referencing software programs that are helpful in this regard, such as Harvard Style of referencing. Students can also use assets such as those developed by the American Psychological Association (APA), which provides very clear recommendations as to how citations should be presented and laid out.

A thesis or dissertation is a demonstration of written statements and a chronicle. This implies the author should see the supervisor and examiners as educated co-communicators. While the paper gives off the impression of being compiled in sequence, different sections are very often worked on out of order. For example, the abstract is regularly composed last. However, a number of students do not write an abstract once all their work is completed. Students who neglect to understand that an abstract is written last therefore waste months attempting to compose the

abstract, and end up rewriting the first chapter again at the end. It can be argued that one does not compose a thesis from the beginning to the end in a very short period of time.

While working on one section, a good student may gain another understanding from consistent examination of the literature and will alter another part of the thesis appropriately. Literature reviews are frequently composed in two stages, an initial stage, where the goal is figuring out what is present in the field of study and an ensuing stage where a basic evaluation of hypotheses is set forward to represent specific issues in the field. Moreover, the Library at the University of Zululand holds regular plagiarism workshops which aim to make students aware of plagiarism. During these workshops, students take part in discussions, giving them ideas about how to avoid plagiarism.

One of the students commented:

> We are faced with the issue of plagiarism and referencing, a high number of students are not aware of the issues that can arise from plagiarism. However the University Library is doing its best to ensure that the students are aware of these but there is a lack of attendance on the students' side (second-year Master's student).

This statement shows that sometimes challenges are caused by the students themselves. Therefore, it can be argued that the institution should ensure that it comes up with a plan for how to make students attend the workshops designed by the Library relating to plagiarism and referencing. Further, the University of Zululand is dealing with plagiarism. It also can be argued that, for students and knowledgeable scholars in this novel age, technology generates a great enticement to plagiarise (Smith, 2007). Plagiarism detection software such as Glatt and Turnitin have continued to be made precisely in order to combat plagiarism. They achieve this by making it easy to spot plagiarism in submissions, creating adequate grounds for legal action. The respondents also indicated that African education and fuzzy knowledge about the use of research methodologies are additional factors that aggravate the challenges of postgraduate research.

A few students, for the most part, do not at first have a clear understanding of the research system in general, or of the ontological or epistemological decisions that

they have to make so as to outline their research. As one interviewee puts it: “Few postgraduates have a deep understanding of how to select the most appropriate methodological framework to allow them to research their own topic” (Research Office interviewee). Perhaps the most important challenge that the postgraduate researcher faced includes understanding the complex nature of research. Some students think that it is largely about data collection or doing case studies, while others think it is about discovering something entirely new and original.

Besides such vague and partial conceptualisations of what research entails, the problem is further compounded because some students do not choose – or are unable to choose – an appropriate topic for their research, or end up with a supervisor with whom they cannot establish a meeting of minds.

Another respondent added:

> “Research students could, for instance, look back at their previous studies to identify an area about which they were passionate. When you are passionate, you will be committed to your work”. (Research Office interviewee)

It is only during postgraduate study by research that students get to actually choose what they want to do, rather than being guided by the dictates of a curriculum and a syllabus. As one respondent said: “When you have options, why chain yourself to a topic for which you have no real interest?” (Research-Office interviewee)

Research includes not just difficult systematic abilities; it requires diligence driven by passion. South Africa has accomplished a lot of good in its attempts to turn itself around since the end of Apartheid. New businesses, new homes, new laws, and a new working class are some of its achievements (NDP, 2030). Be that as it may, if a nation needs to accomplish economic development – whether social or human – it must realise changes in education.

Unquestionably, education for black Africans (87% of South Africa’s population) has improved since 1994 (DHET, 2015). Starting in 1953, when the racist Apartheid government passed the Bantu Education Act, South African schools were segregated by race. Black schools were systematically under-funded, under-resourced, and their only function was to produce students who could be

“transporters of water and hewers of wood” (Gordimer, 2015:57). The end of that period in 1994 hailed an improvement for all students.

There are different issues relating to education in South Africa; however articulating the language problem is fundamental to understanding why such a broad range of students are failing to compile their research. The first problem in South African education, in terms of research and writing skills, is language. According to Gardiner (2017) languages are not just about completing something or for achieving a particular objective. They are socially and culturally loaded, conveying important aspects of history; they shape how individuals think about and see (understand) the world.

South Africa’s current language in education strategy is to keep up learners’ home language (also called their mother tongue) while providing access to the viable use of one extra language (Doe, 2006). Most South African students are taught in their home language toward the start of their formal schooling and afterward they change to an alternate language for learning and teaching in the higher grades (Heugh, 2000). That distinctive language is typically English. This fortifies their capacity to learn, understand, talk, translate and analyse in that language before changing to learning through another language (Zafar, 2004). Language-in-education experts argue that this underlying acquisition in the language the person knows best is basic to a high level of competence in later languages (Wilson, 2002).

The capacity to read and write in English, which is South Africa's primary language of education and exchange, is significant for progress at school (and beyond). While it is financially and strategically difficult to guarantee that each student is taught in his home language, it is possible to make a better job of catering to learners’ home-language proficiency with regards to the prioritising reading in the early years. This is something that some schools are doing at present. This would have a tremendous effect on students as they progress through their studies to increasing levels of ambition. As indicated by one Research Office interviewee:

> University of Zululand students are the victims of such since the institution largely retains students who are from rural areas, for some of them the English language is the main problem, they are failing even to

> construct a sentence so how are you expecting them to construct a research study? (Research Office interviewee)

It cannot be denied that there are some students who manage to be fluent in the language, even under the current circumstances, but the point is, South African education is poor, especially in rural areas[10].

Many individuals and their schools, not just in rural areas, struggle with challenges such as: the absence of classrooms, poor access to services (for instance, water and electricity), and no landline phones (and as a result, no Internet), few public or school libraries, and so forth (Porteus and Nabudere, 2006). A considerable number of these issues are connected to financial issues (socio-economic factors) such as poverty and unemployment, and they additionally affect the quality of education that is accessible to students (DoE, 2007b).

Gardiner (2008), notes that the education system of Apartheid was segregated by race and language, and was subsidised and resourced in ways that favoured white students and hindered black students. The Department of Education is determined not to treat "rural education"[11] as a separate class of education (DoE, 2007). There are rural schools, and education takes place in rural territories. Be that as it may, these schools are governed by a similar curriculum, similar states of service, an indistinguishable national legislation, and similar strategies compared to all other government-funded schools in the nation. However, it is only at provincial and district levels that the situation on the ground, for example, conditions in provincial schools, can be overseen explicitly (Hoppers and Catherine, 2004).

Another participant pointed out: "When the education of a country is poor, it is highly impossible for that country to produce competent researchers' from the students' in universities" (Research Office interviewee). Moreover, these views are in line with the use of the problem-solving theory as the theoretical framework supporting this study. Problem-solving theory offers possible suggestions as to how to mitigate the problem under investigation. These suggestions or solutions will be discussed later in this chapter.

[10] The Constitution, the South African Schools Act and different education strategy reports say that all South African students ought to have access to a similar quality of learning and education, comparative facilities and equivalent educational opportunities (Human Rights Watch, 2004).

[11] Rural education refers to the conditions, environments, challenges, and context of places in South Africa called "rural."

Representing academic writing in this study as a way to hone proficiency presupposes that written work is connected “with what people as socially situated performing artists do, both at the level of setting of a particular circumstance and at the level of setting of culture” (Chouliaraki and Fairclough, 1999:21). This legitimises academic writing being accepted as the focal point of teaching and learning in universities. It also explains the continuing prosperity of the academic research industry that has been built up around student writing in higher education (Tuck, 2012; Lillis and Scott, 2007). For instance, literary studies scholars, such as Lee (1998) and Street (2004), discuss student writing in terms of academic proficiencies, remarking on “the role of literacy practices in the achievement or failures of students, as they negotiate the intricate demands of their degree journeys" (Tuck, 2012:210). For them, student writing in advanced education is a social and cultural practice that is ideological in nature.

Academic writing as literacy is not just about adjusting to a set of traditions or disciplinary guidelines; it is also about a social and cultural practice. It includes the use of diverse psychological capacities to negotiate power relations, expertise and personalities inside the university space (Beard, Clegg and Smith 2007; Street, 2004). It is highly reliant on specific circumstances, on power relations and on the social relationships that individuals develop when they write (Archer 2010). With regards to UNIZULU, Academic writing and other literacy practices have been taught through compulsory modules such as English Literacy and Academic Literacy in all UNIZULU faculties. These modules are situated within mainstream curricula in different faculties of the university (UNIZULU Report, 2016). Locating these modules within the mainstream curricula suggests that literacy practices play a vital part in the intellectual development of students. It goes without saying that the “language of academia is an extreme discourse which presents an issue for all students whether they are first or second language speakers” of English (Archer, 2010:496).

Student accomplishment in any university is inextricably linked with developing a “voice”, a culture of academic enquiry and "parts of social coordination which include the effective dimensions of their engagement with higher education" (Beard and Smith, 2007:236). Viable academic writing provides a strange space for students to negotiate and verbalise the various discourses that shape higher

education (Archer, 2010). For a student to succeed at a university like UNIZULU, they “have to build up their writing skills to adapt to university course work” in various disciplines (Bacha, 2002:161). In this light, the academic writing difficulties of UNIZULU students fall within the domain of the three writing classes proposed by Lea and Street (1998): study skills, scholarly socialisation, and academic literacies.

4.2.3.1 Research Knowledge

The research experience and knowledge of postgraduate students has been the subject of broad research. Two scholarly works, one from Britain (Becher, Henkel, and Kogan, 2012) and the other from the United States of America (USA) (Bowen and Rudenstine, 2010) introduce studies on postgraduate education and research knowledge in their separate nations. Becher et al., (2012) concentrate to a greater extent on issues of approach, as they relate to the attributes of students and divisions (departments). They take note of the significance of the open deliberation on the reasons for the Doctorate and how it is progressively being viewed as research training instead of new knowledge generation.

Bowen and Rudenstine (2010), on the other hand, show a more quantitative concern, concentrating on arrangement, patterns, and factors influencing research results (outputs). Table 4.6 below shows that from the 17 postgraduate students surveyed, ten (66.7%) postgraduates are knowledgeable about research; five (33.3%) are neutral – meaning they are neither knowledgeable nor unknowledgeable about research.

Table 4.6 Participants Research Knowledge (Questionnaires)

Participants Research Knowledge					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Knowledgeable	11	64.7	64.7	64.7
	Neutral	6	35.2	35.2	100.0
	Total	17	100.0	100.0	

As the study result will later reveal, there is a huge gap in research knowledge at the University of Zululand. To address this, the university must try by all means possible to bridge the gap by ensuring that postgraduate students are well aware of

the nature and the different epistemological dimensions of research. These findings also show that postgraduate students do not encounter research challenges because of their incompetence; rather, it is sometimes the institution itself that is not supporting its postgraduate students by all available means.

4.2.3.2 Research Knowledge in Four Faculties

Rempel's (2010) study reveals that postgraduate students are not equipped to conduct complex research or to assess the sources they find. This does suggest that postgraduate students are incompetent. She proposes that the subject specificity of postgraduate-level studies decreases the requirement for postgraduate students to change from generalists to masters, which additionally suggests that they become more intimately familiar with the journals in their fields of study. Research knowledge differs by faculty at the University of Zululand. Within the questionnaires, the respondents were asked to tick the relevant box indicating their research knowledge, rated from strongly knowledgeable to strongly unknowledgeable. According to figure 4.1, the majority of the postgraduate students specified that they are knowledgeable about research while some postgraduates stated that they have neutral knowledge about research (see chart below).

Figure 4.1 Participants Research Knowledge in Four Faculties

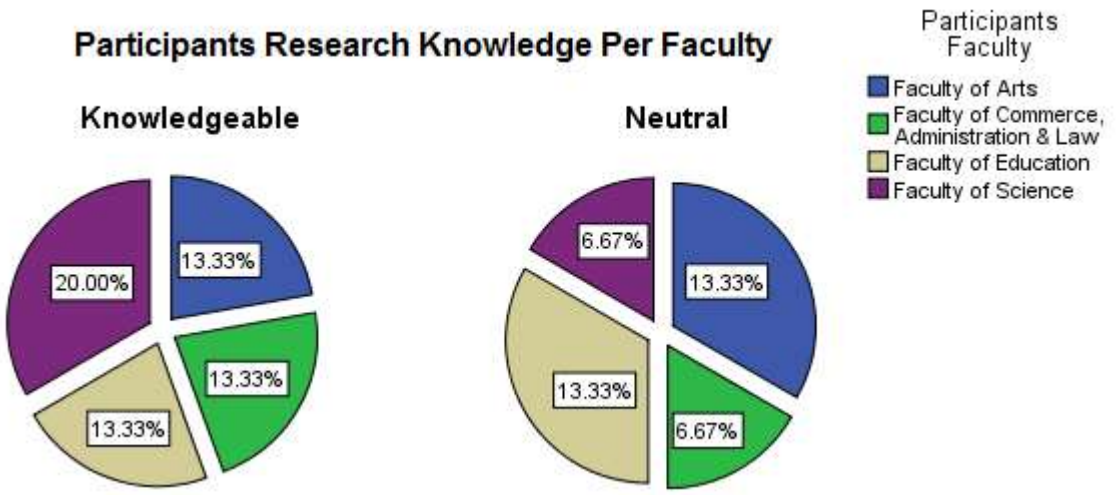


Figure 4.1 further shows that the Faculty of Science (20%) have the majority of the postgraduate students who demonstrate a high degree of research knowledgeability, followed by the other three faculties which form part of 40% of postgraduate students. Moreover, the Faculty of Arts and Education has the

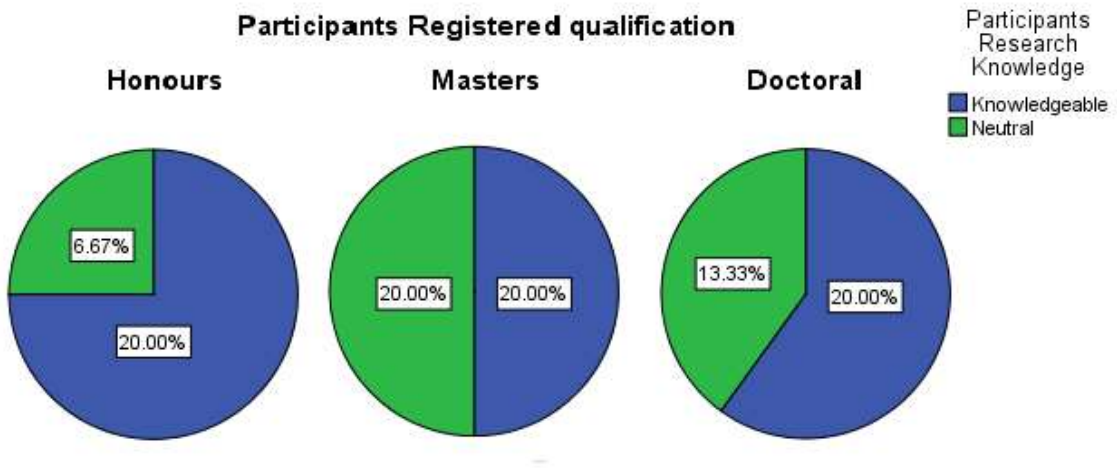
majority of the postgraduates who have neutral research knowledge. This shows that the problems that come about from research challenges are likely to come from the Faculty of Arts and Education at the University of Zululand. Interestingly, these are the largest faculties at the University in terms of students' enrolment.

