

Quality of doctoral education in nursing in South Africa

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*All glory to God, who is able,
through His mighty work
within us, to accomplish
infinitely more than we might
ask or think.*

~ Ephesians 3:20 ~

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ABSTRACT

The number of doctoral programmes in nursing has rapidly multiplied in many countries of the world, with each doctoral programme varying not only between countries, but also between higher education institutions within countries. This has led to a concern about the quality of doctoral education in nursing and the development of quality criteria, standards and indicators (QCSI) for doctoral education in nursing that can be applied globally. This study is part of an international collaborative study to compare the quality of doctoral education in nursing among Australia, Japan, Korea, South Africa, Thailand, United Kingdom (UK) and the United States of America (USA) using the QCSI criteria, i.e. the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, the availability of institutional resources and evaluation of the programme. In South Africa, no study has ever been conducted at a national level to evaluate the quality of doctoral education in nursing.

Linking to the global need, this research aimed to explore and describe the quality of doctoral education in nursing in South Africa and to develop a strategy to improve the quality of doctoral education in nursing in South Africa. The aim was achieved through five objectives: exploring and describing the quality of doctoral education in nursing in South Africa from the perspectives of nursing deans, academic personnel, doctoral graduates and doctoral students with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme. A further objective was to develop a strategy to improve the quality of doctoral education in nursing in South Africa. The design of the study was quantitative, with exploratory, descriptive and contextual research strategies.

The research followed specific steps that consisted of two phases. Phase one consisted of the first four objectives of the study and entailed a comprehensive literature review and empirical research using four structured (Likert-type) internet-mediated (by

email) questionnaires to explore and describe the quality of doctoral education in nursing in South Africa from the perspectives of nursing deans, academic personnel, doctoral graduates and doctoral students. Sixty-two (62) problems were identified from the literature review and the empirical research, which served as the evidence base towards developing a strategy for improving the quality of doctoral education in nursing in South Africa in phase two, which consisted of objective five of the study. The strategy for improving the quality of doctoral education in nursing in South Africa was developed using a strategic process to develop a vision, mission, values, principles, assumptions, strategy objectives, and functional tactics, based on Total Quality Management (TQM) philosophy. Finally, the research was evaluated, limitations were identified and recommendations were formulated for practice, education, research and policy.

KEYWORDS: Doctoral education, nursing, quality, South Africa, strategy, Total Quality Management.

UITTREKSEL

Die getal doktorale programme in verpleegkunde het in talle lande van die wêreld vinnig toegeneem. Doktorale programme in verpleegkunde wissel egter nie net tussen lande nie, maar ook tussen hoërondewysinstellings in daardie lande. Dit het gelei tot kommer oor die gehalte van verpleegkunde-onderrig op doktorale vlak en die ontwikkeling van gehaltekriteria, standaarde en aanwysers (QCSI – quality criteria, standards and indicators) vir verpleegkunde-onderrig op doktorale vlak wat wêreldwyd toegepas kan word. Hierdie ondersoek vorm deel van 'n internasionale samewerkingsondersoek om die gehalte van verpleegkunde-onderrig op doktorale vlak in Australië, Japan, Korea, Suid-Afrika, Thailand, die Verenigde Koninkryk (VK) en die Verenigde State van Amerika (VSA) te vergelyk, in verband met die aard van die missie, die gehalte van akademiese personeel, doktorale studente, die kurrikulum, programadministrasie en infrastruktuur, die beskikbaarheid van institusionele hulpbronne en die evaluering van die program. In Suid-Afrika is geen ondersoek nog ooit op nasionale vlak gedoen om die gehalte van verpleegkunde-onderrig op doktorale vlak te evalueer nie.

In aansluiting by die wêreldwye behoefte is hierdie navorsing daarop gemik om die gehalte van verpleegkunde-onderrig op doktorale vlak in Suid-Afrika te ondersoek en beskryf en 'n strategie te ontwikkel om die gehalte van verpleegkunde-onderrig op doktorale vlak in Suid-Afrika te verbeter. Hierdie doelstelling is met behulp van vyf doelwitte bereik: die ondersoek en beskrywing van die gehalte van verpleegkunde-onderrig op doktorale vlak in Suid-Afrika uit die oogpunt van verpleegkundedekane, akademiese personeel, doktorale graduandi en doktorale studente met betrekking tot die aard van die missie, die gehalte van akademiese personeel, doktorale studente, die kurrikulum, programadministrasie en infrastruktuur, beskikbaarheid van institusionele hulpbronne en die evaluering van die program. 'n Verdere doelwit was om 'n strategie te ontwikkel om die gehalte van verpleegkunde-onderrig op doktorale vlak in Suid-Afrika te verbeter. Die ontwerp van die ondersoek was kwantitatief, met ondersoekende, beskrywende en kontekstuele navorsingstrategieë.

Die navorsing het spesifieke stappe gevolg wat uit twee fases bestaan het. Fase 1 het uit die eerste vier doelwitte van die studie bestaan en 'n omvattende literatuuroorsig en empiriese navorsing met behulp van vier gestruktureerde (Likert-tipe) internet-gemedieerde (e-pos-) vraelyste behels om die gehalte van verpleegkunde-onderrig op doktorsvlak in Suid-Afrika uit die oogpunt van verpleegkundedekane, akademiese personeel, doktorsgraduandi en doktors studente te ondersoek en beskryf. Twee en sestig (62) probleme is uit die literatuuroorsig en die empiriese navorsing geïdentifiseer, en het gedien as die bewysbasis vir die ontwikkeling van 'n strategie in fase 2 om die gehalte van verpleegkunde-onderrig op doktorsvlak in Suid-Afrika te verbeter. Dit was doelwit 5 van die ondersoek. Die strategie vir die verbetering van die gehalte van verpleegkunde-onderrig op doktorsvlak in Suid-Afrika is ontwikkel met behulp van 'n strategiese proses om 'n visie, missie, waardes, beginsels, aannames, strategiedoelwitte en funksionele taktieke op grond van 'n Totale Gehaltebestuur (TGB)-filosofie te ontwikkel. Laastens is die navorsing geëvalueer, beperkings is geïdentifiseer en aanbevelings vir die praktyk, onderrig, navorsing en beleid is geformuleer.

SLEUTELWOORDE: Onderrig op doktorsvlak, verpleegkunde, gehalte, Suid-Afrika, strategie, totale gehaltebestuur.

ACRONYMS

A

AACN	American Association of Colleges of Nursing
ANRS	Agence Nationale de Recherche sur le Sida
AP	Academic Personnel

B

C

CASN	Canadian Association of Schools of Nursing
CDNM	Council of Deans of Nursing and Midwifery Australia and New Zealand
CHE	Council on Higher Education
CoE	Centres of Excellence

D

DG	Doctoral Graduate
DoE	Department of Education
DoH	Department of Health
DS	Doctoral Student
DST	Department of Science and Technology

E

EDCTP	European and Developing Countries Clinical Trials Partnership
ENHR	Essential National Health Research
ETQA	Education and Training Quality Assurer

EU European Union

F

f frequency

FUNDISA Forum of University Nursing Deans in South Africa

G

H

HBU Historically Black University

HEQC Higher Education Quality Committee

HEQF Higher Education Qualifications Framework

HWU Historically White University

I

ICM International Confederation of Midwives

ICN International Council of Nurses

INDEN International Network for Doctoral Education in Nursing

ISBN International Standard Book Number

ISSN International Standard Serial Number

J

K

L

M

M Mean

MRC Medical Research Council

N

N Population

n Sample population

NCESSRH National Committee for Ethics in Social Science Research in Health

ND Nursing Dean

NPHE National Plan for Higher Education

NQF National Qualifications Framework

NRF National Research Foundation

NUFU Norwegian Programme for Development, Research and Education

NWU North-West University

O

OED Oxford English Dictionary

OSD Occupation Specific Dispensation

P

p phi coefficient

PI Problem Identified

PQM Programme and Qualification Mix

Q

QC Quality Council

QCSI Quality Criteria, Standards, and Indicators

QCTO Quality Council for Trades and Occupations

R

S

SA South Africa

SADC South African Development Community

SANC South African Nursing Council

SAPSE South African Post-Secondary Education

SAQA South African Qualification Authority

SARChi South African Research Chairs Initiative

SD Standard Deviations

T

THRIP Technology and Human Resources for Industry Plan

TQM Total Quality Management

TQMe Total Quality Management elements

U

UK United Kingdom

UNESCO United Nations Educational, Scientific and Cultural Organization

UNICEF United Nations Children Fund

UNISA University of South Africa

USA United States of America

V

W

WHO World Health Organization

X

Y

Z

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Chapter One

Orientation to the research study



<http://i.ehow.com/images/a04/kf/q2/define-associate-degree-800X800.jpg>

*We have a hunger of the mind which
asks for knowledge of all around us, and
the more we gain, the more is our desire;
the more we see, the more we are
capable of seeing.*

~ Maria Mitchell ~

CHAPTER ONE

ORIENTATION TO THE RESEARCH STUDY

1.1 OVERVIEW OF THE CHAPTER

An orientation to the research study is provided in this chapter. The chapter commences with the introduction, background and problem statement to the study, followed by the identification of the aim and objectives of the study, and a discussion of the researcher's assumptions with regard to the ontological, epistemological and methodological dimensions. A brief description of the research design and research method is provided, and the chapter concludes with the research study outline.

1.2 INTRODUCTION

This study is part of an international collaborative study to compare the quality of doctoral education in nursing in Australia, Japan, Korea, South Africa, Thailand, United Kingdom (UK) and the United States of America (USA), and to develop strategies for improving the quality of doctoral education in nursing among these countries. In this study, the quality of doctoral education in nursing in South Africa was determined and a strategy to improve the quality of doctoral education in nursing in South Africa was developed. As a background to this study, doctoral education in nursing will be discussed regarding its history, models of delivery, the framework of quality criteria, standards and indicators, and the current status of doctoral education in nursing in South Africa.

1.3 BACKGROUND AND RATIONALE FOR THE STUDY

Globalization, scientific advancements, technological developments and interdisciplinary care have transformed the health care system and increased information and technology to such an extent that health care practitioners can know better and do more than they ever could have imagined (Ketefian, Davidson, Daly, Chang & Srisuphan, 2005a:150; Slevin & Hanucharurnkul, 2005:8). In fact, the advances of modernity are occurring at such a pace and quantity that effective evaluation, dissemination and incorporation of all these new findings into practice is becoming an almost insurmountable task (Graham, Logan, Harrison, Straus, Tetroe, Caswell *et al.*, 2006:13). Even with all these advances and information, the health care system has not been spared some major challenges and effects of modernity – ranging from a significant global burden of infectious diseases, chronic diseases, an aging population (Murray & Lopez, 1997) and a constant increase in scarcity of resources (Slevin & Hanucharurnkul, 2005:8).

It is within this dynamic health care system that the nursing profession is forced to keep up with the demands of an increasingly consumer-driven service, where scrutiny, and demand for more and better quality services requires evidence-based, outcome-driven interventions in many different contexts of care. This necessitates keeping abreast with an ever-changing and increasingly complex knowledge economy, the latest technological advancements, and changing societal expectations, in a system riddled with fiscal constraints and a lack of human resources (Ketefian *et al.*, 2005a:153; Woodford & Nyquist, 2005:71). In view of these national and global challenges, continuing education in nursing is necessary, and in particular doctoral education in nursing, to improve the quality and efficiency of nursing care and the health of the public, by generating, evaluating, disseminating and incorporating new knowledge into practice. Doctoral education in nursing has been identified as a critical factor in developing scholarly leaders in practice, management, research, policy and education (Ketefian *et al.*, 2005a:150). Leaders in nursing that can develop and enhance the

profession's body of knowledge and skills in order to devise innovative solutions to these many national and global challenges and ensure that the nursing profession becomes proactive in its response to such challenges, and shapes itself to serve more effectively in the future (Slevin & Hanucharunkul, 2005:4).

Doctoral education in nursing is fairly recent, when compared with the history of doctoral education in other professional fields. Nurses began enrolling in and completing doctoral programmes in the early 1930s in the USA, while other parts of the world began doctoral programmes in nursing in the 1960s (Meleis, 2005:xi) and South Africa joining this movement in 1967 (Potgieter, 1992:162). Since the inception of doctoral education in nursing in the 1930s this movement has multiplied to over 273 doctoral programmes in nursing (Ketefian *et al.*, 2005a:150) in over 31 countries globally (Ketefian *et al.*, 2005a:152). These doctoral programmes in nursing vary in their aims, title, mode of delivery, prerequisites, content, assessment standards and awards, but mainly adhere to one of two major models that have influenced the patterns of doctoral education worldwide (Ketefian *et al.*, 2005a:152). These models have been described as the North American model (Ketefian, Neves & Gutierrez, 2001) and the European model (McKenna & Cutcliffe, 2001).

In the North American model, there is extensive coursework for about two years, followed by comprehensive examinations, research experiences and one or two independent research projects, of which the doctoral thesis is usually the second project. Doctoral students must select a thesis topic from academic personnel research subject areas and are mentored by an academic personnel member who is a specialist in the subject area as evidenced by a track record of peer-reviewed publications and external funding. Upon completion, doctoral students publicly defend their doctoral theses, while being evaluated by an examining committee (Ketefian *et al.*, 2001; Ketefian *et al.*, 2005a:152; Redman & Chenoweth, 2005:88). In the European model, there is generally little or no formal coursework, and the thesis research is emphasized. The latter is supervised by an academic personnel member who is a specialist in the

subject area, as evidenced by a track record of peer-reviewed publications and external funding. Upon application to the doctoral programme, the candidate must present a research proposal of the intended research, and upon acceptance; timelines and regular supervisory meetings are established to ensure student progression (Ketefian *et al.*, 2005a:153; McKenna & Cutliffe, 2001; Redman & Chenoweth, 2005:88).

The Doctor of Philosophy (PhD) is the most commonly offered research-focused degree, although other variations to this degree have been established, such as the PhD by published work and doctorates by portfolio, which focus primarily on research training. Most recently the professional and practice doctorates have arisen, which emphasize professional practice issues and clinical scholarship. These doctorates offer a component of coursework and independent research that culminates in a shorter-length thesis (Ketefian *et al.*, 2005a:153; Kim, McKenna & Ketefian, 2006:478 & 486).

Doctoral education in nursing is offered at only four countries in Africa, namely: Egypt, Nigeria, Namibia, and at sixteen different higher education institutions in South Africa. In South Africa, doctoral education in nursing is research-focused and influenced by the European model. The doctoral education in nursing at each of these South African higher education institutions is guided by the National Qualifications Framework (NQF) Act 67 of 2008, which ensures the classification, registration, publication and quality of national qualifications, in conjunction with the South African Qualification Authority (SAQA) and the Council on Higher Education (CHE) regulatory bodies. These regulatory bodies provide higher education institutions with a broad indication of learning achievements or outcomes that need to be attained at doctoral level (Department of Education, 2008:7-8; Department of Education, 2009), but they do not prescribe the particulars of the doctoral programme. Thus, even though all sixteen higher education institutions in South Africa offer research-focused doctoral degrees in nursing, each higher education institution's doctoral programme in nursing differs significantly regarding the aim, title, mode of delivery, prerequisites, content, assessment standards and awards of doctoral degrees in nursing.

With such fundamental variances between different doctoral programmes in nursing, not only between nations, but also between higher education institutions within nations (Slevin & Hanucharurnkul, 2005:1), leaders in nursing worldwide began to question the quality and standards of doctoral education in nursing. In 2000, the International Network for Doctoral Education in Nursing (INDEN) constituted the Quality Criteria, Standards, and Indicators for doctoral education in nursing (QCSI) task team. It contained fifteen members from eight different countries covering five continents, to develop a set of criteria, standards and indicators that can be applied worldwide to ensure the quality of doctoral education in nursing (Kim *et al.*, 2006:477 & 481).

The QCSI task team investigated doctoral education in nursing in eight countries, in two phases over a three-year period, and drafted a document based on the position statement of the American Association of Colleges of Nursing (AACN) on “Indicators of Quality in Research-focused Doctoral Education in Nursing” (AACN, 2001). The document included the inputs from experienced educators and leaders in doctoral education in nursing worldwide. The seven major criteria that were identified in this investigation included: the nature of the institution’s mission, the quality of academic personnel, doctoral students, curriculum, programme administration, availability of institutional resources, and evaluation of the programme (Kim *et al.*, 2006:477-478, Kim & Ketefian, 2004:1). A full description of these quality criteria, sub-criteria, standards and indicators are presented in Paragraph 2.5. According to Kim *et al.*, (2006:488), these quality criteria, standards and indicators for doctoral education in nursing can be used worldwide as a guideline to measure the quality of doctoral education in nursing and identify threats to such quality (Kim *et al.*, 2006:488).

Globally, the criterion of availability of institutional resources with regard to academic personnel shortages has been identified as a major threat to the quality of doctoral education in nursing. The AACN has done much work to capture the gravity of this situation for the USA. In the USA, approximately 0.6% of all registered nurses were doctorally qualified in 2000 (Geolot, 2003 as cited in Ketefian, Olson & McKenna,

2005b:104). Approximately 49.4% of all permanent academic personnel were doctorally qualified (2001) (Berlin & Sechrist, 2002:50), but even here academic personnel shortages are rampant with over 803 vacancies identified at 554 schools of nursing (AACN, 2009a), of which most vacancies (90.6%) require or prefer a doctoral degree (AACN, 2009a). This shortage of academic personnel shows no sign of improving when you consider that the average age of doctorally qualified academic personnel in the USA is 53.2 years and that the average age of retirement is 62.5 years (Berlin & Sechrist, 2002:51). Furthermore, a national study of doctoral education in nursing in the USA showed that the average number of years students were registered for doctoral education in nursing was 8.8 years, and time elapsed between entry into a graduate programme to completion of doctoral education in nursing was 10.5 years (AACN, 2005), with the average age of recipients of doctoral degrees in nursing being 46.2 years (Berlin & Sechrist, 2002:51). This translates into only 15 years as a working academic personnel member (Joynt & Kimball, 2005:9). Moreover, the AACN (2009a) found that up to 1 002 qualified applicants were turned away from doctoral programmes in 2008 because of academic personnel shortages. Across the world, prominent nursing organizations such as the International Council of Nurses (ICN), the Canadian Association of Schools of Nursing (CASN), Council of Deans and Heads of United Kingdom University Faculties for Nursing and Health Professionals (CDH) and the Council of Deans of Nursing and Midwifery Australia and New Zealand (CDNM), have identified shortages of academic personnel in nursing as a crisis and are putting strategies in place to address the situation.

In South Africa, only 0.01 per cent of the South African population is doctorally qualified (Bawa & Vale, 2008:25) compared to India, another developing country, which has a 0.1 per cent doctorally qualified population. There are no statistics available with regard to the number of doctorally qualified nurses in South Africa, but there are currently 105 doctorally qualified nurses employed at nursing schools/departments/divisions across South Africa (FUNDISA, 2009a), which amounts to approximately 0.001 per cent of the nurse population being doctorally qualified. This dire situation shows no sign of

improving when one reflects on national nurse statistics. These statistics document that less than 0.06 per cent of registered nurses are younger than 25 years, 3.5 per cent are in the age group of 25-29 years, and 6.6 per cent are within the age group of 30-34 years (SANC, 2009a), which can only be expected to be mirrored in the South African nursing education system.

Academic personnel shortages is but one sub-criterion of the seven criteria identified by the QCSI task team as impacting on the quality of doctoral education in nursing, yet this one sub-criterion has far-reaching effects on academic personnel, doctoral students and resources. Academic personnel shortages demand that doctorally qualified academic personnel take on more student supervision than may be academically sound, which directly impacts on doctoral students, as there is decreased time for individual student guidance, which often increases the time to completion of doctoral education, and compromises the quality of work (Ketefian *et al.*, 2005b:112). This sub-criterion further impacts on the availability of institutional resources, as doctorally qualified academic personnel are burdened with such heavy workloads that it often precludes research activities and directly translates into a limited number of research programmes and funding available to doctoral students (Ketefian *et al.*, 2005b:107). Furthermore, newly doctorally qualified academic personnel receive limited mentorship from experienced academic personnel and are often pushed into leadership roles before they are ready, which often jeopardizes their research careers (Ketefian *et al.*, 2005b:111). All these factors, affect not only the quality of the doctoral education in nursing, but also inhibit scholarship and the nursing profession-at-large. As partly evidenced by considering that the USA delivers up to 457 doctoral studies per year (Redman & Chenoweth, 2005:90), while its South African counterpart has only delivered 472 doctoral studies in nursing in four decades, from 1967 to 2006 (Klopper, 2007), although in such a comparison, one must keep in mind that the USA has a much greater population and a higher standard of living in general.

The quality of doctoral education in nursing at higher education institutions in South Africa is a guess at best, because the current status of doctoral education in nursing is relatively unexplored, with few statistics, while those that exist are rife with inconsistencies. Strategies are being developed globally to increase doctorally qualified academic personnel, strengthen academic personnel research portfolios, improve resources and infrastructure to support doctoral students, increase funding for research activities of academic personnel and doctoral students, and prepare doctoral students for the global marketplace. However, South Africa has no baseline data to identify threats to quality or even to strategize to minimize these threats.

1.4 PROBLEM STATEMENT

Increasingly the nursing profession is challenged by market demands, compelling expectancies for more efficient and quality services, and escalating fiscal pressures (Ketefian *et al.*, 2005a:153; Woodford & Nyquist, 2005:71). This makes it imperative that the nursing profession develops a relevant body of knowledge and skills which meets these changing needs and provides leadership that is firmly grounded in knowledge and wisdom (Slevin & Hanucharukul, 2005:3). Doctoral education in nursing has been identified as a critical factor in developing scholarly leaders in practice, management, research, policy and education (Ketefian *et al.*, 2005a:150). Since the inception of doctoral education in nursing in the USA in the 1930s, doctoral education has multiplied to over 273 programmes in over 31 countries worldwide (Ketefian *et al.*, 2005a:150;152). However, in each doctoral programme, there is a great degree of variance, not only between nations, but also between higher education institutions within nations (Slevin & Hanucharukul, 2005:1).