4.2.3.3 Research Knowledge by Participants' Registered Qualification

Hooks, Rahkonen, Clouser, Heider and Fowler (2007), and Harkins and Colleagues (2011) noticed that changes in postgraduate students' research skills and basic evaluations came with practice, as opposed to being related to a year-in-programme and an assumed increment in the quantity of research assignments. The figure below shows the participants' research knowledge by registered qualification in this study. According to Figure 4.2, it is clear that at Honours level, 20% of the participants indicated that they are knowledgeable about research while 6.67% indicated themselves to be neutral – meaning they cannot tell if they are knowledgeable.

At Master's level, the rates were balanced; 20% of Master's students indicated that they were knowledgeable about research. Moreover, at the Doctoral level, 20% of the respondents indicated that they are knowledgeable about research whereas 13.33% indicated neutrality. This is far from ideal since someone who is undetaking a Doctoral degree is expected to have an advanced competency in research (see Figure 4.2).

Figure 4.2 Participants registered qualification and research knowledge



These findings show that in all the postgraduate students, no student rated his research knowledge as strongly knowledgeable. This suggests that there is still more work to be done in teaching students about research and the institution needs to put more programmes in place to assist students grappling with research. Considering these results and acting on them will benefit the institution in enhancing postgraduates' research skills. This will, in turn, improve the quality of research at the University of Zululand. Moreover, as indicated by Catalano (2010), postgraduate students' information needs are considerably more complex than what their information-seeking behaviour would suggest.

When students start a graduate program, the desire is that they will contribute towards the development of important research systems and are able to access data sources. Yet the author's experience reflects only those findings that each reference, conference or classroom yields and this accumulation of resources starts at an early age. Despite the fact that Catalano's study tends towards information-seeking for practices beyond open-access sources, she notices that research begins on the Internet, not in membership (subscription) to databases. Her study detects a lacuna in students' research knowledge.

4.2.4 Quality Control and Status Recognition

Numerous postgraduate students are hesitant to think subjectively in light of the fact that they fear establishing innovation. All research studies involve a conviction-

based action since all theories are conviction frameworks that must be evaluated (Mutula, 2009). As one participant indicated: “most postgraduates often mistakenly assume that the perfect dissertation really does exist” (Faculty of Arts interviewee). In actual fact, there is nothing like a perfect dissertation. A thesis or dissertation is made by flaws and the time given to it determines the final product. The participant added that since people have distinctive perspectives, and because we reliably think little of the complexities of the issues that we ourselves create, the notion of perfect information is deceptive.

In addition, as indicated by another participant: "A long paper or dissertation does not really decide academic or intellectual boundaries; quantity does not liken to quality” (Faculty of Science interviewee). It is a mistake to imagine that a thesis must be a certain length. Postgraduates should understand that a paper must be as short as would be prudent and as long as would be fundamental. The length of a thesis does not decide its quality, how it extends its subject does.

Moreover, some postgraduate students and supervisors do not measure quality against the standards that decide a grant or scholarship. These standards include, for example, that work ought to be founded on principal findings announced in peer-reviewed writing in the field. Such research exhibits the workings of a comprehensive, cautious, basic and scientific personality, taking a look at the points of interest and inconveniences of the contention, and showing one's findings in a deliberate manner. By contrast: “postgraduate students sometimes feel that they are invisible ghosts roaming the campus, unrecognised by others” (FGI participant). This is not acceptable. However, it can be difficult to bring about change because, if research proposes radical change to existing conventions that might be costly to achieve, the powers that be end up looking at it with their eyes closed (Kearney, 2008).

As one Research Office interviewee observes, “Another mistake is that some students expect too much after they have received the degree. Graduating is giving birth to ideas – ideas on a landscape of knowledge where only the fittest survive”. Graduating does not necessarily mean that one is fit to face the world, graduating only gives one a small step forward on one’s journey. After graduation, it is wise for the student to continue with their studies in order to keep up the relevance of their

qualifications and to advance knowledge in their particular field. This study's participants alluded to the fact that postgraduates should realise that the thesis is their work, driven by their questions. According to the participants, the other issue is that the students overlook the fact that their research paper is published publicly and the genuine trial of one's thoughts comes when they are evaluated out in the open.

Postgraduates breath an enormous sigh of relief toward the end of their research paper and hope to be considered masters in their field and to be consulted on the topic. Nonetheless, post-doctoral research is what gets acknowledgment, not the student. While peer regard and respect are the best award a scholar can accomplish, it is difficult to win it and sustain it. At the University of Zululand, students should perhaps strive for their research papers to gain acknowledgment because that brings about a good name for them and the institution.

4.3 Sources of Postgraduate Research Challenges

This section presents the analysis of the data gathered regarding the sources of postgraduate-research challenges. Therefore, the findings from this study draw substantially from the views indicated by the study participants. The sources of postgraduate-research challenges vary in degree across disciplines. The sources of postgraduate research challenges refer to the foundation of research challenges; the germinating seeds which caused these challenges to exist in the first place for HEIs.

4.3.1 Understaffed University

The nature and quality of university staff is one of the crucial elements impacting the time-to-degree and output rates at institutions of higher learning. Also, "the quality of academic staff is an important factor in the direction that the postgraduate student receives from the supervisor" (Cohen, 2002:58). Cohen's statement is articulated by one academic in the following way:

> The University is understaffed and there are too few trained or qualified or senior professors in the institution. For instance, the Economics Department has three professors, but other departments are not so

> fortunate since their research outputs end up being low. In Law we have one professor, other departments do not have professors, but professors are very important when developing a research agenda (FCAL interviewee).

The participants indicated that UNIZULU has few professors while some departments do not even have any professors. It also may be worth noting here that UNIZULU's staff retention policies favour mostly South African citizens.

According to Gcabashe (1995), most South African citizens prefer to work in the suburbs rather than in rural areas. With the University of Zululand being situated in a rural area, it is possible that a large number of South Africans would not prefer to work at UNIZULU. Also, since UNIZULU is understaffed, supervision has become a problem as, "Some students cannot be allocated to supervisors because the faculties are understaffed" (Arts interviewee). The faculties in the University end up getting supervisors from other departments or a supervisor that is not an expert in that particular area, as is evident from the comment: "Just because he is a doctor or professor, we assign them to supervise student" (FCAL interviewee).

The quality control of the degrees earned at UNIZULU is therefore put at risk. Students should be getting expert guidance instead of being supervised by underqualified staff. Recently, the Council of Higher Education (CHE, 2017) issued a statement noting that four South African Universities are at risk of losing their accreditation if the quality control of their qualifications does not improve. UNIZULU is one of those universities; however, according to a UNIZULU report (2017), the CHE review will not affect the qualifications of law students. The council conducted a national review on Law degrees and therefore raised special concerns that these require improvement, the university is addressing these issues.

It is important to note that the University received a communique about possible withdrawal of accreditation, not a withdrawal. Also, according to participants, although the University assigns lecturers with a Master's qualification to supervise students, the lecturers have not undergone the training that the research office holds on research design and postgraduate supervision. If supervisors attend these workshops and training interventions, it is possible that they will be better equipped to provide guidance to students since they will be able to properly steer students in

their research endevours. As the Faculty of Commerce, Admin. and Law interviewee asserted, “Some students come complaining here that I have given my proposal to my supervisor and now he is telling me a thing that I do not understand”. The lack of qualified academic staff drives poor supervision. As supervisors have many supervision responsibilities, being able to give expert guidance to students is very challenging because supervisors need to find time to read proposals closely. A participant indicated:

> It takes a while from the time we are receiving a proposal to the time we are able to give proper feedback to the students. Sometimes we tend to rush through without giving very detailed format, and there is no guidance as such (Arts interviewee).

The improper guidance that might be given to students paints a pitiable image for the institution and impacts negatively on research outputs. Proper guidance is crucial in postgraduate studies. Therefore, it is important for an institution to hire quality staff to supervise students.

Participants indicated further that when students submit their chapters, the supervisors do not have enough time to read and review because they have so many things to do. From the students’ point of view, one of the most significant issues is that undergraduate programmes all the way up to Honours level are not well equipped with modules that enable them to do advanced research at the Master’s and Doctoral levels. As one participant suggested: “undergraduate programmes are not sufficient enough; they do not have the right content” (Arts interviewee). At the University of Zululand, most of the postgraduate students come across a research methodology module for the first time only in their third year or at Honours level (UNIZULU ONLINE, 2017).

Research methodologies should be made an important module from the first to the final year of undergraduate qualifications. In this way, students will be well informed about research, instead of learning about research methods only at postgraduate level. From what they have experienced, it is difficult for students to conduct research because they are introduced to research techniques only later in their undergraduate studies.

Even though research methodology is taught from the final year, this it is not enough to prepare students for postgraduate studies because the module taught in the final year is merely an introduction to what students are about to apply and experience. Understating research requirements takes more than an introduction, there are so many research techniques that students end up not understanding, increasing the risk that they find doing research boring. The academic field is changing. From undergraduate level, students need to start developing research capabilities, and developing and honing them in Honours.

However, this is not possible at UNIZULU because, as one respondent put it: “Recurriculating or changing the curriculum on yearly basis is very difficult with the result that there is a gap with what is the latest with what is being taught” (Science interviewee). This suggests that students sometimes are taught material that they won’t even be able to use in future, whether in their future careers or in their research.

Mouton (2012) argues that, at university level, the coaching (teaching) and supervision of students should be allocated to knowledgeable doctors. This is not the case at the University of Zululand because the University is understaffed, therefore, there are only a few supervisors serving the entire postgraduate population. It is a well-known fact that the higher education sector at present finds itself in dire straits, equally in terms of the size, creation and capacity of its academic staff. The challenge is multi-faceted, concerning the moderate pace of change, recovery, and transformation in South Africa, as well as the maturing workforce.

Moreover, developments in higher education worldwide demand higher levels of expertise from staff (DHET, 2015). The moderately underqualified academic workforce and low numbers of postgraduate students represents a deficient pipeline for the recruitment of future academics. This poses a challenge for the higher-education sector in South Africa (DHET, 2015).

National development projections for student numbers in the next five years point to the need to quickly upscale the recruitment of academic staff (SSAUF, 2015). It is projected that the education sector should recruit at least 1 200 new academics per annum to respond to the historical backlogs, provide for staff attrition and to

accommodate planned growth (DHET, 2015). Recruitment efforts should prioritise the recruitment of black and female academic scholars to change the statistical profile of the sector, address past racial injustices, and increase the pace of transformation in the sector.

As indicated by the UNIZULU Annual Report (2016:46), “UNIZULU finds it hard to draw in and hold senior-level workers, especially settled term contract appointments due to its area of location”. The lack of appropriate accommodation ends up being a major factor in skilled staff choosing to relocate for a short-term stay. Bearing that in mind, Council has made allowances for the purchase of houses to provide an added incentive aimed at attracting and retaining executives.

4.3.2 Funding

Universities require funding to maintain their everyday activities. This ranges from compensation for the staff and infrastructural development, to coordinating research funding (Jonathan et al. 2010). Research functions require sufficient funding for the expansion of departmental libraries; stocking research centres with equipment; subscriptions for membership to significant journals; salaries and staff benefits; financing for travel; and the facilitation of seminars and workshops (Sanyal and Varghese, 2006). With higher education becoming more commercialised, universities require more capital reserves in order to have the capacity to compete effectively with other research universities. However, globally, the challenges of higher education have constrained governments to limit their interests in higher education (Cloete et al. 2011).

As a result, universities have had to raise funds using private means to achieve their academic ends. The South African Government is trying by all means to fund HEIs. Moreover, the South African University System (SAUS) is unsuccessfully supported compared to different systems that are dependably championed by Universities South Africa (USAf). The funding level of the South African higher-education system must be standardised against financing levels of other productive higher-education systems.

Government investment and spending in higher education requires further investigation in order to provide more clarity concerning the lack of funding in higher

education. The 2014/2015 Government spend on higher education was R24.2-billion (DHET Report, 2014) and the ostensible GDP for 2014 was R3.8-trillion (Stats SA, 2014). At that point the proportional spend for 2014/2015 was about 0.64%, a decrease in real terms compared to 2012 and 2014. Considering the significance of large national and public enterprises, and what can be added to these through higher education, the system must be subsidised at a suitable level.

The National Development Plan (NDP) 2030 recognises, “South Africa exhibits basic deficiencies of good-quality specialists (doctors), engineers, information technology experts, forensic specialists, criminologists, organizers, bookkeepers (accountants), prosecutors, educational programs counsellors and so on”, (NPC 2012:45). As a participant during the FGI observed, “If a student is not funded sufficiently, the institution and the country at large lose some bright academics who might have brought about the change needed in the country”. Perceiving universities as the operational hub of the country’s national development, the Plan additionally recommends that to address both specialised and administrative skills shortages, the Government needs to take a long-term view on skills improvement. This can be achieved by exploring career trajectories in future growth areas, tutoring, and developing closer partnerships with universities and schools of management.

The NDP concedes that insufficient human capacity will negatively affect knowledge production, generation, and development. Universities, therefore, need to be at the forefront of innovation (NDP, 2030). However, without consistent subsidy levels, the university sector in South Africa is going to be hard-pressed to further these national goals. However, funding is not provided for postgraduate studies, and this also has an effect on the conducting of research. On the questionnaire, one participant suggested:

> The lack of funding is one of the sources of postgraduate research challenges; students cannot produce good papers without a certain motivation in place. There is really a lack of incentives in postgraduate research for this institution compared to other institutions in the province (questionnaire survey participant).

This statement supports the Department of Education (2013) Report which indicates that research finance and financing is nearly non-existent; numerous universities in the region have seen student enrolments rising while the compensation of researchers has remained constant over a long period.

If the institution could compensate postgraduate students, there would, indeed, be fewer challenges for postgraduate students. Additionally, the compensation of postgraduate students can encourage them to publish in insightful acreditted periodicals, not only for the sake of their careers but in order to make progressive contributions to their fields of study. It was noted during the interviews with the academic staff that since the University of Zululand is a previously disadvantaged university, students are likely to face financial issues. As one of the respondents indicated:

> *"Being a previously disadvantaged institution, as we are, the majority of students do not have funding; they do not have the money to study"*
>
> - Faculty of Arts interviewee

The majority of the students at the University of Zululand are poor, therefore they require funding to pursue their studies. Another participant noted: "Sometimes they do have money but it's not enough to cater for their needs and a student who does not have something to eat can never concentrate" (Faculty of Education interviewee). Funding should be made the main priority in order for the institution to boost the students who are struggling and those who deserve. At the University of Zululand, there is a huge issue pertaining to funding; as one participant indicated: "I basically use my own funds to give to students who do not have funding to look after their families*"* (Faculty of Science interviewee). This shows the extent to which funding is a serious issue that should be taken into consideration by the institution.

The students mentioned the following in regard to funding:

> It takes a long time for us as postgraduate students to acquire funds, for example, the NRF, which makes it difficult to commence some activities that require funding during the research process. We end up taking up much time worrying about funding instead of worrying about our studies.

> Postgraduate students are not remunerated at UNIZULU. (second-year Master's student)

From the above statement, it can be noted that funding is an issue at UNIZULU and influences a number of other issues. Even though there is the UNIZULU Foundation, which was launched earlier in 2017, students continue to face funding challenges.

Admittedly, the Institution with the UNIZULU Foundation and Rector's Fund in place is doing well. However, there should be more funding schemes in place; otherwise the institution could end up losing a large number of valuable academics. According to the Department of Higher Education and Training (DHET) Annual Report (2015/17:45), "postgraduates have a tendency to choose institutions in view of what the institution offers to postgraduates (fringe benefits)." However, it cannot be ignored that the University of Zululand is a comprehensive university and was previously disadvantaged.

Therefore, issues related to funding are likely to persist. As one participant pointed out:

> We are faced with so many challenges as postgraduate students, but the most important challenge we are facing that the institution is somehow not aware of is funding. I am a first-year Doctoral student, but I do not have funding and that is not good. Other institutions do cater for postgraduate students as the vital object to the institution but the situation is different from UNIZULU. I am really considering shifting to another institution next year because there are more benefits for us as postgraduate students (first-year Doctoral student)[12].

This statement affirms the report by the DHET about postgraduate challenges and its impact on institutions' enrolment rates. Postgraduates start their studies with the fear that they might end up not coming back the following year due to the absence of funding. This negatively impacts postgraduate research since it hampers postgraduates' performance. Participants indicated that few supervisors frequently

[12] The participant is an International student. International students are expected to have their own funding; the university does not prioritise them. There have been ongoing debates since international students complain about this issue.

make attempts to engage students in work-study schemes as a method of alleviating some of their financial challenges.

Financial issues can be a limiting factor in terms of time-to-degree and research output. This, therefore, implies that access to funding is a favourable condition for early completion. Participants additionally suggested that the University's financial planning system ought to be updated so as to be more helpful for research activities. This study identifies the lack of funding as a major source of the challenges experienced by postgraduate researchers, as well as a considerable challenge in itself, especially due to UNIZULU's previously disadvantaged status. As a result, very few sponsors have shown an interest in the University.

> "The University should seek out funding relationships with the industries in the Zululand locale, with a funding model based on the norms of Corporate Social Investment (CSI)". – 1st year Doctoral Candidate

At the end of the day, both these industries and the University will benefit from such a relationship. Funding for higher education had expanded from R14-billion in 2009 to R29-billion in 2016. However, it had actually declined in real and student *per capita* terms (HESA, 2014). This had put pressure on educational fees and research grants, contracts and donations. National Student Financial Aid Scheme (NSFAS) designations, despite increments, were not satisfactory to address the issues of qualified students, which raise the issue of how increasing enrolments are to be funded.

President Jacob Zuma recently released the report of the Commission into the Feasibility of Fee-Free Higher Education and Training in South Africa. In his report it was abundantly clear that fee-free higher education and training in South Africa is not achievable (CHE, 2017). The Commission prescribed that government increase block subsidies to the Post School Education and Training Sector (PSET) in accordance with increased costs for providing quality education and infrastructure needs. The Commission suggested that government increase its spending on higher education and training to no less than 1% of GDP, in accordance with similar economies. The Commission additionally prescribed that government should give careful consideration to the Technical and Vocational Education and Training (TVET) colleges, as they cannot perform at their present funding levels.

The Commission suggests that all undergraduate and postgraduate students studying at both public and private colleges and universities, paying little heed to their family background, be supported through a cost-sharing model of government-insured Income-Contingency Loans (ICLs), sourced from commercial banks. This implies that fee-free higher education is not feasible. Students will continue to pay a portion of their fees, and other related expenses that are not allocated by the funding schemes, out of their own pockets. Through this cost-sharing model, the Commission suggests that business banks issue government-insured loans to the students. These will be payable by students upon graduation and attainment of a particular income level. Should the student fail to achieve the required income threshold, government bares the secondary liability. In actualising this model, the Commission prescribes that the current NSFAS model be supplanted by a new Income Contingency Loan System. Should government be against this model, the Commission suggests that the legislature consider the "Ikusasa Student Financial Aid Program (ISFAP)"[13].

The Commission's report on the feasibility of fee-free higher education and training makes it clear that South African students will be granted loans: loans that students will have to pay after graduating from the University. That might be unfair to the student body of South African because, currently, there are very few job opportunities. There is nothing worse than being unemployed and owing the state. Loans are not a solution to student funding issues. In recent years, a large amount of money has been spent on prisoners rather than those students who hold South Africa's future in their hands. According to the Department of Correctional Services' 2014/15 annual report, it costs the Department more than R9.8-billion to keep prisoners each year. This money comes from the taxpayers, and it would be enough to fund a large number of students from first-year level up until graduation. The Government should be giving loans to prisoners, which they would have to pay once they have served their sentence in prison. I think this would also help tackle high crime rates. Students' parents pay tax and they should be entitled to fee-free higher education.

[13] An Income Contingency Loan Funding Model proposed by the Ministerial Task Team on Funding for Poor, Working Class and Missing Middle Students.

4.3.3 Shortage of Postgraduate Facilities

“Proper accommodation and computer laboratories, up-to-date libraries and adequate funding are fundamental issues which impact smooth operation of postgraduate studies” (Spaull, 2013:55). Financial concerns, with accommodation as a feature of students' living costs, may negatively affect access to higher education, particularly for potential students from families from a low-income bracket. For instance, students may need to decide between staying with their parents and studying at the university closest to them, or choosing an alternative study area, or even working during their studies to cover the costs of a lease (Eurostudent, 2011:168). Postgraduate-student respondents believe that there are not enough resources for them to further their postgraduate research and are in need of resources to assist in conducting that research. The following subsection discusses a couple of postgraduate facilities which are lacking at the University of Zululand.

4.3.3.1 Lack of Computer Labs and Unstable WIFI

As indicated by the University of Stellenbosch (2007:16) “many South African universities confront challenges related to student access and success; backlog with regard to facilities, equipment, and other capital; and decreasing government subsidies, impelling universities towards far-reaching structural changes”. The report emphasises that without access to information there is no success – meaning that the only way South African universities will be able to improve the quality of their research is through access to facilities. As such, it becomes necessary to compare and contrast what has been done by other students and scholars within the southern African region.

During the FGI, some postgraduates spoke about the computer laboratories, saying that the University of Zululand has too few computer laboratories and that they end up sharing the available computers with undergraduates. The respondents indicated that even though there is a computer laboratory that is strictly designated for postgraduate students only, they end up sharing with undergraduates because of the ease of access to this facility, which allows any student to enter. One participant during the FGI added:

> The undergraduates use our labs for social networking instead of academic work, and we will stand long hours waiting for them to go out so that we can use the lab. What is worse is that they even make noise; the institution management should do something about this because we are the vital asset in this institution.
>
> - 2nd year Masters Candidate

Postgraduate students are aware that they are important to an institution. If the institution does not prioritise their needs, they quickly take their business (and academic research) to other institutions.

Postgraduate students want good facilities that enhance the quality of their research. A respondent also said:

> There is a lack of facilities for postgraduate students, for instance, there is a small number of computers in the school or fewer computer laboratories. The library does not update research books regularly, and there are sometimes few copies of each book. There are not enough institutional support systems in place (first-year Master's student).

Besides this challenge, respondents were also unhappy about the Wi-Fi: "There are Wi-Fi problems, as postgraduates we also have to do work even in our rooms" (first-year Master's student). At the University of Zululand, some of the residences do not have access to Wi-Fi which makes things difficult for research students since they are restricted to carrying out their research in their rooms.

4.3.3.2 Lack of Accommodation

There are a few positive aspects to living in university residences on or near campus, instead of living on one's own, with one's parents or at a distance from the university. Living in student residences increases students' sense of integration and orientation. This is useful for students who may otherwise feel lost in large urban communities or universities. Living with peers might be a catalyst for academic improvement. Forming these relationships and reaping their benefits can be encouraged through the introduction of additional curricular services and offerings organised by the residences' management or the relevant HEIs. When living in students' residences, it is likely that students see learning at a higher education

institution as their principal occupation at this particular point in their lives. This attitude may positively affect their duration of study and grades (Eurostudent, 2011:170).

Respondents indicated that one challenge which they face is finding suitable accommodation. Currently, the greater part of the literature available for study is computerised. To access it one needs the Internet. According to respondents, it is difficult to access the Internet at the University of Zululand since some postgraduate students reside in off-campus residences which do not have a connection. One respondent indicated: “There is a lack of postgraduate residences, a large number of postgraduate students reside off-campus where there is no Internet access” (second-year Master’s student). Consequently, it is difficult for postgraduate students to perform research while they reside off-campus when they do not have Internet access. Study participants also indicated that challenges like the lack of accommodation for postgraduate students has a significant impact on their time management; they end up spending more time looking for a place to stay than conducting research.

Therefore, it can be argued that postgraduate students are not catered for the institution: “Ever since I have been in this university, housing is a very big issue. At the University of Zululand, postgraduate students are not prioritised when it comes to housing” (Faculty of Arts interviewee). This means that the postgraduates are not reaping the benefits of being postgraduates. Respondents also compared UNIZULU with other universities in South Africa regarding the shortage student housing:

> When I was a student at UWC, you would pay in January, and you were on campus until the following January before you registered again, but in this institution, students have to move from one place to another and that is confusing for students (Faculty of Education interviewee).

The respondents also noted that there are even PhD students within the University who do not have a place to stay. This can be noted in one of the interviews: “A lot of my students sleep at the laboratory every day and keep their belongings with their friends, going back in the morning to shower and change clothes” (Faculty of Science interviewee). Housing is a really big issue for postgraduate students at the University of Zululand.

Conducting research requires time and commitment; nonetheless postgraduate students face an extreme number of research challenges. For context, it should be pointed out that in South Africa there is yet no national policy or regulation concerning student housing. South African legislation and policies on higher education such as, the Higher Education (Act no. 101 of 1997, as altered by the Higher Education Amendment Acts 55 of 1999, 54 of 2000 and 23 of 2001) and the National Plan for Higher Education in South Africa (DoE, 2001), exclude regulations on student housing. Perhaps the first time when student housing became a significant part of the national higher education policy discourse was in April 2010, at the Stakeholder Summit on Higher Education Transformation (DHET, 2010).

The Summit scrutinised the poor physical quality of student accommodation both on- and off-campus, raising concerns about the poor nutritional quality of residence nourishment and the use of sustenance allowance funds. The Summit called for a reconciliation of residence life into the core business of universities. The result of the summit was a Declaration containing fifteen suggestions, including an undertaking to develop mechanisms to promote student-focused and caring universities (which would incorporate, *inter alia*, enhancements in student services, such as accommodation and providing food) (DHET, 2010).

The current report by the Commission for fee-free higher education also takes note of student housing. On the topic of student accommodation, the Commission found that there is an extreme deficiency across the higher education and training sector. The Commission suggests that government embrace a moderate plan to develop more student accommodation and that Historically Disadvantaged Institutions be put first. The Commission additionally prescribe a Public-Private Partnership (PPP) approach when responding to the student accommodation challenge.

4.3.3.3 Outdated Library Books

Furthermore, respondents indicated that the literature at the University library is outdated. According to Mutula (2009:76), the research quality of a university is recognised, among other things, by the excellence or quality of its library services, Information and Communication Technology (ICT) infrastructure, helpful institutional culture, capable and skilled staff, and the variety and rigour of its postgraduate

programmes. In the event that an institution does not have these attributes, it implies that research in that organisation is extremely poor. According to postgraduate students, the University of Zululand's library does not have enough facilities for research students and the literature is not relevant; in fact, it is outdated. A postgraduate during the FGI noted: "There are not enough facilities for research students and the institution is lacking when it comes to creating ways of informing students about inductions and funding" (Focus Group Interview participant).

The institution should try, by all means necessary, to maintain up-to-date library facilities, since this seems like a considerable problem at the University of Zululand. Moreover, the participants during the FGI argued: "The serious problem is (that) books in the library are old and outdated, we need books. Books are from our lifetime, but it is more like we are still behind with the syllabus" (Focus Group Interview participant). Moreover, it can be said that to upgrade the nature of research, it is imperative that seminars and workshops be inherent to postgraduate projects, in order to communicate information and abilities in different facets of research.

Of particular importance are facets such as time management, project management, business communication, oral examination, thesis writing, conducting ethical research, arranging academic conferences, and citing, referencing and research methodology (University of Liverpool, 2011:87). Research workshops play an important role as research support systems. It is therefore crucial that HEIs implement such programmes to improve the quality of research in universities.

While on the subject of the challenges of postgraduate research, it is worth mentioning that respondents indicated that the training provided at undergraduate level does not always cover content that students use during their postgraduate studies. According to the respondents, postgraduate programmes need to be recurriculated to suit the needs or the research profile of UNIZULU's departments and faculties. The University has a research strategy, and that research strategy is adopted by the relevant faculty, which takes it as its research strategy[14]. However,

[14] This vision is intended to unite the University's communities and refresh our academic purpose and identity. UNIZULU aims to contribute to the growth of the South African tertiary education sector and leverage off its rural, comprehensive character to respond to the growth opportunities presented to it.

the participants also noted that there is no constructive alignment between the teaching and learning components as well as research components of the University:

> You found out that students ends up doing modules that they do not need at all and when they come to postgraduate studies where they basically have to use the skills learned from undergraduate level, they cannot apply them (Faculty of Science interviewee).

Postgraduate students cannot only be taught facts about science. They need to think about their own particular subjective experience of the subject, or "attitudinal, affective, behavioural experiences and practical knowledge. The participative learning can empower students in solving logical and practical problems" (Biggs & Tang, 2007:50). They further suggest that there needs to be a constructive alignment between the teaching and learning components and the university components at an HEI. In this way, the institution can groom and produce quality researchers from an early stage.

As noted previously from Zakri's (2006:54) study, three primary challenges influence postgraduate research: "research capacity (ability), research productivity (output) and research utility (value)". In this study, the respondents mentioned that there are insufficient facilities intended to help postgraduates all through the research process. The lack of facilities points to the "research capacity" challenge as noted by Zakri (see Mouton, 2010:60). This study affirms Zakri's reference to research utility in connection with the challenges of postgraduate research, observing that when universities are not fully equipped with information and skills for solving research challenges, the problems faced by postgraduates are exacerbated.

4.3.4 Mismanagement of Research Documentation

Recently, the Council on Higher Education and Training (CHET, 2016) raised the fact that higher education information systems in South Africa are lacking. Legitimate records management could help universities to deal with their data, proficiently satisfy their mandate, shield them from prosecution, save their corporate memory, and encourage responsibility and good governance. The data contained in university records should be managed, as indicated, using a systematic approach. This must keep in mind the end goal of upgrading the adequacy and proficiency

universities in completing their primary mission. The issue some postgraduate students in Africa have is that they do not have the benefit of a modern and comprehensive base of information (Grover, 2001).

As indicated by one Research Office interviewee, “the poor control of documentation can genuinely impede investigation or research.” The participant further argued that “this happens when postgraduate students do not structure their studies appropriately”. The University of Zululand holds quarterly Higher Degrees and Research Ethics Committee meetings. The frequency of these meetings can have a positive effect on postgraduate students’ output. The faculties also hold Faculty Board meetings, which support students in handling research documents and writing good quality work. Faculty Boards are created to ensure the smooth operation of postgraduate research and help students in a number of ways. With Faculty Boards in place, students are able present their work and receive feedback. Postgraduate students are interrogated by Faculty Boards in order to ensure that they have a deep understanding about the research topic under investigation.