The rapid growth and fundamental differences of doctoral education in nursing worldwide has caused many leaders in nursing to be concerned about the quality of doctoral education in nursing, and in particular the quality of the programme, academic personnel and their research, the doctoral students, and the availability of institutional

resources to support doctoral education (Kim, 2008:1). Motivated by this global concern, the QCSI task team of INDEN developed global quality criteria, standards and indicators for doctoral education in nursing that can be used to evaluate the quality of doctoral education globally and identify threats to such quality (Kim *et al.*, 2006:477 & 481). The seven major criteria that were identified in this investigation included: the nature of the institution's mission, the quality of academic personnel, doctoral students, curriculum, programme administration, availability of institutional resources, and evaluation of the programme with sub-criteria, standards and indicators to measure the quality of each specific criterion with regard to doctoral education in nursing (Kim *et al.*, 2006:477-478, Kim & Ketefian, 2004:1).

In South Africa, the current status of doctoral education in nursing is relatively unexplored, and no study has ever been conducted at a national level to evaluate the quality of doctoral education in nursing. The researcher believed that evaluation of the quality of doctoral education in nursing using these global quality criteria, standards and indicators, would provide baseline data of the quality of doctoral education in nursing in South Africa. This would allow threats to quality to be identified and a strategy to improve the quality of doctoral education in nursing in South Africa to be developed.

Prompted by this problem statement the following research questions were asked:

1. What is the quality of doctoral education in nursing in South Africa from the perspective of nursing deans, with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme?
2. What is the quality of doctoral education in nursing in South Africa from the perspective of academic personnel with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme?

3. What is the quality of doctoral education in nursing in South Africa from the perspective of doctoral graduates with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme?
4. What is the quality of doctoral education in nursing in South Africa from the perspective of doctoral students with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme?
5. What strategy can be developed to improve the quality of doctoral education in nursing in South Africa?

1.5 RESEARCH OBJECTIVES

The overall aim of this study was to develop a strategy to improve the quality of doctoral education in nursing in South Africa. To attain this aim the following objectives were realized:

- To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of nursing deans with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.
- To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of academic personnel with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.
- To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of doctoral graduates with regard to the nature of the

mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.

- To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of doctoral students with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.
- To develop a strategy to improve the quality of doctoral education in nursing in South Africa.

1.6 RESEARCHER'S ASSUMPTIONS

The researcher's assumptions generally reflect a particular worldview or paradigm. This paradigm or set of basic beliefs directs all the researcher's thoughts, ideas, intellectual propositions, decisions and actions taken at every step of the research process throughout the study (Botes, 1995:9). Hence, the researcher's assumptions should be explicitly stated in research. The researcher's assumptions will be discussed with regard to the ontological, epistemological and methodological dimensions.

1.6.1 ONTOLOGICAL DIMENSION

Ontology refers to the study of being, reality or existence and its basic categories and relationships. The ontological dimension in the context of research pertains to the researcher's beliefs about the nature, form, structure and status of phenomena, as well as the reality which is being investigated, or the research domain (Denzin & Lincoln, 1994:13; Mouton & Marais, 1996:11-12).

The researcher supports Judeo-Christian Philosophy and departs from a constructivist paradigm. Constructivism aims to understand and create knowledge through individual or group reconstructions centering on consensus (Lincoln & Guba, 2000:166). In the

ontological dimension, constructivists depart from a relativist approach, believing that reality is made of many intangible mental constructions that are socially and experientially based, local and specific in nature, and rely on individuals or groups for their form and content (Guba & Lincoln, 1994:110-111). Constructivists are committed to the view that truth and knowledge are created and not discovered (Schwandt, 1994:125), endorsing the claim that “there is no unique ‘real world’ that pre-exists and is independent of human mental activity and human symbolic language” (Bruner, 1986:95), and thus “reality” is a matter of human perspective which is alterable (Guba & Lincoln, 1994:111).

Although the researcher supports relativism in the epistemological and methodological dimensions, relativism is rejected in the ontological dimension, as it does not lend itself to the researcher’s understanding of reality, thus realism is supported within the ontological dimension, and the researcher’s assumptions can be graphically presented as:

TABLE 1.1: Researcher’s assumptions

DIMENSION	REALISM	RELATIVISM
ONTOLOGY	Constructivism	
EPISTEMOLOGY		Constructivism
METHODOLOGY		Constructivism

Source: Adapted from Mir and Watson, 2000:946

The researcher supports realism in the ontological dimension, believing that a real, external, objective world, which functions independently of our knowledge, understanding, beliefs, theories, constructions and descriptions of it, exists. Humans are active participants in this real external objective world and are constantly in interaction with it, whether or not they experience it or have any conception of its nature. As humans and the real, external, objective world interact with one another, they influence and effect change on each other; and humans constantly assess these

experiences and create mental constructions to explain and address the experienced reality. Where the relativist denies the influence and existence of a real, external, objective world and assumes that what is real is a construction of the mind; the realist believes that reality functions independently of our minds and constructions, and that any mental construction is based on viewpoints and feedback of some part of the real, external, objective world. It is the researcher's view that the relativist approach of constructing reality from one's own mind and the denial of a real external object world, lends itself to individual or social solipsism (Hussey, 2000:99-103; Fox, 2001:26-29).

Reality to the researcher is the existence of a real external objective world that was created by God, for humans to have dominion over. This real external objective world functions independently of our knowledge, understanding, beliefs, theories, constructions and descriptions of it, and is forever beyond our complete understanding, although we interact with this real external objective world on a daily basis. In our daily interactions with this reality we come into contact with different experiences and phenomena of some part of the real, external, objective world that we try to understand by developing the best informed construction for which there is consensus at a given time, which we call knowledge. The researcher believes that knowledge is created by individuals and groups based on their perceptions of some experience or phenomenon evidenced in the real, external, objective world which are true at that given time. These perceptions may change, as man understands more about the real, external, objective world or as man and the real, external, objective world influence or effect change on each other. Within this dimension the four meta-paradigm components of nursing, namely: man, health, environment and nursing will be discussed.

1.6.1.1 MAN

In this study, man refers to the nursing dean, academic personnel member, doctoral graduate and doctoral student, who are God-created, unique, multi-dimensional beings that have a God-given purpose which they need to pursue and fulfil while on earth. In pursuing their God-given purpose they are in constant interaction with their internal

(body, mind and spirit) and external (physical, social and spiritual) environment, and in meaningful interaction with each other in the teaching-learning environment. The nursing deans and academic personnel act as teachers, advisors, mentors and facilitators of learning, while the doctoral student is an active participant in the learning process and the doctoral graduate has successfully completed the learning process. Nursing deans, academic personnel, doctoral graduates and doctoral students are all scholars who seek the common goal of enhancing and developing the knowledge and skills of the nursing profession. They seek to do this through quality doctoral education and scholarship in nursing so as to provide leadership in practice, management, research, policy and education; to meet the changing needs of the health care system and contribute to the improvement of the quality of health of all people in South Africa.

1.6.1.2 HEALTH

Health is the physical, social, intellectual, psychological and spiritual well-being of nursing deans, academic personnel, doctoral students and doctoral graduates of whom the degree of health is determined by the interaction between man and their internal (body, mind and spirit) and external (physical, social and spiritual) environment. Health changes as the internal and external environment of man changes, causing health to vary between optimal and minimal health. In this study, health is the ability of man to pursue and fulfil their God-given purpose by effectively using their knowledge and skills in interaction with their internal and external environment, so as to provide leadership in practice, management, research, policy and education; to meet the changing needs of the health care system and to contribute to the improvement of the quality of health of all people in South Africa.

1.6.1.3 ENVIRONMENT

For the purpose of this study, the environment refers to the higher education institutions of South Africa who offer doctoral programmes in nursing. The environment is comprised of external (for instance globalization, scientific advancements, technological development) and internal (higher education institution mission, academic personnel,

doctoral students, curriculum, programme administration, institutional resources and programme evaluation) dimensions that are constantly changing, unpredictable and diverse. The environment and man are in constant mutual interaction, influencing and effecting change on each other. In this environment man constantly strives to enhance and develop the knowledge and skills of the nursing profession. They seek to do this through quality doctoral education and scholarship in nursing so as to provide leadership in practice, management, research, policy and education; to meet the changing needs of the health care system and contribute to the improvement of the quality of health of all people in South Africa.

1.6.1.4 NURSING

For the purpose of this study, nursing is the art and science of compassionately and competently caring for the individual, family and community to promote, maintain, prevent, treat and restore health, as well as care for the dying. Nursing facilitates the health of man by constantly assessing interactions and experiences that occur between the health of man and the environment during all stages of life and creating mental constructions to explain and address these experiences. In this study nursing is a science that aims to enhance and develop the knowledge and skills of the nursing profession through quality doctoral education and scholarship in nursing, so as to provide leadership in practice, management, research, policy and education; to meet the changing needs of the health care system and to contribute to the improvement of the quality of health of all people in South Africa.

1.6.2 EPISTEMOLOGICAL DIMENSION

Epistemology is a branch of philosophy concerned with the nature and scope of knowledge or the "quest for truth". The epistemological dimension aims to determine the relationship between the researcher and the known world in order to generate valid findings or approximate reality as accurately as possible (Denzin & Lincoln, 1994:13, Mouton & Marais, 1996:14-15).

Relativism is an improvement over realism in the epistemological dimension as it pays explicit attention to the context-driven nature of knowledge generation (Mir & Watson, 2000:942). In the epistemological dimension constructivism is portrayed as transactional and subjectivist, which means that the researcher and the participants interact with each other to create knowledge which is value laden. The validity of this knowledge is ensured through interaction between the researcher and participants, as this allows findings to be elicited and refined, until consensus is reached and knowledge is constructed, which is more informed and sophisticated than a previously held knowledge construction (Guba & Lincoln, 1994:111). Further validation is ensured by the ability of the construct to functionally fit and allow achievement of the goal (Schwandt, 1994:127). This functional and consensual knowledge that is constructed remains value laden or subjective, and results in the fact that multiple knowledge constructions exist of reality, all of which hold equal importance and are subject to continuous revision (Guba & Lincoln, 1994:110-111, Schwandt, 1994:125). Truth is thus defined as “a matter of the best-informed and most sophisticated construction on which there is consensus at a given time” (Schwandt, 1994:128).

In this study, the quality of doctoral education in nursing with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme was explored and described. This was done through interaction with nursing deans, academic personnel, doctoral graduates and doctoral students to create knowledge and truth about the quality of doctoral education in nursing in South Africa at present. These findings served as baseline data that allowed the researcher to identify and address threats to quality by developing a strategy to improve the quality of doctoral education in nursing in South Africa. The development of a strategy to improve the quality of doctoral education in nursing in South Africa was based on Total Quality Management (TQM) philosophy.

TQM is the best known approach to ensure quality management and promote continuous improvement, and was therefore used to guide the researcher in developing a strategy to improve the quality of doctoral education in South Africa. TQM is a comprehensive, people focused management system that involves all employees at all levels, and continually aims to improve the quality of processes, products and services to increase customer satisfaction (Tenner & DeToro, 1992:32; Evans & Dean, 1998:13).

TQM is based on three fundamental principles that encompass its overall concept and, if they are efficiently administered, will promote the continuous improvement of an organization. The three fundamental principles of TQM are: focus on the customers, internal and external; process improvement and total involvement (Tenner & DeToro, 1992:32) along with six supporting elements – leadership, education and training, supportive structure, communication, reward and recognition, and measurement (Tenner & DeToro, 1992:32).

In this study all individuals – nursing deans, academic personnel, doctoral graduates and doctoral students – in the doctoral education system in nursing evaluated each QCSI criterion of doctoral education in nursing. These were the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme. The aim was to determine baseline data on the quality of doctoral education in nursing. The baseline data allowed threats to the quality of doctoral education in nursing to be identified in each QCSI criterion. Using the objective of TQM – continuous improvement, and the principles of TQM – client focus, process improvement and total involvement, as well as the elements of TQM – leadership, education and training, supportive structure, communication, reward and recognition, and measurement – the researcher developed a strategy to improve the quality of doctoral education in nursing in South Africa.

1.6.2.1 CENTRAL THEORETICAL ARGUMENT

The quality of doctoral education in nursing in South Africa was explored and described from the perspectives of nursing deans, academic personnel, doctoral graduates and doctoral students with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme. This allowed baseline data on the quality of doctoral education in nursing in South Africa to be determined and a strategy to improve the quality of doctoral education in South Africa to be developed.

1.6.2.2 DEFINITIONS

- **academic personnel**

In this study, an academic personnel member is a registered nurse, who is employed at a South African higher education institution at a nursing school/department/division that offers a doctoral programme in nursing and who contributes to such a programme e.g. teaching, supervision. In international literature, academic personnel are referred to as faculty.

- **doctoral education**

In this study, doctoral education is defined according to the Higher Education Qualification Framework (HEQF) as requiring

... a candidate to undertake research at the most advanced academic levels culminating in the submission, assessment and acceptance of a thesis. Course work may be required as preparation or value addition to the research, but does not contribute to the credit value of the qualification. The defining characteristic of this qualification is that the candidate is required to demonstrate high-level research capability and make a significant and original academic contribution at the frontiers of a discipline or field. The work must be of a quality to satisfy peer review and merit publication. The degree may be earned through pure discipline-based or multidisciplinary research or applied research. This degree requires a minimum of two years' full-time study, usually after completing a master's degree. A graduate must be able to supervise and evaluate the research of others in the area of specialization concerned (Department of Education, 2007:29).

- **doctoral graduate**

In this study, a doctoral graduate is a registered nurse that has fulfilled all the requirements of doctoral education in nursing and has been awarded a doctoral degree in nursing at a South African higher education institution.

- **doctoral student**

In this study, a doctoral student is a registered nurse that is registered for doctoral education at a South African higher education institution at a nursing school/department/division that offers a doctoral programme in nursing.

- **nursing dean**

In this study, a nursing dean is a registered nurse who serves as the head of school/department/division in a South African higher education institution at a nursing school/department/division that offers a doctoral programme in nursing. In order to serve as the nursing dean in a South African higher education institution at a nursing school/department/division, the nursing dean must also be registered as a nurse manager and nurse educator at the South African Nursing Council (SANC).

- **quality**

The Department of Education (1997a:6) defines quality as:

...maintaining and applying academic and educational standards, both in the sense of specific expectations and requirements that should be complied with, and in the sense of ideals of excellence that should be aimed at. These expectations and ideals may differ from context to context, partly depending on the specific purpose pursued. Applying the principle of quality entails evaluating services and products against set standards, with a view to improvement, renewal or progress.

In this study, the quality of doctoral education in nursing refers to both the “specific expectations and requirements that should be complied with” (Department of Education 1997a:6) – quality assurance – in terms of conforming to standards, appropriate methods and quality requirements established by an expert body, accompanied by a process of inspection or evaluation that examines the extent to which the system meets

these standards. Also, “ideals of excellence that should be aimed at” (Department of Education 1997a:6) – fitness for purpose – through assessing the level or standard of satisfaction with the total system and the continuous improvement of processes, products and services in the system, that bear on its ability to give complete customer satisfaction, both internal and external.

- **scholarship**

In this study, scholarship will encompass the four interrelated intellectual functions of an academic – the scholarship of discovery, of integration, of application and of teaching. The scholarship of discovery includes inquiry that contributes to the scientific body of knowledge in nursing and further creates an intellectual climate of passion and excitement for the advancement of knowledge in nursing at a higher education institution. The scholarship of integration includes making connections between knowledge and models across disciplines, placing research in nursing in a wider context or intellectual pattern, and interpreting data in a revealing way so that non-specialists can understand the research. The scholarship of application aims to connect theory and practice, where service activities are directly related to research and clinical knowledge is advanced through expert practice and vice versa. The scholarship of teaching implies transforming and extending knowledge by a continual process of discourse and fulfils the role of educating learners and enticing future scholars. The academic must fulfil all these functions to be considered truly scholarly (Boyer, 1990:15-25; CASN, 2004).

In this study the scholarliness of academics will be based on their qualifications for teaching in the doctoral programme; conducting independent research and having a research programme; having successfully obtained research grants; maintaining a publication output; presenting research at national and international conferences; invitations to address scholarly meetings; establishing and promoting national and international networks. Also, teaching students within their area of specialization; acting as a moderator or examiner in national and international contexts; mentoring students in

post-graduate studies within his/her area of specialization and maintaining excellent progression rates. Moreover, practicing as a nurse or working in their area of specialization; being involved and taking a leadership role in local, regional or national service-oriented projects with high relevance to scholarly activities. Other factors considered is being involved in editorial work; being an active member or serving on the board of national and international scholarly societies in nursing or committees or within their area of specialization; and acting as a consultant to professional nursing bodies and institutions (CASN, 2004; Bitzer, 2004:31-32).

- **school/department/division**

A school/department/division refers to the organizing structure of the higher education institution and is used interchangeably in this study.

- **strategy**

A strategy is a large-scale, future-oriented plan or effort or deliberate action that is instituted proactively and (or) reactively, to outperform other organizations or to interact with the competitive environment, to achieve the organization's purpose or objectives, and to ensure customer satisfaction (Pearce & Robinson, 2000:4; Ehlers & Lazenby, 2010:3; Thompson & Strickland, 2001:10-11).

- **Total Quality Management (TQM)**

TQM is a comprehensive; people-focused management system that involves all employees at all levels, and continually aims to improve the quality of processes, products and services to increase customer satisfaction (Tenner & DeToro, 1992:32; Evans & Dean, 1998:13).

1.6.3 METHODOLOGICAL DIMENSION

Methodology is the study of how we can know the world or gain knowledge of it through the research process. It refers to how research is logically planned, ordered and conducted using scientific decision making, and methods to study reality which will

result in the most valid findings (Denzin & Lincoln, 1994:13, Mouton & Marais, 1996:15-16).

In the methodological dimension, constructivism is based on hermeneutic and dialectical principles (Guba & Lincoln, 1994:111), although it also lends itself to quantitative measures (Mir & Watson, 2000:944). Constructivists believe that theory and practice are interlinked, and that practice exists both before and after theory (Mir & Watson, 2000:943) with the result that practice influences theory, and theory in turn influences practice. Constructivists also have a pluralistic and plastic approach to reality, pluralistic in the sense that reality can be expressed in a variety of ways, these being hermeneutic, dialectical (Guba & Lincoln, 1994:111), quantitative (Mir & Watson, 2000:944), and plastic in that it can conform to fit the needs or reality of people (Schwandt, 1994:125). This "fit" is referred to as "rightness" which has "greater reach than truth" and means that the knowledge construct can work or fit "into a context or discourse or standing complex of other symbols" (Goodman & Elgin, 1988:158).

The researcher believes that the research process is influenced by practice, theory and philosophy which are interdependent and interconnected with each other, and direct the way in which the researcher can know the world or gain knowledge of it. Research is a rational decision-making process which is directed by the researcher's assumptions, the characteristics of the research field, the research context and the research objectives (Botes, 2006:3-6; Botes 1995:6-8). The nursing practice has to continually adapt to a transforming health care environment, which makes demands of the scientific practice to identify needs and opportunities, and so generate, validate and synthesize knowledge according to the requirements of nursing practice. This knowledge must be fully functional and applied to practice with the assistance of the researcher, which in turn leads to the improvement of practice and further research opportunities, as new needs and opportunities arise from this applied knowledge. Philosophy is the beliefs held by individuals in both the nursing and scientific practice which influence their interaction with each other and the real, objective, external world, but these beliefs are

also apt to change as new knowledge is discovered and applied. Thus practice, theory and philosophy are in constant interaction, albeit directing the research process and effecting changes on each other.

1.7 RESEARCH DESIGN

In order to achieve the objectives, this study adheres to a quantitative research design (Polit & Hungler 1997:14), in the form of a cross-sectional research design (Bryman, 2001:41; Burns & Grove, 2005:236), with exploratory (Polit & Hungler 1997:20; Mouton & Marais, 1996:43; Selltiz, Wrightsman, Cook, Balch, Hofstetter and Bickman, 1976:92-101), descriptive (Burns & Grove, 2005:44) and contextual (Mouton & Marais, 1996:49-50; Botes, 1995:9) research strategies. A full description of the research design is presented in Chapter 3.

1.8 RESEARCH METHOD

The research method includes the activities of population, sampling, data collection, ensuring rigour and data analysis (Klopper, 2008:69). A full description of the research method is presented in Chapter 3, but a brief overview of the research method is provided in Table 1.2.

Table 1.2: Overview of the research method

RESEARCH OBJECTIVE	RESEARCH APPROACH	POPULATION AND SAMPLE	DATA COLLECTION	DATA ANALYSIS	RIGOUR
PHASE 1					
1. To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of nursing deans with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.	Quantitative	Nursing deans who currently serve as the head of school/ department/ division of a nursing school/ department/ division with a doctoral programme in nursing N = 15; n = 12.	An existing survey for nursing deans based on the work of the Quality Criteria, Standards, and Indicators (QCSI) task team of the International Network for Doctoral Education in Nursing (INDEN).	Data was analyzed using descriptive statistics and effect sizes which was calculated using the SAS programme (SAS Institute Inc., 2003).	Validity and reliability of the questionnaire. Truth value, applicability, consistency, neutrality, theoretical validity and inferential validity of the study.
2. To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of academic personnel with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.	Quantitative	Academic personnel employed at a nursing school/ department/ division with a doctoral programme in nursing and who contribute to such a programme N = 50, n = 26.	An existing survey of academic personnel based on the work of the Quality Criteria, Standards, and Indicators (QCSI) task team of the International Network for Doctoral Education in Nursing (INDEN).	Data was analyzed using descriptive statistics and effect sizes which was calculated using the SAS programme (SAS Institute Inc., 2003).	Validity and reliability of the questionnaire. Truth value, applicability, consistency, neutrality, theoretical validity and inferential validity of the study.