In addition, a carefully organised thesis and supporting documentation will influence the Board’s final decision. A respondent who is in the Faculty of Arts explained: “The student ought to have a proper documentation framework that will help him or her and the supervisor to deal with the substance of their attempts" (Faculty of Arts interviewee). Also, it is surprising how many postgraduates continue to be unable to list their references properly. These scholars will very often spend crucial weeks toward the end of their thesis trying to rediscover missing references. Mismanagement of research documentation can lead to many problems which can result in a number of postgraduate research challenges. These challenges can have a significant impact on a postgraduate research. In order to overcome these issues, there needs to be excellent facilities and policies in place to ensure that postgraduate students are aware of the importance of the proper management of research documentation.

4.4 Impact of Research Challenges on Postgraduate Research Productivity

Research challenges have an impact on research productivity. Therefore, it was important for this study to analyse this impact. The 1996 report by the National Commission on Higher Education (NCHE), “A Framework for Transformation”, showed that the research output of universities and colleges offered proof of the inequalities of the higher education system. It featured the predominance of generally white institutions in the generation of both research publications and postgraduates at Master's and Doctoral levels. The commission's report brought to light that "in 1993 this group of universities (generally white research concentrated universities) hired 51% of the permanently appointed academic (teaching and research) staff at universities and colleges, and created 83% of the research articles and 81% of the Master's and Doctors (or equivalent) postgraduates" (NCHE, 1996: 40).

After five years, the National Plan on Higher Education took up the White Paper's objective, "To secure and propel abnormal state research capacity which can guarantee both the continuation of self-started, open-ended scholarly application, and the managed use of research activities to catalyse innovative change and social development" (White Paper, 1997:1.27). The resultant structure for development comprises five goals: increase postgraduate output, particularly doctoral candidates; increase research outputs; maintain existing research capacity and create new centres of excellence (National Plan, 2001:70). Parallel to this procedure of policy-making and implementation, in the area of science and technology, the Green and White papers in science and technology informed a succession of approaches and policies which have ended in the latest draft of the Science, Engineering and Technology Human Capital Development Strategy (DST, 2008).

This section discusses two specific effects of postgraduate research challenges on postgraduate research productivity: poor completion rates and dropout rates. The findings discussed here in no way constitute an evaluation of the viability of any of these activities. It does not unequivocally recommend the reasons for the success or failure of any policy.

4.4.1 Poor Completion Rates and Time-to-Degree

In 2015 the Department of Education (DoE) announced that of the 120 000 postgraduate students registered in higher education in 2013, 36 000 (30%) dropped out in their first year of study. A further 24 000 (20%) dropped out in their second or third years in Doctoral studies – meaning the remaining postgraduates numbered 60 000. However, of the rest of the 60 000, 22% graduated within the predefined three-year period (DoE, 2015). Nonetheless, the participants interviewed for this study indicated that postgraduate research challenges have a tremendous impact on research productivity, since, at the University of Zululand, there is a policy governing postgraduate research[15], the policy states that all postgraduate students should publish (both Master's and Doctoral).

Some students find it difficult to publish because of underdeveloped writing skills. Therefore, policies focussing on publication tend not to be in their favour. A professor in the Faculty of Science indicated: "If you are a Master's student we are saying you must try to come up with at least one article, ideally more than one" (FCAL interviewee). For a student to come up with at least one article, there should be good research support systems in place, from the curriculum all the way through to any other support systems.

Moreover, if a student does not have all these research support systems in place, it will affect the quality of the feedback that is given to students when they come up with a manuscript for publication. It will also go as far as affecting the rate at which students graduate, as "The student that is supposed to finish in two years ends up taking three years because they did not get timely guidance" (FCAL interviewee). According to the participants, postgraduate research challenges have a huge impact on research productivity as, "In most cases it takes students more than two years to complete a Master's degree and more than three years to complete a PhD" (Faculty of Arts interviewee).

If students spend too much time in school, more than the duration of the degree, the economy of the country is jeopardised. Poor completion rates do not reflect a good picture regarding South African education. This may result in the country

[15] Peer assessment of research outcomes is important in validating research and researchers are expected to subject their research to peer review.

losing out when it comes to hosting exchange students from other countries. This is another factor which may compel postgraduate students to seek out better opportunities and incentives at other institutions. Such moves may be caused by a variety of the factors and among those are poor completion and dropout rates.

The respondents also indicated that in most cases, graduates with a PhD do not have the requisite skills. As one participant pointed out: “Some Postgraduates cannot even talk but in postgraduate studies you have to present your work, so public speaking is an important element” (Faculty of Science interviewee). Public speaking is extremely important in postgraduate studies, enables researchers to socialise, engage and interact with their peers as well as the general public. According to Ohnishi and Ford (2015), the career paths of postgraduates have become more demanding in recent years. Academic public speaking skills are crucial to research and are a generic skill that postgraduate students must acquire. Existing student seminar programmes can be used as a dynamic training tool for improving academic public speaking skills.

In the questionnaires, some respondents argued that the challenges confronted by postgraduate students negatively impact their research productivity. As one of the respondents indicated: “When we are faced with research challenges, obviously we will not finish in record time and that causes poor completion rates and the institution ends up producing low research outputs” (second-year Doctoral student). From this it can be argued that when the challenges of postgraduate research are not clearly addressed, the image and reputation of the institution involved ends up being at risk. However, concerns about faltering completion rates and the nature of research supervision (Burnett, 1999) have subsequently spurred the move globally away from the conventional model of doctoral supervision to the cohort model. The cohort model proposes shared and deep learning using an organised programme (Tareilo, 2007).

4.4.2 Lower Academic Excellence

Educational facilities are generally too few and difficult to quantify because the information about these resources is always changing and in flux, according to their use by students and frequent pending or new incoming assets (Tsinidou, Gerogiannis and Fitsilis, 2010). The meaning of quality of education differs from

culture to culture (Michael, 1998). The setting and the individual qualities of postgraduates play a critical role in their academic success. The university workforce, family members and constituencies, provide assistance and support to postgraduate students in order for them to achieve academic excellence. This social assistance informs the accomplishment of students' performance goals (Goddard, 2003). Outside this social framework, Government's investment in postgraduate students positively impacts their academic success (Furstenberg and Hughes, 1995).

There are a number of elements that impact on the nature and quality of students' performance (Waters and Marzano, 2006). This series of factors are to be considered when identifying the drivers of scholastic success. At the point when higher education is underfunded, a considerable number of postgraduate students tend to perform poorly as a result. Poor performance of postgraduate students in an institution lowers the institution's academic quality. According to study participants, the challenges of postgraduate research also lower academic quality and this is another reason that postgraduates move to other universities. "They impact on students in different ways, such as not meeting intended deadlines, hence prolonging attainment of the certificate" (first-year Master's student). This again negatively affects the academic performance of an institution as some students do not meet their deadlines.

Students end up graduating after an extended period. Another issue that impacts academic performance is the fact that the University is underfunded, as is indicated by the comment, "Many students decided not to continue with their Master's for a second year because they owe the institution" (Faculty of Arts interviewee). The issue of funding also affects research outputs and productivity because the institution should have more students graduating. The reality is that students were not funded and they were not registered for the second year. The University ended up with few graduates, impacting the institution's reputation negatively. Additionally, the workload on supervisors also affects research outputs, and it was noted during the questionnaire that supervisors sometimes fail to give timely feedback.

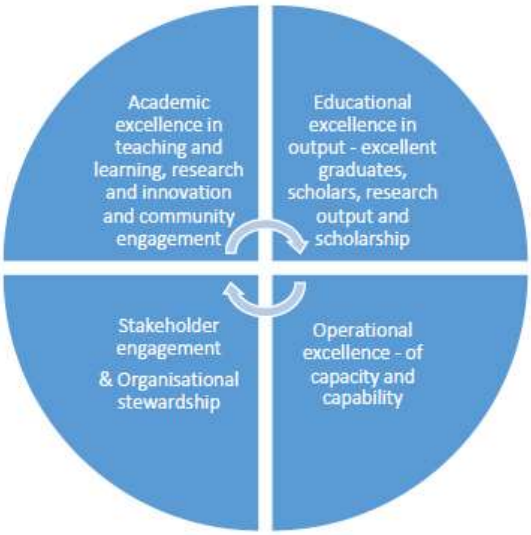
4.5 Strategies to Address Postgraduate Research Challenges

In this section the results of the challenges of postgraduate research were generated by using problem-solving theory. The data in this section is grouped into four different themes inline with the research challenges outlined at the University of Zululand by study participants.

4.5.1 UNIZULU Research Strategy

The University's strategy is based on various pillars that support the institution's superstructure so that relevant interventions can takes place (UNIZULU Strategy, 2016-2021). These are shown graphically in figure 4.3. The procedure itself involves six key objectives which express the fundamental concerns that will govern the University's functioning, governance and administration in the next five years.

Figure 4.3 UNIZULU Research Strategies



Data Source: UNIZULU Research Strategy (2016-2021)

The above diagram shows the University of Zululand's goals and objectives for 2016-2021. This strategy operates across all faculties at the University of Zululand. The Faculty of Commerce, Administration and Law has a long-term view, and a short-term outlook for its research strategy[16] (UNIZULU Strategy, 2016). For the

[16] To keep providing relevant qualifications, training and improvement to meet the needs of commerce, industry, public sector, common society and the non-legislative areas through partnerships and by

Faculty “The long term strategic plan is very simple in that we want all staff members to upgrade their qualifications” (FCAL interviewee). This shows that the Faculty has involved itself in trying to ensure that it has skilled and educated staff. Secondly, the participants also indicated that the Faculty has ensured that all supervisors sign up to supervisor-training programmes.

Supervisors must have a self-training plan that will be incorporated into the programmes that the Research and Innovation Office holds for strengthening postgraduate supervision, qualitative and quantitative research, SPSS and so on. A participant in the Faculty of Science indicated: “We insist that staff members must enrol and we asked them on a daily basis to account for their research productivity research capacity development” (FCAL interviewee). This shows that the Faculty tries to monitor academic staff members since it makes them fill in a form every year in order to track the progress of their qualification. This is evident from one participant’s comment: “There is usually a group meeting where we ask them what challenges they face, why they are being delayed, what constraints they face and what we can do to support them” (Faculty of Arts interviewee). This further show that the faculties constantly engage with academic staff, with the result that participants are beginning to see changes. As one participant noted:

> There is more and more staff that are beginning to register for advanced qualifications and, yes, there has been an improvement, there has been more staff taking on supervision duties (FCAL interviewee).

The engagement of the faculties on postgraduate issues and those experienced by academic staff has resulted in some improvements in the quality of postgraduate supervision. Moreover, the participants indicated that the faculties host writing workshops to help lecturers and students who are not good at writing. The faculties also host symposiums where students are encouraged to present their work. A professor in the Faculty of Science explained: “During symposiums students work is being discussed by different people, their ideas are shaped and incorporated into what the students are doing” (Faculty of Science interviewee). Symposiums are critical to postgraduate students, particularly when they join the workforce.

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guaranteeing sustainable development through knowledge generation, administration and research in these and related fields.

Graduate students regularly compete with their peers for jobs or post-doctoral positions. Experience in symposium participation shows potential employers that the candidate is able to regularly publish their research and stay up-to-date with the latest cutting-edge research in their field. Additionally, numerous symposiums and gatherings offer prizes, which if won, can be added to the candidate's list of achievements, another factor that employers look at. These accomplishments could be the main deciding factor as to whether the student finds employment, and can therefore continue their studies, or not.

At UNIZULU, some lectures have funding which they give to students who do not have enough. A participant in the Faculty of Science indicated, "Some lecturers like me, support students from their own generated funds or research funds" (Faculty Science interviewee). Nonetheless, some departments are recurriculating their programmes in order to stay relevant in today's market. Additionally, there are many workshops, and training opportunities run by the Research Office. A professor in the Faculty of Education indicated, "The Research Office also involves the library to teach students about referencing at faculty level" (Faculty of Education interviewee). However, attendance at these workshops is poor. The problem is that they are not geared towards students' mindsets and levels of experience.

Attending workshops in research design and methodology, or any theme, should be a master-class for postgraduate students. The participants further indicated that the faculties sometimes invite guest lectures to teach students about research, "but basically most of the support comes from the Research Office" (Faculty of Arts interviewee). In terms of short-term activities, the faculties have postgraduate research platforms at Faculty Board level, and also an Ethics Committee. Every proposal is distributed throughout these channels and scrutinised. For a Master's project, a postgraduate is given six months to come up with a proposal and eight months or up to a year for a PhD proposal to be passed by the Higher Degrees and Ethics Committee.

Before the students even begin to compile a proposal, the various faculties hold a series of workshops. In the Faculty of Commerce, Administration and Law, respondents indicated that "In March and April we hold workshops like proposal writing and at the departmental level we also have proposal training workshops"

(FCAL interviewee). The faculties institutionalise University-approved guidelines and ensure that students know what is required when they work with their supervisors up until the final product is presented at a faculty seminar. A participant from the Faculty of Education explained: “We invite all the researchers in the Faculty to come and give comments on the presentation of the proposal on how it can be improved and approved”. In this way, the candidates have the opportunity to respond to feedback to improve their work, and, in two weeks’ time, students come up with their final work and again the faculty check it before submitting it to Higher Degrees. All faculties at the University of Zululand follow this process to ensure that postgraduates have direction at all times.

Furthermore, the participants indicated that they had to learn to work individually. As a lecturer in the Faculty of Commerce, Admin. and Law indicated:

> Well, in my case, as I was doing Master’s, my supervisor was not always there. As much as I wanted to push my supervisor wanted me to come up with something that is ready and could not take me through the process step by step. I used other ways (Faculty of Arts interviewee).

This shows that the postgraduate students should understand that they are the drivers of their work and that work cannot continue to the next level without their determination. The participants further indicated that consulting with other people, those at the PhD level and other professors, has helped considerably: “When I submitted to my supervisor, he would be impressed” (Faculty of Arts interviewee). There is no more satisfying feeling than impressing one’s supervisor; it gives students’ an indication that their study is progressing and bolsters their hopes of finishing in time. Moreover, the institution also faces the challenge of being remotely located and although it tries to attract the best senior professors to join its staff, it is often unsuccessful. This might be because of the university’s location or its reputation. In the Faculty of Arts, the participants indicated that:

> South African professors want to be in urban areas, they want to be there where all action is happening and most of the best academics in our institution move to big cities Durban, Johannesburg and Cape Town (FCAL interviewee).

This is a threat to the institution since the policies do not allow the employment foreign nationals. Nonetheless, the University is trying to grow its own timber by trying to attract quality academic staff. In an interview at the Faculty of Science, it was noted: “Ultimately the university’s staff-retention policy has risen to meet the challenges of retaining quality staff so that we can get the right people to come to this institution”. During the interviews with the UNIZULU academic staff, it was clear that the University also needs to start recognising its own strengths as is evident from the remark*:* “We are in a rural area, we are surrounded by bushes” (Faculty of Science interviewee). The local people use plants to treat diseases, so the university needs to have a centre for indigenous knowledge*.*

This is demonstrated by the comment: “Those indigenous things that the local people use can become the basis for a centre for indigenous knowledge, and people can do research in that area” (Faculty of Science interviewee). This could help the University to be known for having vibrant research in an in-demand field of study. The university is also situated in a province where HIV/AIDS prevalence is high: therefore, it needs to have a center for communicable diseases such as HIV, so that the institution has researchers doing important research to help HIV sufferers, in turn aiding national development. Moreover, there are also suggestions to address the problem under investigation which were offered by the study participants.