<p>3. To explore and describe the quality of doctoral education in nursing in South Africa from the perspectives of doctoral graduates with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.</p>	<p>Quantitative</p>	<p>Doctoral graduates who have completed their doctoral education in nursing at a nursing school/ department/ division in the most recent three years (2006-2008) N = 43; n = 24.</p>	<p>An existing survey of doctoral graduates based on the work of the Quality Criteria, Standards, and Indicators (QCSI) task team of the International Network for Doctoral Education in Nursing (INDEN).</p>	<p>Data was analyzed using descriptive statistics and effect sizes which was calculated using the SAS programme (SAS Institute Inc., 2003).</p>	<p>Validity and reliability of the questionnaire. Truth value, applicability, consistency, neutrality, theoretical validity and inferential validity of the study.</p>
<p>4. To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of doctoral students with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.</p>	<p>Quantitative</p>	<p>Doctoral students who are registered for doctoral education at a nursing school/ department/ division N = 106; n = 63.</p>	<p>An existing survey of doctoral students based on the work of the Quality Criteria, Standards, and Indicators (QCSI) task team of the International Network for Doctoral Education in Nursing (INDEN).</p>	<p>Data was analyzed using descriptive statistics and effect sizes which was calculated using the SAS programme (SAS Institute Inc., 2003).</p>	<p>Validity and reliability of the questionnaire. Truth value, applicability, consistency, neutrality, theoretical validity and inferential validity of the study.</p>

PHASE 2				
RESEARCH OBJECTIVE	POPULATION AND SAMPLE	DATA COLLECTION	DATA ANALYSIS	RIGOUR
5. To develop a strategy for improving the quality of doctoral education in nursing in South Africa.	Evidence from phase one – objective 1-4.	Evidence from phase one – objective 1-4.	Deductive and inductive reasoning.	Truth value, applicability, consistency, neutrality, theoretical validity and inferential validity of the study.

1.9 DIVISION INTO CHAPTERS

CHAPTER 1: Orientation to the research study

CHAPTER 2: Literature review

CHAPTER 3: Research design and method

CHAPTER 4: Analysis and interpretation of data

CHAPTER 5: Strategy for improving the quality of doctoral education in nursing in South Africa

CHAPTER 6: Evaluation of the study, limitations, and recommendations for practice, education, research and policy.

1.10 SUMMARY

The purpose of this chapter was to provide an orientation to the research study. In this chapter the problem addressed in the research was stated and the aims of the research were formulated. The researcher's assumptions with regard to the ontological, epistemological and methodological dimensions were discussed, and a brief overview of the research design and research methods used in this study was presented. Finally the division into chapters of this thesis was indicated.

Chapter Two

Literature Review



<http://www.soton.ac.uk/law/images/research2.jpg>

*Education is the most powerful
weapon which you can use to
change the world.*

~ Nelson Mandela ~

CHAPTER TWO

LITERATURE REVIEW

2.1 OVERVIEW OF THE CHAPTER

The purpose of this chapter is to provide a comprehensive literature review of the South African higher education context, with regard to the history and transformation of higher education in South Africa and a discussion of national trends in doctoral education in South Africa and doctoral education in nursing in particular. The literature review then focuses on the quality of doctoral education in nursing with regard to the quality criteria, standards and indicators which are integrated within the accepted body of knowledge in doctoral education in nursing and doctoral education in South Africa. In conclusion, TQM philosophy is discussed and applied to doctoral education in nursing.

2.2 SEARCH STRATEGY

The literature review was conducted by searching books, dissertations, theses, the World Wide Web (Google, Google Scholar), the South African Journal Database System, or SAePublications, and the International Journal Database Systems, ScienceDirect and EBSCOHost (Academic Search Premier, CINAHL, ERIC, Health Source: Nursing/Academic Edition, MasterFile Premier, MEDLINE, Pre-CINAHL, PsychINFO, SocINDEX with Full Text, Humanities International Complete, Academic Search Complete and Education Research Complete).

A broad combination of keywords was used to search the literature on the topic. The following English and Afrikaans keywords were combined in varying sequence and searched in the categories of "All" or "Title" or "Abstract" or "Author-Supplied Abstract" or "Keywords": (doctor* or doktora* or higher education or postgraduate or post-

graduate or nagraads* or phd or d.cur or d.phil or d.soc.sc or d.tech or d.litt.et.phil or dns) **and** (study or studies or program* or curriculum or education or degree or thesis or kurrikulum or onderwys or graad or proefskrif) **and** (quality or kwaliteit) **and** (nurs* or verpleeg*) **and** (South Africa or Suid Afrika).

2.3 INTRODUCTION

The purpose of doctoral education in nursing is to prepare nurses to be leaders, teachers, managers, researchers, clinicians, advocates and scholars with a focus on research training, theory construction for nursing science and generation of advanced knowledge in the nursing field. Also to improve the quality and efficiency of nursing care, and the health of the public, by generating, evaluating, disseminating and incorporating new knowledge into practice (Ketefian, 2001:47; Meleis, 2005:xi). Another purpose of doctoral education is to prepare nurses who function as scholars to shape the nature of the nursing discipline's body of knowledge and skills and its advancement (Slevin & Hanucharunkul, 2005:4). Furthermore, to prepare nurses to function in leadership roles in academic, political, clinical and research settings within dynamic and complex health care systems and communities (Ketefian *et al.*, 2005a:151; Meleis, 2005:xi; Slevin & Hanucharunkul, 2005:4).

On an international level, doctoral education in nursing shares much commonality in view of globalization, scientific advancements, technological developments and interdisciplinary care, and a shared foundation on the science of nursing. However, there is also a degree of variance in doctoral education in nursing between countries (Slevin & Hanucharunkul, 2005:1). Therefore, to assess the quality of doctoral education in nursing within a country, one has to consider the culture and context within which such education takes place (Slevin & Hanucharunkul, 2005:2). This is because doctoral education in nursing and research is greatly influenced by factors such as political events, social issues, economic status, cultural changes, demographic profiles of the populations, health and health care tendencies, as well as trends within the wider world in which nursing takes place (Slevin & Hanucharunkul, 2005:11; Hinshaw &

Leino-Kilpi, 2005:27). In this next section, the South African higher education context will be explored in relation to the history and transformation of higher education in South Africa with a specific focus on the institutional mergers, the funding framework and quality assurance in higher education. Also, doctoral education in South Africa will be discussed in relation to national trends and doctoral education in nursing.

2.4 THE HIGHER EDUCATION CONTEXT IN SOUTH AFRICA

The higher education context in South Africa has undergone a myriad of political, social, economic, demographic and cultural changes in the last fifteen years. It changed from a racially divided and fragmented higher education system to a post-apartheid higher education system driven by transformation agendas, equity goals and policy initiatives that aim to overcome the fragmented higher education system and redress past inequalities. This is aimed at through the development of a single co-ordinated higher education system with new planning, governing and funding arrangements that can meet pressing national needs and respond to new realities and opportunities (Portnoi, 2009:406; Department of Education, 1997a:7; Ministry of Education, 2001:1).

2.4.1 A BRIEF HISTORICAL OVERVIEW OF HIGHER EDUCATION IN SOUTH AFRICA

From 1948 to 1994, higher education in South Africa was divided along racial lines with a dominantly white character (Hay, 2000:56-57). White South Africans were freely admitted to the eight white South African residential universities without having to fulfill any admission criteria for university entrance as a result of an 'open admissions policy' for all white South Africans (Malherbe, 1977:485; Akoojee & Nkomo, 2007:388). South Africa purportedly sent a larger proportion of its white South African population to university (Malherbe 1977:494), and spent more on the running costs of universities in relation to the size of its white South African population, than any other country in the world (Malherbe 1977:627). On the other hand, university access for its black South African population was not considered proper or necessary (Akoojee & Nkomo, 2007:389).

At the time of the Eiselen Commission on Native Education in 1951 (Eiselen, 1951) black South African students were prohibited from enrolling at white Afrikaans South African residential universities and had restricted access to white English South African residential universities. Most black South African students attended the only black South African residential university, the South African Native College at Fort Hare, with an enrolment of merely 343 students, while other black South African students studied through distance education at the University of South Africa (UNISA). As a result of this Commission report, access was expanded to higher education through the racially prejudiced Extension of University Education Act (1959). This Act established separate universities for Indian and Coloured South African students as special population groups, and designated two more universities for black South African students, namely, the University of the North and the University of Zululand (Nkomo, 1984 as cited in Akoojee & Nkomo, 2007:389). Access to white South African universities was allowed only after written permission was granted by the Minister, which occurred only in instances where a required course or programme was not offered at a black South African university (Akoojee & Nkomo, 2007:389).

The apartheid era not only provided black South Africans with inferior education (Portnoj, 2009:407), but in fact, negatively impacted on the entire South African higher education system, as evidenced by the fact that the programme focus was directed towards undergraduate teaching and away from post-graduate teaching and research, which resulted in fragmented teaching and research in the country. Furthermore, academic personnel were poorly qualified, with limited research training and experience, and inadequate supervisory skills. As a result, there was a lack of research outputs with poor sustainability of research projects, and a high dependence on government for funding, which was allocated on a discriminatory basis (Hay, 2000:57).

After the fall of apartheid in South Africa and the installation of the first democratically elected government in 1994, the South African higher education sector has been grappling with the inherited higher education system. It has been facing the daunting task of overcoming the fragmented higher education system and addressing substantial

social transformation through a myriad of transformation agendas, equity goals, and policy initiatives aimed at redressing the inequities of the past (Portnoi, 2009:406; Gbadamosi & Jager, 2009:879; Hay, 2000:53). Policy documents and initiatives such as the *Education White Paper 3: A Programme for the Transformation of Higher Education* (Department of Education, 1997a) and the *National Plan for Higher Education* (NPHE) (Ministry of Education, 2001) relate specifically to higher education and are the fundamental pillars for the transformation of the South African higher education system (Portnoi, 2009:407; Hay, 2000:56).

2.4.2 TRANSFORMATION OF HIGHER EDUCATION IN SOUTH AFRICA

The Education White Paper 3: A Programme for the Transformation of Higher Education (Department of Education, 1997a) is a broad policy framework that articulates the vision for the transformation of higher education in South Africa and highlights five key policy goals. These are: to produce graduates needed for social and economic growth in South Africa; to achieve equity in the South African higher education system; to achieve diversity in the South African higher education system; to sustain and promote research; and to restructure the institutional landscape of the South African higher education system. Central to this vision is the establishment of a single, nationally co-ordinated system with new planning, governing and funding arrangements, based on the principles of equity and redress, democratization, development, quality, effectiveness and efficiency, academic freedom, institutional autonomy, and public accountability.

The NPHE (Ministry of Education, 2001) is based on the five key policy goals of the *Education White Paper 3: A Programme for the Transformation of Higher Education*. The former outlines the specific policy framework and mechanisms for implementing and realizing the policy goals, highlighting sixteen outcomes in five contexts that are central to achieving the overall goal of transformation of the higher education system. These are, in the context of labour market and student enrolment trends: increased participation rates, increased graduate outputs, broadened social base of students, increased recruitment of students from the Southern African Development Community (SADC) countries, changed enrolments by fields of study, and enhanced cognitive skills

of graduates. In the context of inequities in South African higher education: increased equity in access and success rates, and improved staff equity. In the context of institutional plans and diversity: diversity through mission and programme differentiation, regulation of distance education programmes, establishment of a single dedicated distance institution and regulation of private higher education. In the context of research outputs and productivity: research concentration and funding linked to outputs, and increased graduate enrolments and outputs at the master's and doctoral levels, and finally in the context of institutional collaboration: programme and infrastructural collaboration, and new institutional and organizational forums. Of the above mentioned outcomes, authors Gbadamosi and de Jager (2009:879), Portnoi (2009:406-414), Soudien (2007:4) and Sutherland (2007:3) document that the most complex developments experienced by the higher education system to date includes the institutional mergers, new funding framework and quality assurance measures.

2.4.2.1 INSTITUTIONAL MERGERS IN HIGHER EDUCATION

The categories of 'historically advantaged' and 'historically disadvantaged' are becoming less useful for social policy purposes... (and that) the 36 public higher education institutions inherited from the past are all South African institutions. They must be embraced as such, must be transformed where necessary and must be put to work for and on behalf of all South Africans (CHE, 2000:14).

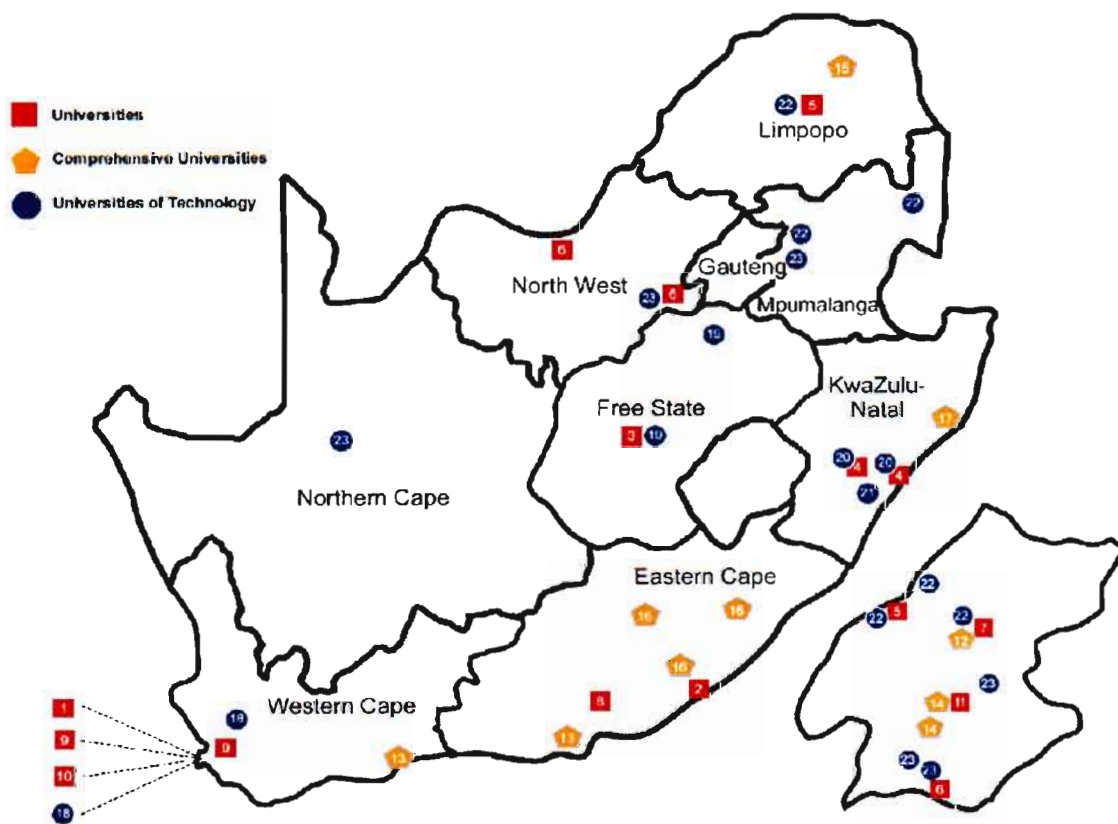
The lingering permanence of apartheid was still apparent in South Africa as evidenced by the fact that in the new millennium, universities were still referred to as being Historically Black Universities (HBU's) or Historically White Universities (HWU's). HWU's were said to be "reinforce(ing) their inherited privileges" (CHE, 2000:17-18) by dominating research outputs in higher education; producing 83% of all research publications and 81% of all master's and doctoral graduates (NCHE, 1996:40). On the other hand, HBU's were experiencing a decline in student enrolments, growing student debt and financial insecurity, governance and management problems, and general instability that resulted in the rapid erosion of the sustainability of a number of HBU's (Ministry of Education, 2001:14). Furthermore, there was destructive competition among universities with a lot of duplication of activities and programmes, a focus on

financially rewarding programmes, and undue concentration on marketing and goods, rather than a much needed convergence on social and educational priorities for South Africa, or the quality of education (CHE, 2000:17-18).

The notion of institutional mergers was first documented in 2000 in the Council on Higher Education (CHE) report, *Towards a New Higher Education Landscape: Meeting the Equity, Quality and Social Development Imperatives of South Africa in the Twenty-first Century* (CHE, 2000). The CHE advised that the higher education system be restructured by combining higher education institutions to reduce their numbers, and so ensure sustainability through collaboration between higher education institutions, rationalization of programmes, efficient and effective use of resources, building capacity and the creation of new institutional identities (CHE 2009a:8; Ministry of Education 2001:79-80; CHE, 2000:56-57). This was later reiterated and endorsed by the NPHE and the National Working Group. In 2004, the implementation of institutional mergers took place in two phases, one starting in January 2004 and the other in January 2005 (CHE, 2009a:8) under the full regulatory powers of the Minister of Education in terms of the Higher Education Act (Act 101/97) (Ministry of Education, 2001:80).

During the merger process, the previously 36 public higher education institutions were combined to form 23 higher education institutions, with three different institutional categories, namely universities, comprehensive universities and universities of technology. Universities offer many different career-oriented degrees, professional programmes, general formative programmes, and research programmes (master's and doctoral degrees) (Ministry of Education, 2001:49). Universities of technology offer vocational education at variable levels (degree and sub-degree) (Reddy, 2006:36). Comprehensive universities, a merger of a university and a technikon, offer "diverse kinds of learning programmes, from vocational to professional and general formative" (Department of Education, 2004:38).

Of the merged higher education institutions (see Figure 2.1) there are 11 universities namely: 1) University of Cape Town, 2) University of Fort Hare, 3) University of the Free State, 4) University of KwaZulu-Natal, 5) University of Limpopo, 6) North-West University, 7) University of Pretoria, 8) Rhodes University, 9) University of Stellenbosch, 10) University of the Western Cape and 11) University of the Witwatersrand. There are six comprehensive universities namely: 12) University of South Africa, 13) Nelson Mandela Metropolitan University, 14) University of Johannesburg, 15) University of Venda, 16) Walter Sisulu University and 17) University of Zululand. Lastly, there are six universities of technology namely: 18) Cape Peninsula University of Technology, 19) Central University of Technology, 20) Durban University of Technology, 21) Mangosuthu University of Technology, 22) Tshwane University of Technology and 23) Vaal University of Technology (CHE 2009a:7-8).



Source: CHE (2009:7)

Figure 2.1: Merged higher education institutions and the location of their campuses

In the merger process, many intrinsically different higher education institutions were combined, which brought many challenges with regard to accommodating different institutional structures, cultures and traditions. At the same time higher education institutions were required to amalgamate and create new institutional identities, aligned policies and procedures, new management structures, unified administrative processes and information systems, and to decide on the location of structures, faculties and programmes across campuses (CHE, 2009a:9). While many of these challenges still remain a concern for higher education institutions, research indicates that the institutional mergers have succeeded in creating a higher education sector with new institutional identities. In these, issues of race and language, although not eradicated, are more indistinct (Mabokela, 2007 cited in CHE, 2009a:9), differences in facilities between merged campuses have led to upgrades of some campuses, (CHE, 2009a:9), and access and enrolment in higher education has seen a marked increase (CHE, 2009a:5).

2.4.2.2 FUNDING FRAMEWORK IN HIGHER EDUCATION

The new (funding) framework is primarily a goal-directed, distributive mechanism which relates government funds to academic activity and output. It is a means of allocating government grants to individual higher education institutions, in accordance both with the national higher education budget and with government's policy priorities (Department of Education, 2003a:2).

South African higher education institutions are largely state funded through the Department of Education. An analysis of sources of income for higher education institutions in 2007 showed that on average, 40% of the income is from state subsidies, 28% from student fees and the remainder of the income is from third stream income generated by the higher education institutions themselves. Government funding for higher education has been on the increase since 2004, both in absolute terms and when inflation is taken into account, although the proportion of the national budget going to higher education has declined. In 2007/8 the overall budget for higher education institutions was R13.3 billion, representing 0.65 % of the GDP (CHE, 2009a:9).

The funding framework is a largely incentives-driven system and was developed in order to steer higher education institutions towards the delivery of teaching-related and research-related services which lead to improvements in the social and economic conditions of the country and the achievement of national transformation goals. The new funding framework was approved by the Ministers of Education and Finance in 2003, thus replacing the earlier South African Post-Secondary Education (SAPSE) higher education funding system of 1982/3. The new system was phased in over a three-year period, 2004/5 being the first year and 2006/7 the final year (Department of Education 2003a:2; Ministry of Education, 2006:3; Soudien, 2007:4).

According to the funding framework, state funding is provided to higher education institutions in two separate forms. One of these is a block grant which is undesignated and covers the operational costs of higher education institutions linked to the provision of teaching and research-related services, and is used at the discretion of the higher education institutions councils (Department of Education 2003a:2, Ministry of Education, 2006:3; Soudien, 2007:4). The second consists of earmarked grants that are used for specific purposes. The block grants are divided into four different categories, namely: teaching input grants; teaching output grants; institutional factor grants; and research output grants, while the earmarked grants are divided into five broad categories: the national student financial aid scheme; teaching, research and community development; interest and redemption on loans approved before 1999; new capital projects and institutional restructuring (Department of Education 2003a:2).

A general breakdown of the budget for higher education institutions in these two categories shows that the block grant amounts to 87% of the budget, earmarked funds comprise 8% of the budget, while the residual amount is allocated to higher education institutions going through the process of restructuring as a result of the NPHE (Soudien, 2007:4-5). The block grant is then further divided into a basic maintenance grant, which amounts to 56% and is allocated to higher education institutions based on teaching input or student enrolment numbers. A further 26% of the block grant is linked to performance incentives, with 12% available for research outputs and 14% available for

teaching outputs or graduation numbers. This is set up in such a way that certain fields of study, such as science and technology, and certain levels of study, such as the master's and doctoral level, are rewarded more appreciably than others. The remainder of the block grant is available as institutional factor grants to assist higher education institutions that have undergone the institutional merger process in either 2004 or 2005 (Soudien, 2007:4-5; Sutherland, 2007:3).

It is clear from this budget breakdown that in order for higher education institutions to access the full block grant – which they need to subsist – they have to ensure an output of graduates and research. This is a measure used by the government to ensure that higher education institutions produce the knowledge outputs required to meet South Africa's development needs and to ensure the quality of teaching and learning, and research in South Africa (Soudien, 2007:5, Sutherland, 2007:3; Department of Education, 1997a:70).