4.5.2 Cohort Supervision

Changes in the aspirations of work and higher-education environments challenge customary methods of postgraduate supervision (Webster et al*.,* 2000). Universities are under pressure because of the growing number of students doing research and the increased emphasis on completion rates (Bitzer, 2011). Supervision aptitude is under scrutiny since improving in the quantity of postgraduate students has not been met with a corresponding investment in skilled supervisors (McFarlane, 2010). To meet this demand, UNIZULU has had to draft lecturers with no supervision experience as supervisors. As a result, the need is not just to increase student supervision; staff members also require experiential supervision training. Supervision courses may vary in nature and focus. This includes: the choice of supervision style (model), i.e. solo, joint or partner; (cohort) supervision (Pole,

1998); researchers' opportunities to team up and communicate with respect to their work, and contrasts in the idea of learning and information generation between disciplines. In essence, cohort supervision refers to the process where at least one lecturer supervises a group of students (Pillay and Balfour, 2011).

During this study, participants noted:

> Firstly, to address this issue of research challenges, introducing cohorts can help. Students can meet in groups for discussions with supervisors, collegues and a member of the department.
>
> - Third-year Doctoral student

This implies that students are informed about cohort supervision and therefore view cohorts as the primary strategy for solving issues related to supervision. The literature indicates that a cohort provides social support and enthusiastic assistance, confidence and a shared belief system (Mandzuk, Hasinoff and Seifert, 2003). Cohort sessions, which supplement the help offered to students through coordinated supervision, draw on the skills of experienced and fledgling supervisors from inside the faculty who additionally act as cohort supervisors. Students inside the cohort benefit from the direction offered by cohort peers as they explore the different stages of the research process.

Respondents also indicated that arranging regular departmental seminars can also help address the problem: "arranging periodical departmental seminars for students to present parts of their work helps them to gain more guidance from the staff members and colleagues" (second-year Masters student). The respondents argue that the students should not only present their works to Faculty Boards, but that there should be spaces designed for students where they can present each and every chapter before finishing their research paper. In that way the student will gain more guidance, not only from their supervisor but from other students and staff members as well. This can also help speed up the research proposal approval process since the student will not have many corrections to do. When granted research proposal approval by the Faculty Board (FB) and the Higher Degrees Committee (HDC), students can progress to the next stage in their research. Moreover, the respondents also argued that the institution should employ academic research professors whose sole purpose is research and supervision. That way the

institution can avoid having one supervisor supervising more than ten students at a time.

Hiring newly academic research professors could help improve the quality of research since it will improve feedback rates and strengthen the student-supervisor relationship. Participants indicated: “The institution has few research professors, the majority of them do not only concentrate on research because they are also lecturers” (FCAL interviewee). According to respondents, in terms of supervision, the faculties need to hire more staff: “not only appoint but retain because sometimes we appoint and people come and go” (Faculty of Education interviewee). The institution needs to retain staff to ensure its long-term sustainability. Providing a wealth of opportunities for collaborative research and learning, the use of the cohort model is dependent upon effective joint efforts and collegiality, the absence of which produces the potential for conflict and at times discontentment.

Nevertheless, a similarly important measure of cohort supervision is that the potential for conflict generates a valuable byproduct. One where students negotiate the numerous and, in some cases, opposing voices of cohort supervisors, appointed supervisors, and peers in order to find and establish their own voices. However, there is some evidence of potential shortcomings in the model which undermine its potential as a silver bullet, i.e., supervisors and students working in confinement, supervisors contradicting one another, and a volatile power dynamic between supervisors.

Recent studies recommend that the cohort provides opportunities to deepen research, moreso than the traditional model of the lone scholar. The rationale behind cohort supervision lies in its potential to increase the number of academics engaging fundamentally and inventively with scholarly tasks to genuinely address the low levels of postgraduate productivity while also raising research quality.

4.5.3 No Fees for Postgraduate Studies

The tuition fee and other sources of funding ought to be provided at a level that enables students and their families to realise an adequate return on investment. In numerous countries, families evaluate the value of a degree by comparing its cost with the eventual employability of the graduate. Universities South Africa (USAf, 2015) takes the view that the level of public interest in higher education must be

universally benchmarked and coordinated with the value of public good. On the off chance that this is not done viably, education fees could be so high that it would effectively exclude students from poor and blue-collar class families. The #FeesMustFall movement's primary protest was against high and rising education costs at South African HEIs.

The aims of the #FeesMustFall movement were not achieved for HEIs. Nevertheless, postgraduate students are proposing a no-fees policy for postgraduate studies. In this study, the participants indicated,

> "The University gets a lot of money; they get a subsidy when postgraduates graduate. So why do students have to pay?"
>
> - (Faculty of Science interviewee).

Other universities in South Africa have implemented the "no fees for postgraduate studies" policy. These include, *inter alia*, the University of KwaZulu-Natal (UKZN), Durban University of Technology (DUT) and the University of Limpopo (UL). These institutions are also previously disadvantaged as is the case with the University of Zululand (DHET, 2016). If the Institution does not implement this policy, it will end up losing students who will go to other institutions who have implemented this policy. The participants further argue that the University also need to provide funding to students once they are registered, i.e., the funding disbursed before their proposals have been accepted and granted ethical clearance certificates. The University of Zululand receives a great deal of money from publications which the students write; it is therefore possible to implement a no-fees policy for postgraduate studies.

In terms finance-related challenges, participants argued: "students are only exposed to National Research Fund, the institution should make students aware of other sponsorships available to them, and there should be workshops for such" (FCAL interviewee). This implies that even though there are other sources of funding provided by the University to students, they are not well advertised and as a result, benefit only a small number of students. A doctor in the Faculty of Science argued: "If you are enrolling for postgraduate studies, it should be a must for an institution to fund you". As it was noted earlier, this is evident at other institutions and postgraduate students should be funded as they are also the pillars of a university.

As stated earlier, the President South Africa issued a statement on the Commission for Fee-Free Higher Education in South Africa. With regards to local postgraduate studies, the Commission prescribed that NRF bursary (in view of legitimacy, or other criteria as created by the NRF) for postgraduates be held and extended when possible. The Commission additionally prescribed that postgraduate students adopt a cost-sharing model using government insured Income-Contingency Loans sourced from commercial banks. The Commission suggests that the support offered by NSFAS be supplanted by the ICL framework. NSFAS ought to be reserved for the provision of the funding of all TVET students and TVET student support. The proposals by the Commission unmistakably demonstrate that fee-free higher education is not achievable is South Africa, students will be entitled only to loans which they will have to settle with interest in future.

Unquestionably, universities expend their financial resources on sunken and recurring costs that are firmly connected to the institutions' delivery on their core mandate. For them to proceed in this way, each of the three income streams, including government endowment; educational costs and third-stream income as derived from corporate and business activities (and investments and donations) need to continue flowing. If tuition fees became scarce – as would be the situation if a fee-free higher education policy were to be adopted rashly – the nation would endure extreme hardships, the results of which are listed below:

- **Unavoidable budget cuts could prompt conservations**: institutions seeking to survive in this difficult financial climate are searching for ways to cut costs. This could prompt the need to lower staff spending plans, with undesirable results.
- **The quality of higher education would be compromised**: even if academic portfolios are not touched by the decisions above, vulnerability in the sector could prompt an exodus of sector professionals, causing the best and brightest to seek more favourable conditions. Research could be compromised and academics demoralised as a result of elevating displacement.
- **Universities could abridge their courses**: over the course of adjusting to present conditions, institutions might be compelled to reduce programme offerings – regardless of the significance thereof to national development.

- **Lack of skills for the public and private sector**: this would be an unavoidable outcome of the projection expressed previously.
- **Inescapable retrenchments would reduce access**: More students would drop out as a result of parents and other breadwinners losing their jobs, forcing students to take on the responsibility of becoming earners earlier in lower-paying jobs. The well off would send their children to private institutions, locally and abroad, leaving the poor to get sub-standard education.
- **Conceivable contortion of the social equity plan of the higher education project**: A free-market regime would bring about the subsidisation of the wealthy. Students completely able to afford the costs of higher education would be released from contributing to the functioning of the system.
- **Contortion of size and state of institutions**: Student fees for postgraduate studies cover few extent costs contrasted with those of undergraduate studies. This is also true for part-time students. A fee-free system could result in a dramatic reshaping and repositioning of universities. The National Development Plan (NDP) desires to create more information concentrated research, changing the economy and creating a more extensive system of innovation by 2030. This could turn into a joke if academic support, student access and academics' demographics were to decline. Ultimately, the higher education sector would fall as the higher education project ends up conspicuously untenable.

For a long time to come, free higher education will not be feasible in South Africa (CEHET, 2017). Universities remain reliant on state support, which keeps on declining. The rate of state support increases as the Consumer Price Index (CPI) puts more of the burden on student fees and third-stream income. It is a reality that South African institutions are all competing within the same pool of benefactors and funding. Thus, the sector in general is not getting new funding inside South Africa. Work force (labour) costs at numerous institutions exceed the value of state support, resulting in added pressure on other income streams.

4.5.4 Postgraduate Training at Undergraduate Level

The undergraduate experience is significantly advanced by attaining research experience early and regularly. As of late this has been shown exactly and discussed in an assortment of disciplines, including, yet not restricted to,

engineering (Narayanan, 1999), medicine (Murdoch-Eaton et al., 2010), biology (Reynolds, Smith, Moskovitz, and Sayle, 2009), physiology (Desai et al., 2008), neuroscience (Frantz, DeHaan, Demetrikopoulos, and Carruth, 2006), brain research (Wayment and Dickson, 2008), and also in multidisciplinary discussions in significant journals (Carrero-Martinez, 2011; Russell, Hancock, and McCullough, 2007). However, while the benefits of undergraduate research are numerous and far reaching, the majority of articles and studies on the topic focus on a retrospective viewpoint of undergraduate research initiatives at specific universities with less priority given to comprehensive universities.

In the interview that was held in the Faculty of Commerce, Admin. and Law, a participant indicated that, “There are numerous benefits for undergraduate students who get involved in research. Research experience allows undergraduate students to better understand research”. In essence postgraduate experience at an undergraduate level allows undergraduate students to clearly understand published works, learn to balance collaborative and individual work, determine an area of interest, and jump start their careers as researchers. Through exposure to research as undergraduates, many students discover their passion for research and continue on to graduate studies and faculty positions.

Certainly postgraduate studies do not start at the postgraduate level. For one to become a competent postgraduate student there has to be proper postgraduate training at undergraduate level. In this way, students can be groomed to become skilled researchers. Gaining a wealth of research expertise from an early stage makes postgraduates more knowledgeable and well-known for their research. In this way, doing research can be relatively easy and not too time-consuming. Regarding the issue of training from undergraduate level, the participants suggested that faculties recurriculate their programmes to fit into the research strategy of the University, premised on the fact that the faculties’ research strategy is taken from the University research strategy.

During the interviews at the Faculty of Commerce, Administration and Law, a participant indicated: “To enhance the quality of research, there should be no more miscommunication between research, teaching and learning”. According to the respondent, there is a gap leading to miscommunications between the research,

teaching and learning functions of the University. The result is that students indulge in modules that are not necessarily needed in postgraduate studies. Additionally, the participants also indicated that the RIO at the University of Zululand is doing a great job at ensuring that postgraduate students have good writing skills. The RIO achieves this by designing workshops for proposal writing, thesis writing, and grant-proposal writing. Regrettably, on the students' side, there is a lack of attendance of such workshops. Participants argue that the University should make these workshops compulsory for students to attend as a prerequisite for completing their postgraduate degrees:

> Students should get workshop certificates, when students are submitting their thesis or proposals, this certificate has to be part of that to show that they have gone through the whole process (Faculty of Science interviewee).

Implementing this strategy can provide a wealth of knowledge for postgraduate students, enabling them to produce academic research that strengthens the reputation of the University.

"A significant number of first-year students are overwhelmed by the academic process and do not even know that research is an option for them, let alone how to get involved" *(*Faculty of Arts interviewee)*.* This is a huge opportunity for the Institution to help to open the doors to the research experience. By clarifying the procedure and accessible work opportunities, scholastic professors can help to demystify the procedure and ignite a passion for research. Numerous undergraduates get engaged with research late in their undergraduate professions, often by chance and taking the most difficult route possible.

Any academic institution can upgrade its undergraduate educational programmes by elevating research to make it visible to the individuals who demonstrate an intrigue yet who may not generally know how to get involved. In addition, any academic institution at an undergraduate level requires an institution to build more on-campus student houses on the basis that the more students are interested in postgraduate research, the more years they have on the university grounds. Consequently, there ought to be sufficient settlement to cater to them all; the

accompanying subsection discusses the idea of building more on-campus student houses in more detail.

4.5.5 More On-Campus Residences

The provision of open, good, safe and academically conducive student accommodation in South African Universities is of incredible significance to the quality of the higher education system and the success of students, particularly those from rural and poor backgrounds (DHET Report, 2011). A university may consider revamping some of its different properties in order to make them suitable for student housing. In most cases, buildings constructed for this purpose are within walking distance from the institution, which makes them extremely useful for student housing (Han, 2004). It is also less expensive to fund innovation than to construct new buildings. As indicated by the South African Student Housing Policy, HEIs must set up and keep up suitable support services for incoming and outgoing students, incorporating support for those applying for study visas, those registering (online and on-campus), research support, advisory support, social and cultural events, and so on (Higher Education Act, 1997). The site or area of student housing can have a significant effect on access, value, and the academic growth and development of students requiring housing. The following minimum norms are prescribed: the housing facilities should ideally be situated inside the campus security border, consequently affording occupants the flexibility to make full use of the academic, social, cultural, and sporting activities of the university without limitation or deterrent (Higher Education Act, 1997 (Act No. 101 of 1997).

In this study, the participants indicated that the University should engage with banks "The University should tell bank A that we need a building costing R10-million and sign an arrangement with the bank to say that in ten years they will pay back the money" (FCAL interviewee). Taking out mortgage bonds for an institution is not cost-effective because students register every year. When students register every year, some money will go into the bank, and within ten years the building becomes the property of the university – the university can then start making money out of it. If the University waits for the Government's intervention, it will take time, and the funds from the Government are never enough. As one participant stated: "University salaries have to be paid and certain services have to be catered for, and all this

requires money" (Faculty of Arts interviewee). However, there are innovative ways in which the University can get things done properly without even deducting a cent from funds provided by Government.

The policy on student housing also states that the residence spending plan (budget) and administration accounts should be isolated totally from the University budget and administration accounts. The reason being that future percentages of the student housing framework will be resolved in accordance with the degree to which the University has met the above necessity (Government Gazzet, 2015). Nonetheless, numerous considerations must be made when choosing to reuse or redesign. Development needs to take cognisance of zoning laws. Abandoned buildings might be office buildings, and the local council should approve their transformation into student accommodation (Remøy and Van der Voordt, 2007).