Of significance is that in the same year, the Department of Education promulgated the *Policy and Procedures for Measurement of Research Output of Public Higher Education Institutions* (Department of Education, 2003b). These policies and procedures highlighted the importance of research to South Africa, and encouraged research productivity by firmly establishing an incentive system for research outputs (Department of Education, 2003b:4). This policy details the specific types of research outputs that are recognized for the purpose of subsidy by the Department of Education. These include articles in journals, books (monographs, chapters and edited works) and proceedings, the determinants of quality used to ensure the quality of such research types (see Table 2.1) and the subsidy formulas used by the Department of Education. The introduction of this policy and the deployment of an incentives system for research outputs has been a successful mechanism to increase research outputs, as well as to quality assure research in South Africa (Soudien, 2007:4).

Table 2.1: Criteria for recognized research output

CRITERIA FOR RECOGNIZED RESEARCH OUTPUT	
JOURNALS	<ul style="list-style-type: none"> • The purpose of the journal must be to disseminate research results and the content must support high level learning and teaching, and research in the relevant subject area • Articles accepted for publication in the journal must be peer reviewed • The majority of contributions to the journal must be from more than one institution • The journal must have an International Standard Serial Number (ISSN) • The journal must be published regularly • The journal must have an editorial board that includes members beyond a single institution and is reflective of expertise in the relevant subject area • The journal must be distributed to more than one institution • Journals appearing in the following international indices are included in the list of approved journals: <ul style="list-style-type: none"> ○ The Sciences Citation Index of the Institute of Scientific Information (ISI) ○ The Social Sciences Citation Index of the ISI ○ The Arts and Humanities Citation Index of the ISI ○ The International Bibliography of Social Sciences (IBSS)
BOOKS	<ul style="list-style-type: none"> • The purpose of the book must be to disseminate original research and new developments within specific disciplines, sub-disciplines or fields of study • The book must be peer-reviewed as a research output and supporting evidence provided in the book or from the publishers • The book must have an ISBN number • The book must be a minimum of 60 pages long, excluding references, bibliography and appendices, this being above the minimum norm of 49 pages proposed by the UNESCO definition of a book as a non-periodical literary publication consisting of 49 or more pages, covers excluded • The target audience of the book must be specialists in the relevant field
PROCEEDINGS	<ul style="list-style-type: none"> • The purpose of the proceedings must be to disseminate original research and new developments within specific disciplines, sub-disciplines or fields of study • Articles accepted for publication in the proceedings must be peer reviewed • The proceedings must have an ISBN number • The target audience of the proceedings must be specialists in the relevant field

Source: Department of Education (2003b:6-7)

The funding framework introduced new measures for funding higher education through the establishment of a largely incentives-driven system, as a way to not only promote

enough graduates and research outputs to meet South Africa's development needs, but also to quality assure teaching and learning, and especially research; all while pursuing the achievement of national transformation goals. Research shows that the funding framework and the incentives system for research outputs have succeeded in contributing to a steady increase in research outputs (CHE, 2009a:47), and that graduate numbers have more than doubled between 2000 and 2005, with the biggest growth in graduation rates among female and black South African graduates (CHE 2009b:xi; Mouton, 2007:1083).

2.4.2.3 QUALITY ASSURANCE IN HIGHER EDUCATION

“The pursuit of the principle of quality means maintaining and applying academic and educational standards, both in the sense of specific expectations and requirements that should be complied with, and in the sense of ideals of excellence that should be aimed at” (Department of Education, 1997a:12).

The South African Qualification Authority (SAQA) Act 58 of 1995, which provided for the development and implementation of the National Qualifications Framework (NQF) and the establishment of SAQA was aimed at initiating a quality education and training system in South Africa (Sutherland, 2007:2). The purpose of the NQF was to create an integrated national framework that develops and registers standards and qualifications, and so ensures access, mobility and progression within education and training, and ultimately enhances the quality of education and training. SAQA was established as an independent statutory body with the responsibility of overseeing the development and implementation of the NQF, and advising the Minister on matters affecting the registration of standards and qualifications (SAQA, 1995). Only in 1997 with the promulgation of the Higher Education Act 101 of 1997 was there an explicit focus on quality assurance in higher education in South Africa, when a Quality Council (QC) for higher education, namely the Council on Higher Education (CHE), was established.

The CHE was established as an independent statutory body in May 1998 in terms of the Higher Education Act 101 of 1997. It is responsible for advising the Minister of Higher Education and Training on all policy matters related to higher education and training,

monitoring and evaluating higher education and training, contributing to the development of higher education and training, and for quality assurance and quality promotion in higher education and training. The CHE further established the Higher Education Quality Committee (HEQC) as a permanent sub-committee within the CHE with the executive responsibility of promoting quality assurance in higher education institutions, auditing the quality assurance mechanisms of higher education institutions and accrediting higher education programmes. The HEQC received its mandate in terms of the Higher Education Act 101 of 1997 within the framework of the regulations for Education and Training Quality Assurers (ETQAs) of the SAQA Act 58 of 1995 (CHE, 2004a:7; Pretorius, 2003:129-131, Department of Education, 1997b:11-12).

The HEQC has prioritized two interconnected quality assurance measures in higher education, namely institutional audits and the accreditation of programmes. Institutional audits are conducted in collaboration with the higher education institutions to review the policies, systems, strategies, structures, resources, processes and activities, including the relevant academic support services for ensuring provision of quality teaching and learning, research and community engagement. The goal of institutional audits is to allow higher education institutions to affirm the effectiveness of their quality assurance mechanisms using the HEQC's criteria in accordance with the needs of various internal and external constituencies, and with regard to the minimum requirements for higher education institution efficiency as set by the Department of Education. The HEQC institutional audit criteria cover two broad areas. One is the mission of the higher education institution regarding planning, resource allocation and quality management. The other is teaching and learning, research and community engagement (CHE, 2004b:9). These criteria and requirements enable higher education institutions to identify areas of strength and excellence, and areas in need of attention, in order to facilitate higher education institutions to put in place plans, structures and mechanisms for self-improvement (CHE, 2004c:7-8, Soudien, 2007:6, Sutherland, 2007:3; Pretorius, 2003:131).

The audit methodology allows higher education institutions to enter into a regime of accountability, as each higher education institution has to conduct a self-evaluation of quality assurance mechanisms at their own higher education institution and write a self-evaluation report. Thereafter the HEQC appoints peers and experts who conduct an external validation of the claims made by the higher education institution in their report, and if the audit outcome corresponds with these findings, a public report is published and the higher education institution is granted self-accreditation status for a period of six years (Pretorius, 2003:132).

Programme accreditation ensures that higher education institutions have the capacity to design, deliver and quality assure programmes by granting recognition to programmes that attain the minimum requirements of the HEQC. The aim of programme accreditation is to guarantee that students receive quality education, that higher education institutions establish a culture of self-managed evaluation that builds on and exceeds minimum standards, maintain and increase the credibility of qualifications, and facilitate a co-operative approach between programmes of different higher education sectors and institutions (CHE, 2004a:7-8; Pretorius, 2003:132).

To be accredited, a programme must conform to the Department of Education programme and qualification mixes (PQM's) for that particular higher education institution, and the programme must be a full qualification complying with the rules and regulations stipulated by SAQA in order for the programme to be registered on the NQF (Soudien, 2007:6; CHE, 2004a:7-8; Pretorius, 2003:132). The accreditation of programmes methodology distinguishes between new and existing programmes in higher education institutions. New programmes offered at higher education institutions are accredited in accordance with the HEQC's programme accreditation criteria, which consist of 19 criteria that stipulate the minimum standards for programme input, process, output and impact, and review using a two-phase procedure consisting of a candidacy and a final accreditation phase. The criteria for programme input are: programme design; student recruitment, admission, selection; staffing; teaching and learning strategy; student assessment policies and procedures; infrastructure and

library resources; programme administrative services; and post-graduate policies, regulations and procedures. The criteria for process are: programme co-ordination; academic development for students success; teaching and learning interactions; student assessment practices; co-ordination of work-based learning; and delivery of post-graduate programmes. The criteria for output and impact are: student retention and throughput rates; and programme impact, and the criteria for review include all of the above criteria. (CHE, 2004d:28). While the re-accreditation of existing programmes allows higher education institutions to be awarded self-accreditation status to evaluate and monitor the quality of programmes through internal institutional arrangements for continuous quality maintenance and improvement under certain conditions, and where no statutory councils are involved (CHE, 2004a:7).

The HEQC's institutional audit and programme accreditation quality assurance measures share the underlying principle that the responsibility for quality assurance rests with higher education institutions. Therefore, the methodology of these quality assurance mechanisms facilitate higher education institutions to achieve self-accreditation status, with the aim of moving the higher education sector towards a greater measure of quality assurance self-regulation (CHE, 2004a:7; Pretorius, 2003:133).

A further significant quality development in higher education in South Africa was the promulgation of the NQF Act 67 of 2008, which repeals the SAQA Act 58 of 1995 and for the first time spells out the framework of the NQF (see Figure 2.2). It also addresses the responsibilities and working relationships of all stakeholders in education, including the Minister of Education, the Minister of Labour, SAQA and the Quality Councils for the further development, organization and governance of the NQF. Furthermore, it describes the structure of the NQF, which is organized into three sub-frameworks. These are: 1) General and Further Education and Training contemplated in the General and Further Education and Training Quality Assurance Act 58 of 2001, 2) Higher Education contemplated in the Higher Education Act 101 of 1997, and 3) Trades and Occupations, contemplated in the Skills Development Act 97 of 1998, with 10 levels in

ascending order, each with their own level descriptors and learning outcomes (Department of Education, 2009).

With the division of the NQF into three sub-frameworks, the Higher Education Qualifications Framework (HEQF) was developed as a basis for integrating all higher education qualifications into the NQF and its structures for standards generation and quality assurance. The QC of higher education, namely the CHE was assigned the responsibility for generating and setting standards for all higher education qualifications and for ensuring that qualifications meet SAQA's criteria for registration on the NQF (Department of Education, 2009).