4.5.6 Visibility of Researchers

Postgraduate researchers' visibility includes managing open data about their research with the goal of raising their profile and advancing research (Open University, 2013). Collecting data can be difficult especially when dealing with the public. In most cases, researchers find themselves being distrusted by their intended audience and in that way data collected tends to get diffused (Rahi, 2017). In this study, the respondents indicated that postgraduate study is extremely important and that one of the challenges they face is pursuading participants to participate in their studies. This is evident from the remark: "When we give them questionnaires or ask them to participate even their facial expression changes, and that shows you that they are unwilling (first-year Master's student). To avoid this, it is important that the university impress upon its community the importance of research to students and also to the public.

This can help in terms of research participation because the larger the number of students, the more subjects are available. Institutions should find ways to inform their communities about the importance of research, including the surrounding rural community. Unwillingness to participate is a significant challenge in postgraduate research since researchers need insight from thoughtful and engaged participants.

The respondents further argue that even though some potential respondents agree to participate, these tend not to be reliable, providing responses that are not valid.

This is problematic because research studies prioritise reliability and validity. The respondents also indicated that they are sometimes not seen as researchers. Therefore, they end up being undermined by the public. A respondent in the Faculty of Commerce, Administration and Law indicated:

> “The Research Office should design T-shirts and caps for postgraduates who are in the stage of data collection so that their study population will be able to recognise them as researchers”.
> - FCAL Master’s student

This could work in favour of both the student and the University. The University could use the opportunity to advertise the Institution to the public, and the postgraduate researchers would gain respect from their target population. A professor from the RIO expressed the view that postgraduate students should demand their right for quality education: “The postgraduate students ought to, at any rate, have a panel which will follows up on the benefits for postgraduates and helps to address their day-to-day issues.”

The professor further suggested that postgraduates become well acquainted with the RIO and its website: "Students should come here for assistance, we have hired research assistants, and we are constantly prepared and willing to help them at any rate" (Research Office interviewee). Also, the RIO and the Library mutually facilitate research awareness programme from time to time. The point of this activity is to advance and activate a research culture inside UNIZULU’s community. These events stem from lectures on different topics, postgraduate student debates, presentations, Research and Innovation Office services, and Library workshops on Intellectual Property, SPSS, the research design, research-grant proposal writing, plagiarism, referencing, publishing and research social systems’ administration. Additionally, academic research often suffers from the additional time being used for the collection of data, more so than on data analysis and reportage (Vosloo, 2014). This was also witnessed in this study, since it took me, the researcher, almost a month-and-a-half to collect and analyse the data. However, when analysing data, everything should be clear as findings that are not clearly presented and explained for the end user are of little value in terms of their application.

For one to become a Master's holder or doctor there has to be the foundation phase of being a student. The academic staff at UNIZULU all had to have been students at some point and they also faced challenges during their time as students. Some continue to experience these challenges up to the present. Therefore, in this study, the participants, specifically academic staff, were asked to share the strategies and techniques they used to overcome research challenges when they were students. However, it should be noted that the challenges the staff faced differ from institution to institution. A participant in the Faculty of Commerce, Administration and Law indicated:

> "If I compare what I have been taught, basically I was at a good university, so we had a skilled person" (FCAL interviewee).

This implies that there are some universities which are better off than others. In these contexts, students are less likely to face a number of challenges to their research. However, detailed guidance can't be provided by a person who is too busy to do it, which disadvantages postgraduate students. The participants further indicated that, during their studies, they largely learned to work independently to find out what was required by looking at previous dissertations and papers.

Also, one participant mentioned that when they joined the University of Zululand as a staff member, the Internet helped a great deal since they started looking at other universities around the world to see what they were offering. As of today, the Internet is even more sophisticated and offers all manner of programs for understanding research in a broader sense. Students should use the Internet more often. A professor in the Faculty of Science indicated:

> I introduce so many programmes to my students. I guide my students and tell them look at this it will help you solve that research related problem. Although I give them guidance, I am also showing them how to go about self-training whereas I learnt it the hard way.

The participant shared data about the experience of being self-trained and giving guidance to students.

Other participants also mentioned that it took them a longer time to start a Doctoral qualification, as a professor within the FCAL indicated:

> “It took me nine years to commence a PhD, in those nine years I had to sit down and learn all the techniques that were required in a PhD level, and in the other four I started putting it together, so that is why it took me so long” (FCAL interviewee).

This implies that for one to commence postgraduate studies there needs to be a proper understanding of the available research methodologies. That would have a positive impact on research since it could be done in a shorter time, as is evident forom the comment: “In three years I can help a student get a PhD and it’s because I have now been through the ropes and I can just show them the easiest way through the process” (FCAL interviewee). The participants further indicated that postgraduate students should commit to working hard and burning the midnight oil*:* “Know that you came from home to get your PhD and say I will not leave without my PhD no matter what” (Faculty of Science interviewee)*.* Being a hard worker is not taught, it is something to be decided. Hard work is important in postgraduate studies as the end results are vitally sustaining.

The participants indicated that the students should not always rely on the Institution to provide funding. As one participant noted, they should work with what they have: “I also noticed I have good writing skills, so I started my own editing business and the director of research ended up employing me to edit for students, so I started working as a writing coach” (Faculty of Education interview). This shows that students should be intelligent enough to understand their strengths in order to make money out of it. For a postgraduate, it is important to look for what interests him or her. This is substantiated by the comment: “When I went to university I wanted to be a doctor, but I studied for four years and left medical school” (Faculty of Science interview). This shows that his interest was initially in the field of medicine. However, even though the participant left medical school, he never forgot his dream to help people. He explained: “Now am still living the dream of being a doctor because I ended up studying microbiology, and I am still helping people by finding new cures for diseases under my field of study” (Faculty of Science interviewee).

Additionally, the participants argue that if you are an academic researcher, it is important to read and search for new information and also talk to other researchers. The journey is indeed lonely, especially in doctoral programmes: “Postgraduates

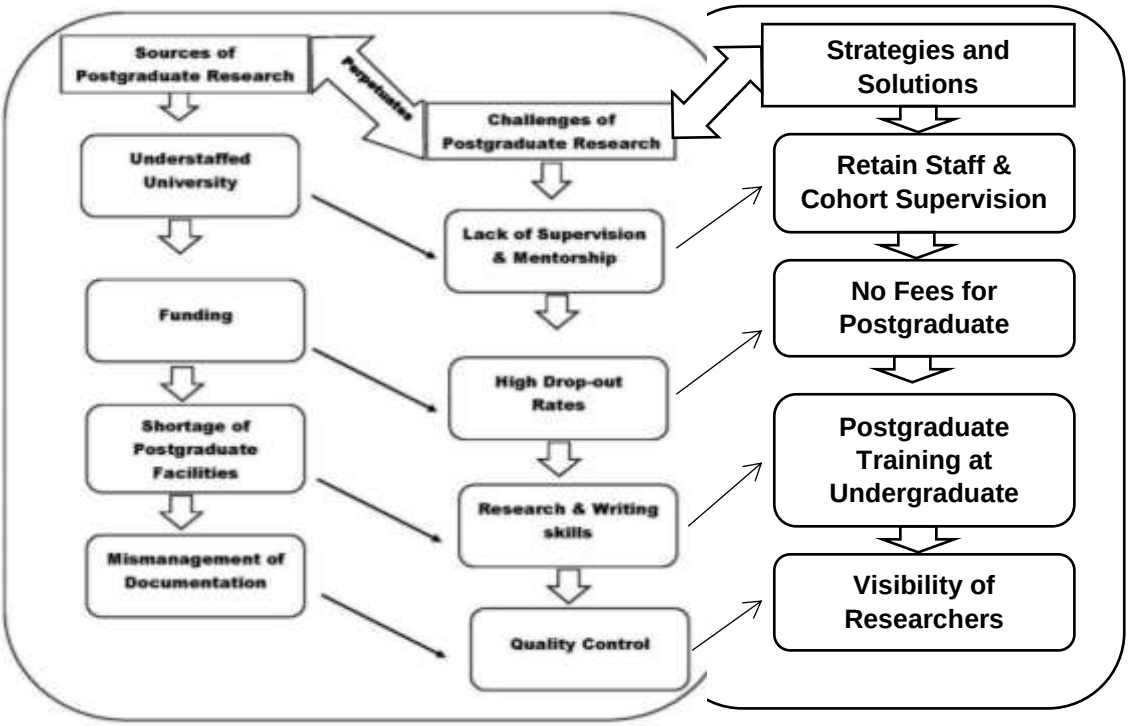
need to find a community, people to communicate with and discuss things with" (FCAL interviewee). People are usually social creatures who need to associate and bond with family, companions, and relatives. Participants also suggested that assigning time for oneself can contribute towards working smarter, not harder (or, in many cases, longer). Students who do not allow time for themselves with family and friends frequently suffer a phenomenon described by the theory of consistent losses; the more they work, the later they finish their studies.

Since 1994, research outputs, enrolments, and graduations have all increased, yet the numbers remain low in connection to national needs. Only 34% of academics had obtained Doctoral degrees. Universities' research performance was uneven, delivering 86-89% of all research and Doctoral degrees (HESA, 2014). The National Planning Commission's (NPC) projection of 75% and 5 000 Doctoral graduates by 2030 may be incredibly ambitious, mostly given the lack of financing, and the inaccessibility of research infrastructure and facilities, as well as equipment. The target is also ambitious because of the lack of academic staff and supervision capacities (HESA, 2014).

For the purpose of this study and chapter, it is important to discuss the connection between the sources and challenges of postgraduate research. The sources of postgraduate research challenges differ from the challenges themselves in the sense that the former refers to the factors that influence postgraduate research challenges. Despite the relatedness of both sources and challenges of postgraduate research, the factors that trigger postgraduate research challenges are different from the challenges themselves. Figure 4.4 presents the challenges of postgraduate research in connection to their sources based on responses from participants.

Figure 4.4 below shows that these sources perpetuate the challenges of postgraduate research. It is therefore important for HEIs to make note of the sources of postgraduate research challenges. This would make it easier to mitigate the challenges. The best way to deal with a problem is to start understanding it from its inception. Problem-solving theory came into play here since it assisted in understanding the driving forces behind research challenges. Using problem-solving theory, I was able draw conclusions about the postgraduate students' experiences and therefore offer possible solutions.

Figure 4.4 Connection between Challenges and Sources of postgraduate research



Data Source: Own Compilation

4.6 Conclusion

This chapter presented an analysis of the quantitative and qualitative data that was collected using questionnaires, interviews and focus group interviews from 34 participants across different faculties within the University of Zululand (including the Research Office). Seventeen Questionnaires were distributed to postgraduate students. The data from completed questionnaires were coded and captured using SPSS version 22, for Windows, and were used for descriptive and inferential analysis. In addition, the qualitative data were collected using semi-structured interviews. The qualitative data from interviews with nine University of Zululand academic staff and Focus Group Interviews with eight postgraduate students were analysed using the different methods identified previously.

Moreover, in this chapter, five main sections and themes were also identified with the purpose of analysing and interpreting data. The voices of the participants were used to present the data that was collected; this approach made it possible to analyse and interpret the data. Also, in this chapter, the reliability and validity of problem-solving

theory was tested. The chapter established a connection between the challenges of postgraduate research and the sources of these challenges. It was found that the sources perpetuate the challenges. Since this was the case, it can be concluded that it is important for HEIs to understand the sources of postgraduate research first. This chapter also sheds light on the impact postgraduate research challenges have on research productivity. Participants indicated that postgraduate research challenges have a tremendous impact on research productivity.

According to the participants, postgraduate research challenges cause poor completion rates and time-to-degree, also lowering academic excellence. Poor completion rates do not reflect well on South African education. As a result, the country might lose opportunities for exchange-students and the research and financial perks this entails. Students are likely to move to other institutions seeking better opportunities and incentives. This may be caused by a variety of the factors, chief among these being poor completion and dropout rates.

Since the discussion was drawn from the study participants' responses and experiences, I was able to identify strategies to address the challenges of postgraduate research. This includes cohort supervision, no fees for postgraduate research, postgraduate training from undergraduate level, and sufficient accommodation for postgraduate students. In this chapter, the participants also noted that the UNIZULU is struggling to retain quality senior professors because of its location. It is a well-known fact that UNIZULU is a previously disadvantaged institution; therefore, the challenges of postgraduate research are likely to persist. The following chapter presents the summary of findings, conclusions and recommendations of the study.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5. Summary of Findings

This chapter presents a summary of this study's findings, including recommendations and conclusions. The following discussion compares the findings of the study with the research questions. It concludes the study on the premise of the information gathered. The implication of these findings, including recommendations, summaries and opportunities for further research are also outlined. I begin with the summary of the findings on the challenges of postgraduate research, from a UNIZULU perspective.

In a general sense, this thesis endeavours to assess the challenges of postgraduate research at UNIZULU. This entailed understanding higher education policies, the study questions, and ascertaining whether the challenges are caused by the absence of feasible research policies in postgraduate research. Additionally, the sources of these research challenges have an impact on research productivity concerning the internal and external challenges that postgraduates face.

While chapter one laid the foundation for the conceptualisation of the study, the concern of chapter two was with developing and integrating the study within present and existing written works while also foregrounding the study within a specific theoretical framework: problem-solving theory. In this chapter, it was revealed that one of the biggest challenges that state-funded universities in higher education in South Africa face is postgraduate research challenges. However, Government is also attempting to enhance research skills by contributing 100% of funds towards innovation, despite the fact that the Government works with a constrained spending plan to guarantee that services to the state-funded universities are sufficiently funded, and that there is sufficient money available for research and development.

The third chapter explores the research methodology by plotting the choice of research design and sampling methods, and provides a detailed description of the data-collection methods, instruments and processes. In this chapter, both qualitative and quantitative research approaches were described as methodological tools used to explore the challenges of postgraduate research. It motivated the selection of the

mixed-method approach, and how the study was conducted. Four primary questions were directed to the study participants to gather the information from a sample of 34 participants. Research techniques and systems used to coordinate the study, including the research design, research method, validity and reliability, data analysis and procedures for administration of questionnaires, were explored. The study guaranteed that all ethical considerations as laid out in the research manual were observed. Chapter four followed with an audit of the captured information from the data collected. This information is investigated, coded and interpreted. The chapter provides an understanding of results and the discussions drawn from this study, assessing the challenges of postgraduate research using experiences from the University of Zululand. It also represents the degrees, textures and changes affecting the challenges of postgraduate research at the University of Zululand.

In terms of participation per race, there were more African participants than other races. Previous investigations have revealed the detrimental results of racial imbalances in higher education. Also, HEIs create an inadequate number of graduates, especially black graduates. Some studies contend that colleges are not producing enough graduates with relevant skills for the labour market. Others raise the issue that the labour market has segregation issues of its own, most obvious in a deliberate refusal to employ graduates from historically black universities (DoE, 2014). Moreover, the findings from this study indicate that there are many challenges that postgraduate students face at the University of Zululand. The chapter established that students are not getting enough time with their supervisors premised on the fact that the supervisors are inundated due to too many obligations. An over-subscribed supervisor, despite being well intentioned, is probably not going to be a viable supervisor. Moreover, there is an acute shortage of qualified supervisors and the Institution needs to hire and recruit more qualified staff.

It can be affirmed that, to upgrade the nature of research especially at comprehensive universities like UNIZULU, it is imperative that writing seminars and methodological workshops are included in postgraduate programmes. These will no doubt inculcate new abilities in different areas. These areas include: time management, project management, business communication, oral examination, thesis writing, conduction conscientious ethical research, arranging research conferences, and citing, referencing and research methodology (University of

Liverpool, 2011:87). Research spaces or workshops play a pivotal part as research support systems, it is therefore important that HEIs implement such programmes in order to improve the quality of research in universities. As noted by Mouton (2012), in universities, there should be programmes designed to support postgraduate students and supervisors. These programmes and workshops may help develop skills such as time management and thesis writing. While postgraduate programmes are important for both students and supervisors, Dong (1998:369) argues that postgraduate students and supervisors (lecturers) regularly differ as far as their perspectives of how much support was offered throughout the writing process. In her study, she establishes that postgraduate students' experience of the support given by supervisors is not the same as what supervisors think that they offer.

This, yet again, supports the argument in favour of establishing postgraduate students' expectations from the start in order to contribute towards clarity on what they can reasonably expect from their supervisor. Additionally, Drennan and Clarke (2009:85), in their study of what postgraduate students expect from the supervisory relationship, identify the following: timely feedback, providing balance between direction and autonomy, reliable meetings, suitable research knowledge of the supervisor, and capacity to propose or recommend unconventional designs if problems arise. The findings from this study reinforce the argument that postgraduate students undertaking qualitative research on sensitive topics do encounter various challenges throughout the research process.

While some relate to the interview process, including the possibility of self-disclosure, postgraduate students also confront a number of other challenges, such as, managing developing relationships, hearing untold stories, feelings of guilt, helplessness and exhaustion, and issues related to both deciphering and examining information. There is growing recognition that undertaking qualitative research can pose many difficulties for postgraduate students. Some of the challenges distinguished by researchers incorporate issues such as maintaining boundaries (Dickson-Swift et al., 2009), creating compatibility (Liamputtong and Ezzy, 2015), creating friendships, reflexivity, and being sensitive towards subjects' feelings when leaving the field (Hubbard et al*.,* 2011). While a large number of these challenges are unique to qualitative research, they are frequently aggravated while researching sensitive topics.

Researchers undertaking qualitative research on hazard studies should have the capacity to make an evaluation of the effect of the study on both the subjects and themselves. In order to undertake an assessment of the potential effect the study may have, subjects should be alerted to the conceivable issues that participating in the study may cause to arise. A descriptive case study research method was undertaken at the University of Zululand to explore the nature of the challenges faced by postgraduate students in an effort to inform evidence-based problem-solving practices on campus. This study can also be used to inform policy decisions relating to postgraduate research challenges.

Both secondary and primary sources of data were used for this study. Primary data was obtained through questionnaires, interviews and focus group interviews. The secondary data was obtained from different sources including the University press, UNIZULU, #HashTags and annual research reports related to the objectives of this study. The initially proposed sample size of this study was 34 participants. Precisely 17 questionnaires were distributed to postgraduate students, nine interviews were conducted and eight participants were also selected for focus group interviews. This data was collected conscientiously. Data collection methods did not shift the study from its intention which was to assess the challenges of postgraduate research from the perspective of UNIZULU.

It is clear from the findings that postgraduate research is viewed as a critical component in postgraduate studies and for achieving improvement in the lives of students, since research can enhance their research skills. Postgraduate students face various challenges starting from the beginning of their postgraduate studies. As per the findings, one of the solutions available to address postgraduate research challenges is the appropriate execution of postgraduate policies aimed at solving the challenges stemming from postgraduate research. During the data collection stage of this study, respondents demonstrated that they confronted challenges such as the absence of funding, a shortage of supervisors, overcrowded computer laboratories, referencing, copyright infringement (plagiarism), and a deficiency of postgraduate accommodation.

As per the respondents' statements, funding should be prioritised for postgraduate students, and when students are not funded this has a negative impact on their ability to conduct research. The institution does not support the allocation of funding

entirely designed for postgraduate students. It usually takes a long time for postgraduate students to acquire funds, for instance, through the NRF and the Institutional Research Fund. This makes it difficult for postgraduate students to begin activities that require funding in the midst of the research process. Postgraduates end up wasting time worrying about funding, as opposed to worrying about their studies. Moreover, postgraduate students are not compensated at the University of Zululand. As a result, students end up moving to other institutions that prioritise their postgraduate students. This influences university admissions in terms of enrolments and does not portray a positive picture of the Institution.

Furthermore, the way funding is allocated at an institution may impact postgraduate enrolment rates negatively. Respondents demonstrated that they are confronted with a large number of challenges as postgraduate students. However, the foremost challenge is the fact that the institution is not aware of the issue of funding and accommodation. Some of the respondents who are postgraduates indicated that they do not have funding for their Doctoral studies. That is not good for a student at Doctoral level. The resultant dissatisfaction prompts bright postgraduates to move their projects to other to other institutions in South Africa.

Furthermore, the respondents also showed that, aside from the previously mentioned challenges, referencing and copyright infringement are also major challenges. However, UNIZULU's Research Office is doing its best to guarantee that there are sufficient workshops aimed at postgraduate students in order to improve their research skills and capacities. These workshops set out to help postgraduate students reference competently and avoid plagiarism; both significant issues in postgraduate research.

In addition, the respondents demonstrated that UNIZULU is understaffed. There are far too few trained or qualified or senior professors in the Institution. Respondents further indicated that, at UNIZULU, some faculties have professors, however other departments and faculties are not that fortunate and their research outputs end up being low as a result. When postgraduate students are "postgraduate research challenge free", they will be able to exercise self-discipline. This makes a positive contribution towards students' academic performance and the attainment of their goals.

The available literature shows that there are different sources of challenges for postgraduate research and these sources can be looked at from multiple viewpoints. Moreover, the respondents from this study showed that the, absence of incentives, absence of mentorship and supervision, lack of facilities, maladministration and absence of effective policies for postgraduates are the root causes of the challenges experienced by postgraduate students. Most of the respondents at the University of Zululand indicated that the lack of funding for postgraduate students is the fundamental source of most of the challenges that they face. This is because students cannot produce work of a high quality without inspiration and financial worries stomp out inspiration.

There is a considerable lack of funding for postgraduate research at UNIZULU in comparison with other institutions in KwaZulu-Natal. If UNIZULU could remunerate postgraduate students, they would experience fewer challenges. Additionally, the remuneration of postgraduate students for conducting research would likely encourage students to publish in leading academic journals. This is good for researchers' careers as well as for the institution. Moreover, the respondents in this study demonstrated that the absence of mentorship and supervision are additional enormous triggers for the challenges of postgraduate research. Presently, publishing turns into an issue since some postgraduate students still require excellent writing skills with the specific end goal that they publish. Postgraduate students therefore end up taking more time to complete their degrees due to their inability to publish. This problem can pose a challenge to the institution and also has a huge impact on research productivity since the institution's research outputs are negatively impacted.

With regards to funding, the respondents argued that numerous students chose not to proceed with their Master's for a second year because they owe the Institution money. This issue also affects research output on the grounds that the Institution ought to have more students graduating but students were not funded so they did not enrol for the second year in order to graduate. Clearly, the Institution ended up with lower postgraduate output rates, affecting its reputation negatively.

Additionally, postgraduate research challenges affect a postgraduate student in various ways, such as their not meeting deadlines, prolonging the attainment of their certificate. At the point when students do not meet their intended deadlines, the funding is likewise affected since students' sponsorships tend to be withdrawn.

There is nobody who wants to support a student that has neglected to complete their studies in record time. This influences the research productivity of a nation, since the nation will end up producing less material recorded on the SCOPUS database. The following subsection discusses postgraduate research challenge mitigation strategies.

The respondents proposed some ways to address postgraduate research challenges, these included introducing cohort supervision. Using this strategy would address the issues arising from postgraduate research challenges. Implementing this strategy would entail students meeting in groups to hold discussions among themselves, with their supervisor and a member of the department present. Cohorts can significantly help their peers avoid challenges. The respondents contended that the students should not present their studies only to Faculty Boards but that there ought to be other opportunities created for students so that they can present every single chapter before completing a long piece of written work. This would enable students to acquire more guidance, originating from the supervisor, as well as from different students and staff members too. This could also help accelerate the research proposal approval process, since the student would not have numerous amendments to make in order to secure approval.

The respondents also argued that the institution should employ academic research professors who will specialise only in research. Employing research professors would help to enhance postgraduate students' research skills and improve the research's value to the University of Zululand. The respondents made it clear that the Institution should also begin recognising its own unique strengths. This would help the University to become known as a vibrant research hub, improving its reputation. Regarding the issue of funding, respondents argued that postgraduate studies should be free.

In addition, the respondents recommended that the faculties at the University of Zululand recurriculate their programmes to fit in with the research strategy of the University. The respondents also said that the RIO is doing well to guarantee that postgraduate students develop good writing skills. The RIO offers workshops on proposal writing, thesis writing and grant-proposal writing, yet too few students take advantage of these options. Respondents suggested that the University should make

these workshops mandatory and that postgraduates should produce a certificate to demonstrate workshop attendance.

When students submit their long written work or proposals, this certificate must be handed in to show that they have committed to the entire process. On the issue of housing, respondents recommended that the Institution should secure a bank loan to construct a new residence on campus. The Institution would pay back the bank monthly like a bond, and within ten years, the building would be the property of the institution and it coud then start making money out of it. This will function like a long-term investment. The following subsection lays out the recommendations for this study.

5.1 Recommendations

Consistent with the recommendations made by Johnson and Clarke (2003) in regards to postgraduate training and supervision, I also conclude that qualitative researchers should be motivated to consider issues relating to developing compatibility, developing connections with participants, managing vulnerability, listening to untold stories, and paying attention to the effects of mental and physical exhaustion. Consequently, this study recommends the following:

- UNIZULU should adopt a system to retain skilled academic staff. The University should review its salary structure and remuneration strategies, for example, by introducing compensation frameworks, performance appraisals and offering incentives to postgraduate students in order to improve performance and research productivity. Students should not feel dismissed or ignored during their studies. The Government and HEIs should, using all available means at their disposal, adhere to policies that will inspire innovation.

- Research supervisors should have fully developed subject aptitudes and be trained with the end goal of imparting research skills to students in mind. The University must find ways to capitalise on the presence of research students on campuses and the opportunities this creates to save and rationalise funds. This can be achieved by creating teaching and learning opportunities where students can impartially investigate and question their educational experiences.

- Universities should appoint supervisors who have the fundamental abilities and experience to monitor, support and guide research students' work. Additionally, they should be able improve the quality of research. To this end, it is vital that seminars and workshops are combined with postgraduate programmes to impart information and skills in spheres such as: time management, project management, referencing, and writing. Access to proficient supervision has previously been proposed for postgraduate students and researchers. However, it has not yet been embraced to its full potential. Postgraduate students could possibly use supervision sessions for questioning, tutoring and expertise advancement, all of which would improve a postgraduate's capacity to undertake research without detracting from their wellbeing and prosperity. Access to proficient supervision (which might be outside the University) may help postgraduates to manage the potential anxiety related to undertaking research, and avoiding burnout. While most universities offer access to hazard studies, research supervisors occasionally make use of these services out of consideration for those they direct. This could be viewed as a failure of research management, one that could be to the detriment to postgraduate students (Sampson and Thomas, 2003).

- Willpower has been identified as a critical technique for limiting the danger that postgraduates face in terms of completing their studies on time (Brannen, 2008; Campbell, 2002; James and Platzer, 2009; Renzetti and Lee, 2003; Rowling, 2012; Rubin and Rubin, 2005). Procedures like questioning, directing, and planning rest breaks are helpful throughout the writing process for maintaining postgraduates' wellbeing and setting them on the path to success. In the event that postgraduates are not furnished with opportunities to debrief, there is the possibility that they will carry research stories with them, which might divert them from their research passions in future. This study has demonstrated that postgraduates can be deeply invested in their work, putting them at risk of burnout. Postgraduates should be urged to leave enough space between interviews to process any data from an interview that might be destructive to them. They should likewise have set up various rules about ending research relationships positively, incorporating techniques to manage their feelings if a

research subject should die or experience trauma during the study. Postgraduates should be empowered and supported, both by their supervisors and the University in general, to recognise burnout and be proactive in managing it. Support may appear as formal research rules or particular procedures created in conjunction with a postgraduate research supervisor.

- This study prescribes that research be made an obligatory subject from undergraduate level, helping to enhance research aptitudes in South Africa. It ought to be remembered that postgraduate research has the ultimate intention of promoting postgraduate research skills universally. Supervisors' and students' readiness and training should concentrate on the improvement of their specific understanding of the research process and its ensuing content.

- Only academics who are qualified as specialists in postgraduate research should supervise postgraduates. This guarantees the effective teaching and learning of postgraduate research. Student and supervisor training and intervention programmes should be a priority, contributing to the postgraduate's education in powerful and dynamic ways.

- Tertiary institutions need to recognise the importance of research produced by postgraduates and they should prioritise postgraduate students accordingly. There should be a continuous postgraduate research development system put in place to capacitate students and supervisors since research is dynamic and broad in range and scope.

- In-service student development programmes should be designed for postgraduate research as these would contribute positively towards the effective teaching and learning of research. These in-service student and supervisor training programmes should aim to identify new developments and changes in the focus area of research, instructing students and supervisors accordingly.

- Cluster groups should be formed for supervisors and students to obtain the necessary support for facilitating effective learning about research procedures.

Postgraduates who are doing research should be discouraged from working in isolation and should be able to find group support. The Institution should introduce cohort supervision. The term “cohort supervision” is one that emerges out of contemporary education studies’ dynamic enthusiasm for the field of co-agent learning. Educators use different methods of co-agent learning at every level from pre-school to graduate school. Furthermore, concerns about poor completion rates and the nature of research supervision (Burnett, 1999) have given rise to the international trend of moving away conventional model of Doctoral supervision to a cohort model, which allows for shared and intelligent learning using an organised programme (Tareilo, 2007). Studies show that the cohort provides social fulfilment and enthusiastic assistance through forging a shared belief system among peers (Mandzuk, Hasinoff and Seifert, 2003). Individual ideas cannot compare to collective ideas, and it is the collection of ideas that will help improve research skills and quality in South Africa. In this way, postgraduate research challenges can be overcome.

- Postgraduate studies should be free, and once a student is registered for a postgraduate qualification, there should be enough funding in place for them to start their research with confidence. HEIs need to recognise the significance of postgraduate research and they should prioritise these students. The ‘Fees Must Fall’ campaign in South Africa has attempted to address the issue of high fees in South Africa yet students have failed to win this battle for now. Numerous countries that once offered free higher education, such as China, Australia, Mozambique, Kenya and England, have since instated cost-sharing strategies (Busemeyer, 2015). Kenya, for instance, promised payment of educational costs in 1991 and repealed every single individual payment that university students received until this point, charging students for the shortfall.

This was followed in the late 1990s by the purported double track educational cost fee approach whereby universities enrolled two sorts of students: exceptionally state-sponsored students selected on numerus grounds, and a second group of “unsubsidised: students who paid market-related fee amounts” (Oketch and Somerset, 2010).

In South Africa, students are demanding free higher education. While a few students are demanding free education for poor people, the majority appear to want free higher education for all. Low levels of higher education in South Africa is a real challenge: State subsidies for higher education has been declining in real terms (1.1% from 2000 to 2012), while money from the fiscus dedicated to education has stalled around 0.7%, which is low by global standards (Wangenge-Ouma, 2012). Nonetheless, NSFAS's commitment can be secured, Government's contribution could add up to more than 1%. However, there are as yet insufficient funds. Universities have been hiking tuition fees to relieve financial shortfalls and related vulnerabilities.

Then again, NSFAS cannot provide financial support to all the poor who deserve it. This includes families with an income lower than R130 000 per annum. Outstanding debt for universities is estimated to be about R5-billion, while for NSFAS it is more than R15-billion. Students are baffled by the rising costs of higher education especially in light of the little financial aid that's available. From a financial point of view, these are exceptionally pressing concerns (Garritzmann, 2015). Yet, students have also argued that charging fees goes against the Freedom Charter of 1955. These political goals were not concerned with the same political, financial and educational factors affecting South Africa youth today.

The case for free higher education depends on two principle premises: (a) social equity: expanding higher education access for poor people, particularly previously disadvantaged groups, despite rising educational costs, and (b) development externalities. Given South Africa's ever increasing skills deficit, free higher education is considered vital for developing the human capital needed to kick start the economy. These are the very same catalysts that informed the free higher education experiment in other African nations.

Moreover, the need to legitimate the ideals and struggles of the past cannot be underestimated as a salient factor in the push for free higher education, particularly by government officials (Garritzmann, 2015). More than 20 years since South Africa became a democracy, the country is at odds with itself, being characterised by high youth aspiration coupled with high youth unemployment. As a result, higher education is extremely oversubscribed even this ladder of opportunity becomes more

limited for the working classes. Given the general disappointment concerning Government's ability to deliver on its promises, the recent reach for free higher education could possibly be viewed as a strategy used by Government officials used to deflect attention away from flagging voter numbers and a dwindling of support among its disgruntled core constituencies. Judged on its own merit, free higher education would align neatly with the nation's project to promote equity and transformation. Will free higher education be the forerunner to a truly socialist South Africa? It is not the norm for South Africa to learn from the experiences of other African nations.

The more familiar approach has been to look instead at the global North – the United Kingdom, Australia, and Germany and generally, alternate BRICS nations: Brazil, Russia, India and China (Hughes, 1994). With respect to free higher education, South Africa should look to the failures of its "northern" tutors for lessons in what to avoid. Further, free higher education in Africa has not addressed the challenge of universalising access to higher education nor has it facilitated cultural inclusion. These events prompt the following two observations:

- There should be a consistent postgraduate research improvement framework, set up to capacitate students and supervisors since the research tends to be broad and dynamic. Student improvement and supervisor training programmes should aim to recognise new developments and changes in their fields of research and prepare the students and supervisor to respond with agility.

- Research finds that adolescent traumas are associated with social inhibition in later life. University students from poor families' study while facing challenging conditions. They study in shacks or other cramped living quarters, usually with poor light and sanitation, and poor nutrition. A few different variables are essential in determining the success of students. Poor students' experiences can have a negative effect on their ability to integrate socially, increasing their likelihood of dropping out. These issues are, of course, further exacerbated by financial challenges which NSFAS, at present, is unable to relieve. Unless South Africa genuinely addresses the issues of poverty and inequality, it is unlikely that the high dropout rates among black students will end anytime soon (DHET, 2015).

5.2 Conclusion

The thesis is separated into five chapters. Drawing from the available literature, I, the researcher, contribute to a common-sense and theoretical foundation to the discourse of postgraduate research in South Africa and the world over in chapter one. The next chapter concentrated on the the theoretical framework and literature review. In the third chapter the study plots the strategies used to comprehend and evoke the perspectives of the postgraduate students and academics in order to answer the research questions. The concluding chapter provides a summary of findings before providing recommendations for policy and practise regarding postgraduate research in South Africa with an emphasis on the University of Zululand. All of the respondents agreed with the proposition that postgraduate students face a number of challenges in relation to postgraduate research. The challenges facing postgraduate were identified with their sources.

This chapter began with a discussion of the findings of the study. Its limitations were identified and opportunities for future research were outlined. Notwithstanding those limitations, which have been identified here, the study accomplished what it set out to do, which was to identify and examine the challenges of postgraduate student research and present possible mitigation strategies. This was done specifically with a view to improving UNIZULU's postgraduate degree-completion rate, although some of these findings may also be applicable to other South African HEIs, particularly those that are also previously disadvantaged.This study also interrogated the perceptions of postgraduate students about postgraduate research challenges. It also revealed the factors responsible for preventing postgraduate scholars from developing the high level of research competences needed to improve the quality of their research.

While institutions like UNIZULU have excelled in ensuring effective postgraduate education and quality research, regrettably, implementation on the ground is poor. A radical approach that takes into account organisational efficiency and the institutional needs of postgraduate students is needed urgently to revamp the higher educational sector in KZN. Accordingly, a number of possible solutions have been identified and suggested to reduce or eliminate these challenges. This study suggests that the KZN education sector, and specifically UNIZULU, reviews and implements this study's

recommendations in order to secure the necessary annual investment in postgraduate research. This research is timely and relevant at this time in the history of South Africa and other developing countries.

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APPENDIX A: INFORMED CONSENT FOR INTERVIEWS

Informed Consent Form [Masters of Administration] dissertation research

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.

Project Title: Challenges of Postgraduate Research: Perspectives from University of Zululand

Researcher: Bukhulubenkosi N. Mthethwa

This discussion is being conducted to get your inputs in a research study entitled as: The Challenges of Postgraduate: Perspectives from University of Zululand.
The study is specifically interested or purported in exploring the challenges faced by postgraduate students at the University of Zululand and the sources of these challenges. The study also purported to inform evidence-based challenges management practices in South African Higher Education Institution's (HEI's), perspectives from the University of Zululand.

Before you agree to take part, the person organising the research must explain the project to you.

If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you to decide whether to join in.

Participant's Statement

I agree that:

- I have read the notes written above and the Information Sheet, and understand what the study involves.
- I understand that if I decide at any time that I no longer wish to take part in this project, I can notify the researchers involved and withdraw immediately.
- I consent to the processing of my personal information for the purposes of this research study.
- I understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998.
- I agree that the research project named above has been explained to me to my satisfaction and I agree to take part in this study.
- I understand that my participation will be taped/video recorded and I consent to use of this material as part of the project.
- I understand that the information I have submitted will be published as a report and I will be sent a copy. Confidentiality and anonymity will be maintained and it will not be possible to identify me from any publications.
- I agree that my non-personal research data may be used by others for future research. I am assured that the confidentiality of my personal data will be upheld through the removal of identifiers.
- I agree that my name, job title and place of work may be identified in the final report, and waive the right to anonymity for the purposes of this research.

Signature: Date:

Thank you for your interest in taking part in this research!

Name of a Respondent:	.....
Date of Interview :	.....

SECTION A: Social – Demographic Characteristics of Respondents: Please mark with an (√) in one box only with your most appropriate response.

1. What is your gender?

Male	(1)
Female	(2)

2. What is your Race?

African	(1)
Coloured	(2)
Indian	(3)
White	(4)
Other	(5)

3. Please select your age range

20-25	(1)
25-30	(2)
30-35	(3)
Other	(4)

4. What is your Marital Status?

Single	(1)
Married	(2)
Separated	(3)
Divorced	(4)

5. What best describes you?

Lecturer	(1)
Faculty dean	(2)
Staff from research & Innovation	(3)
postgraduate	(4)

6. How can you rate your research understanding?

Strongly understand	(1)
understand	(2)
Neutral	(3)
Do not Understand	(4)
Strongly Do not Understand	(5)

APPENDIX B: QUESTIONNAIRE FOR POSTGRADUATE STUDENTS

STRICTURED QUESTIONNAIRE FOR POSTGRADUATE STUDENTS

Orientation:

Good day. I am Bukhulubenkosi N. Mthethwa, a Masters Candidate from the Department of Public Administration and Political Science at the University of Zululand. This discussion is being conducted to get your inputs in a research study entitled as: **The Challenges of Postgraduate: Perspectives from University of Zululand.**

The study is specifically interested or purported in exploring the challenges faced by postgraduate students at the University of Zululand and the sources of these challenges. The study also purported to inform evidence-based challenges management practices in South African universities, perspectives from the University of Zululand.

Structured Questionnaires has been developed that and there are certain questions I would like you to answer and I am especially interested in your feelings / attitudes / perceptions about the study and any suggestions you may have. Although I will ask you your name and other details, your responses are confidential. Your name will not be disclosed in any report. Please feel free to be honest in your responses. Please note that your participation is voluntarily, and that it will not cause any harm as whatever information you provide will remain strictly confidential between you and I.

I pledge to ensure anonymity where required and as agreed between us through the use of code names. There are no foreseeable risks for your participation in this study, and if you have any question or concerns about participating in this study, please contact my supervisor(s) at the following E-mail address: (OgunnubiR@unizulu.ac.za) (IsikeC@unizulu.ac.za). You are free to withdraw or stop from this study at any time of your choice without any negative or undesirable consequences to you. You will not be provided with any benefits from participating in the study.

Please sign below as an indicator of your consent and voluntary participation in this study.

Signature of a Participant
or Respondent

Signature of a Reseacher
(071 076 4029)

Name of a Respondent : _____

Name of University : _____

Campus : _____

Date of Interview : _____

SECTION A: Close Ended Questions- Social Demographic Characteristics of Respondents:

(Please mark with an (√) in one box only with your most appropriate response).

1. What is your gender?

Male	(1)
Female	(2)

2. What is your Race?

African	(1)
Coloured	(2)
Indian	(3)
Other	(4)

3. Please select your age range

20-25	(1)
25-30	(2)
30-35	(3)
Other	(4)

4. What is your Marital Status?

Single	(1)
Married	(2)
Separated	(3)
Divorced	(4)

5. Please select your faculty.

Arts	(1)
Admin	(2)
Commerce	(3)
Law	(4)
Education	(5)
Science	(6)

6. What is your current year of study?

4th year	(1)
5th year	(2)
6th year	(3)
Other	(4)

SECTION B: Close-Ended Questions- Students Background Information:
(Please mark with an (√) in one box only with your most appropriate response)

7. Who do you live with while studying?

Mother	(1)
Father	(2)
Both parents	(3)
Other	(4)

8. Please tick appropriate box for the educational level of your parent (s)/Guardian?

Primary Education	(1)
Secondary Education	(2)
Tertiary Education	(3)
Other	(4)

9. How can you rate your knowledge about research?

Strongly Knowledgeable	(1)
Knowledgeable	(2)
Neutral	(3)
Unknowledgeable	(4)
Strongly Unknowledgeable	(5)

Section C: Open ended Questions (Challenges of Postgraduate Research: Perspectives from University of Zululand)

10. What are the challenges encountered by postgraduate students when conducting research at UNIZULU?

11. What are the sources of these challenges faced by postgraduate students at UNIZULU?

12. How do these challenges impact research productivity of postgraduate students at UNIZULU and South African HEIs broadly?

13. In what way can these challenges of postgraduate students' research be addressed?

Thank you for your Time!

APPENDIX C: LIST OF THE FOCUS GROUP INTERVIEW PARTICIPANTS

UNIVERSITY OF ZULULAND

University of Zululand, Private Bag X1001, KwaDlangezwa, 3886

W: www.unizulu.ac.za

Faculty of Commerce, Administration and Law

Project Title: Challenges of Postgraduate Research: Perspectives from the University of Zululand

Cell: +27 71 076 4029 ---E: bmatetwa@gmail.com

ATTENDANCE REGISTER: FOCUS GROUP INTERVIEWS

INITIAL(S)	SURNAME	EMAIL	FACULTY
T.R	Radzilani	tradzilani@sars.gov.za	Commerce, Admin and law
MI	Maudu	Mi.maudu@gmail.com	education
T.M	Sitsula	TmSitsula@gmail.com	EDUCATION
L	Thejane	thejanes4@gmail.com	ARTS
S	ndulini	Sfoneh.ndulini@gmail.com	Science
S	Maliehe	sidllmaliehe@gmail.com	Science
T.	GAMA	gamapatience@yahoo.com	ARTS
S	SibEKO	SifisoSibeko@me.com	Arts

APPENDIX D: LIST OF PARTIPANTS FOR INTERVIEWS AND QUESTIONS

INITIALS & SURNAME	DATE OF INTERVIEW	PLACE OF INTERVIEW
Prof I KASSERAM	09 June 2017	Faculty of Commerce, Admin & Law
Miss NN JILI	13 July 2017	Faculty of Commerce, Admin & Law
Prof A KAPPO	13 July 2017	Faculty of Science and Agriculture
Prof N KUNENE	12 June 2017	Faculty of Science and Agriculture
Dr. MAN DUMA	19 June 2017	Faculty of Education
Prof DR NZIMA	17 July 2017	Faculty of Education
Dr. TC ADETIBA	19 July 2017	Faculty of Arts
Prof Ocholla	24 July 2017	Faculty of Arts
Mr SMD MANQELE	26 May 2017	Research and Innovation Office

LIST OF ALL INTERVIEW QUESTIONS FOR ALL INTERVIEWEES

1. What are the challenges encountered by postgraduate students when conducting research?

2. How do you think these challenges impact research productivity specifically at the University of Zululand?

3. What has been done by the Faculty to mitigate these challenges of postgraduate research?

4. How does the Faculty deal with the problem of supervision?

5. How can training at the undergraduate level improve postgraduate research?

6. Since you were once a student, what are the techniques you used to deal with research challenges at your level?

7. In what way do you think these challenges can be addressed?

UNIVERSITY OF ZULULAND
RESEARCH ETHICS COMMITTEE
(Reg No: UZREC 171110-030)

RESEARCH & INNOVATION
Website: http://www.unizulu.ac.za
Private Bag X1001
KwaDlangezwa 3886
Tel: 035 902 6887
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ETHICAL CLEARANCE CERTIFICATE

Certificate Number	**UZREC 171110-030 PGM 2017/363**							
Project Title	**Challenges of Postgraduate Research: Perspectives from University of Zululand**							
Principal Researcher/ Investigator	BN Mtetwa							
Supervisor and Co-supervisor	Prof CA Isike		Dr RO Ogunnubi					
Department	Public Administration							
Faculty	Commerce, Administration and Law							
Type of Risk	Low – Desktop, fieldwork or laboratory research only							
Nature of Project	Honours/4th 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. The Researcher may therefore commence with data collection as from the date of this Certificate, using the certificate number indicated above.

Special conditions:

(1) This certificate is valid for 2 years from the date of issue.
(2) Principal researcher must provide an annual report to the UZREC in the prescribed format [due date-30 April 2018]
(3) Principal researcher must submit a report at the end of project in respect of ethical compliance.
(4) The UZREC must be informed immediately of any material change in the conditions or undertakings mentioned in the documents that were presented to the meeting.

The UZREC wishes the researcher well in conducting research.

Professor Gideon De Wet
Chairperson: University Research Ethics Committee
Deputy Vice-Chancellor: Research & Innovation
15 May 2017

CHAIRPERSON
UNIVERSITY OF ZULULAND RESEARCH
ETHICS COMMITTEE (UZREC)
REG NO: UZREC 171110-30
15 -05- 2017
RESEARCH & INNOVATION OFFICE