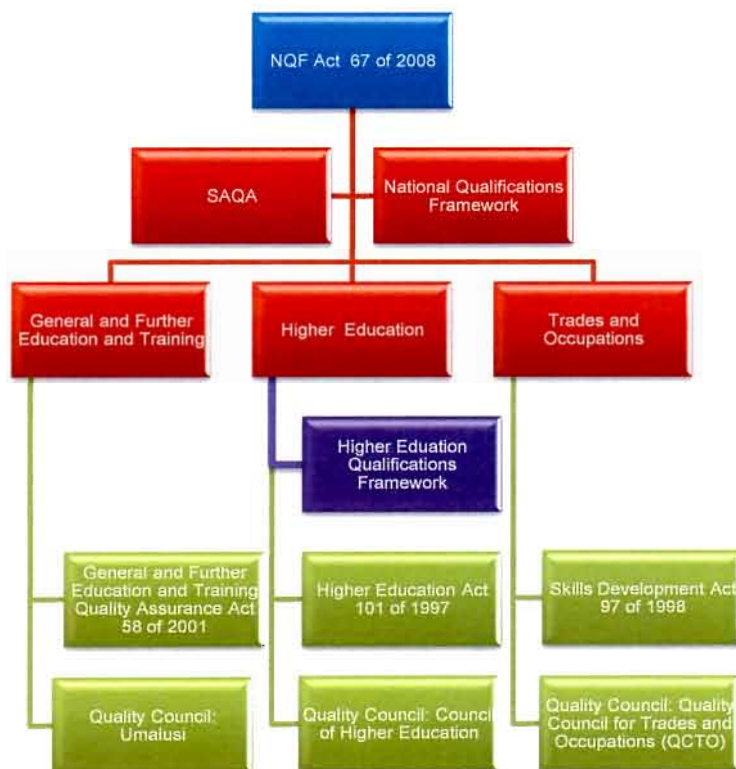


Figure 2.2 Graphic presentation of the sub-frameworks, legislation and quality councils within the NQF

The HEQF comprises six of the ten NQF levels from five to ten, with levels five to seven consisting of undergraduate studies, namely the higher certificate, advanced certificate, diploma, advanced diploma, three year bachelor's degree; and levels eight to ten,

consisting mainly of post-graduate studies, namely-four year bachelor's degree, the bachelor honours degree, post-graduate diploma, master's degree and doctoral degree. At each level, the HEQF establishes common parameters and criteria for qualifications with regard to specifications, designators, qualifiers, abbreviations, purpose and characteristics, minimum admission requirements and progression for all South African higher education institutions, in order to improve the coherence of the higher education system, comparability of qualifications across systems and enhance the flexibility of the system (Department of Education, 2009). The HEQF, however, also encourages higher education institutions to ensure programme diversity and innovation through designing their programmes to meet institutional visions, missions and plans, as well as the varying needs of the clients and communities they serve (Department of Education, 2007).

Another significant quality development in higher education in South Africa was the restructuring of the government in 2009 by the President of South Africa and the establishment of the Ministry of Higher Education and Training, which has enabled a specific focus on post-school education and the quality thereof. The primary goal of this administration is "to improve access to institutions of learning, as well as success for poor and rural students in particular, by moving from a racially-based elitist system to a more inclusive system." The new Department of Higher Education and Training (DHET) tabled the first Strategic Plan for Higher Education and Training 2010-2015 in the National Assembly and it was launched in April 2010. The Strategic Plan for Higher Education and Training explains how the administration will achieve their primary goal via a long-term, as well as a one-year perspective, by means of systematic programmes and interventions. The five programmes include: administration; human resources development, planning and monitoring coordination; University education; vocational and continuing education and training and skills development (Department of Higher Education and Training, 2010).

The improvement of quality teaching and learning, research, and community engagement is part of the transformation agenda of higher education. Quality is

ensured by the CHE which fulfils the function of standard setting for higher education qualifications, while the HEQC sub-committee of the CHE aims to satisfy accountability requirements and to create a culture of quality improvement through enabling higher education institutions to achieve greater measures of quality assurance self-regulation (CHE, 2004a:7; Pretorius, 2003:133). Also, through the NQF, the HEQF fulfils the central vision of the *Education White Paper 3: A Programme for the Transformation of Higher Education* and the NPHE in developing a single national co-ordinated higher education system (Department of Education, 2009). Furthermore, through the restructuring of the government, the Department of Higher Education and Training was established in 2009, which allows for a specific focus on post-school education and the quality thereof (Department of Higher Education and Training, 2010).

The higher education system inherited by the new government in 1994 was marked not only by segregation between white and black South Africans, but by a fragmented system with deep legacy characteristics such as “underperformance academically and administratively”, and a structural divide between teaching and research (Soudien, 2007:6; Hay, 2000:57). As a result, the government implemented transformation agendas, equity goals and policy initiatives as a means of overcoming the fragmented higher education system and redressing inequalities of the inherited education system (Portnoi, 2009:406; Gbadamosi & de Jager, 2009:879). These developments in higher education institutions have succeeded in creating a new higher education landscape. This landscape contains a single co-ordinated higher education system with new planning, governing and funding arrangements that have ensured the development of new institutional identities, the increase of student enrolments, graduate numbers and research outputs, and improvement of quality teaching and learning, research, and community engagement in higher education. However, it is within these historical conditions that the educational culture and context of doctoral education in South Africa must be understood. The doctoral education and research outputs of a country are inextricably linked, and where research has been constrained in a country, as in the apartheid era in South Africa, so has the advancement of doctoral education, and vice versa (Ketefian & McKenna, 2005:xv; Hinshaw & Leino-Kilpi, 2005:27).

2.4.3 DOCTORAL EDUCATION IN SOUTH AFRICA

Research, as well as graduate outputs of master's and especially doctoral graduates have received attention from the government as early as the *White Paper 3: A Programme for the Transformation of Higher Education*, which aimed to sustain and promote research. It stated as a goal: "To secure and advance high-level research capacity which can ensure both the continuation of self-initiated, open-ended intellectual inquiry, and the sustained application of research activities to technological improvement and social development" (Department of Education, 1997a:14). Five years later, the NPHE took this goal as the framework to institute and give effect to five priorities: to increase the graduate output, especially doctoral graduates; to increase research outputs; to sustain existing research capacity and create new centres of excellence; to facilitate partnerships and collaboration in research and post-graduate training; and to promote articulation between different elements of the research system (Ministry of Education, 2001:70).

Parallel to this process of policy making and implementation to promote and support research in South Africa, was the establishment of the National Research Foundation (NRF) in 1999, as the government's national agency for promoting and supporting basic and applied research, as well as innovation (NRF, 2010a). Receiving its mandate from the NRF Foundation Act (Act 23/1998), the NRF aims to "support and promote research through funding, human resource development and the provision of the necessary research facilities in order to facilitate the creation of knowledge, innovation and development in all fields of science and technology, including indigenous knowledge and thereby to contribute to the improvement of the quality of life of all people of the Republic (of South Africa)" (South Africa, 1998:3). The NRF provides a research support system and an evaluation and rating system, and is similar to the National Science Foundation in the USA, the Australian Research Council and the Research Council in the United Kingdom (Pouris, 2007:4).

The NRF has many initiatives, the most notable of which are the Thuthuka programme, the Technology and Human Resources for Industry Plan (THRIP) Programme, the

South African Research Chairs Initiative (SARChI), the Centres of Excellence (CoE) initiative, the South African PhD project, and the evaluation and rating of South African researcher's. Initiatives such as the Thuthuka programme are pointedly about developing human resources, building research capacity and developing research areas, and are allocated to researchers-in-training, women and black academics (NRF, 2010b). This programme is complemented by initiatives such as THRIP, which is focused on enhancing research and technology development in industry-related areas, while developing the quality and quantity of skilled people, and improving the quality of services and products in the field (NRF 2010c). Together with these, the initiatives of the SARChI and the CoE, both of which seek to increase the level of excellence and distinction in the different fields of research, generate and retain highly qualified researchers, and reward outstanding scholarship (NRF, 2010d; NRF 2010e; Soudien, 2007:5).

The most recent initiative by the Department of Science and Technology (DST) and the NRF is the South African PhD project which was launched in November 2007 with the specific aim of increasing the number and diversity of doctoral graduates produced annually by the South African higher education system (CHE, 2009b:v; CHE, 2009a:60). The broad mandate of the South African PhD project is to: 1) Secure and promote foreign and local study opportunities; 2) Offer competitive bursary packages to PhD and post-doctoral candidates; 3) Promote the professional advantages of obtaining a PhD through peer and mentor support groups; 4) Increase the pipeline of potential candidates that can qualify for PhD studies; and 5) Partner with universities, funding agencies and business (NRF, 2009a).

The NRF also employs a quality assurance initiative for South African researchers, where national and international peer reviewers evaluate and rate researchers in South Africa based on the quality of their research outputs over a seven-year period. The rating procedure allows benchmarking of researchers by rating them in one of six categories, A, B, C, P, Y, and L, (see Table 2.2 for the definition and description of the NRF categories) which allows researchers to compare their standing amongst peers in

the research community both nationally and internationally. The process further benefits researchers who are rated by NRF to receive incentive funding, be eligible for extended periods of research funding and be acknowledged for exceptional scholarship (NRF, 2010e).

Table 2.2: Definition and description of NRF categories

Category	Definition	Sub-category	Description
A	Researchers who are unequivocally recognized by their peers as leading international scholars in their field for the high quality and impact of their recent research outputs.	A1	A researcher in this group is recognized by all reviewers as a leading scholar in his or her field internationally for the high quality and wide impact (i.e. beyond a narrow field of specialization) of his/her recent research outputs.
		A2	A researcher in this group is recognized by the overriding majority of reviewers as a leading scholar in his or her field internationally for the high quality and impact (either wide or confined) of his or her recent research outputs.
B	Researchers who enjoy considerable international recognition by their peers for the high quality and impact of their recent research outputs.	B1	All reviewers concur that the applicant enjoys considerable international recognition for the high quality and impact of his/her recent research outputs, with some of them indicating that he/she is a leading international scholar in the field.
		B2	All or the overriding majority of reviewers are firmly convinced that the applicant enjoys considerable international recognition for the high quality and impact of his/her recent research outputs.
		B3	Most of the reviewers are convinced that the applicant enjoys considerable international recognition for the high quality and impact of his/her recent research outputs.

C	<p>Established researchers with a sustained recent record of productivity in the field who are recognized by their peers as having:</p> <ul style="list-style-type: none"> • produced a body of quality work, the core of which has coherence and attests to ongoing engagement with the field • demonstrated the ability to conceptualize problems and apply research methods to investigating them. 	C1	While all reviewers concur that the applicant is an established researcher (as described), some of them indicate that he/she already enjoys considerable international recognition for his/her high quality recent research outputs.
		C2	All or the overriding majority of reviewers are firmly convinced that the applicant is an established researcher (as described).
		C3	Most of the reviewers concur that the applicant is an established researcher (as described).
P	<p>Young researchers (normally younger than 35 years of age), who have held a doctorate or equivalent qualification for less than five years at the time of application and who, on the basis of exceptional potential demonstrated in their published doctoral work and/or their research outputs in their early post-doctoral careers are considered likely to become future leaders in their field.</p>		<p>Researchers in this group are recognized by all or the over-riding majority of reviewers as having demonstrated the potential of becoming future leaders in their field, on the basis of exceptional research performance and output from their doctoral and/or early post-doctoral research careers.</p>
Y	<p>Young researchers (normally younger than 35 years of age), who have held a doctorate or equivalent qualification for less than five years at the time of application, and who are recognized as having the potential to establish themselves as researchers within a five-year period after evaluation, based on their performance and productivity as researchers during their doctoral studies and/or early post-doctoral careers.</p>	Y1	<p>A researcher in this group is recognized by all reviewers as having the potential (demonstrated by research products) to establish him/herself as a researcher with some of them indicating that he/she has the potential to become a future leader in his/her field. (Applicants on the borderline between P and Y should be rated at this level.)</p>
		Y2	<p>A researcher in this group is recognized by all or the over-riding majority of reviewers as having the potential to establish him/herself as a researcher (demonstrated by recent research products).</p>

<p>L</p>	<p>Persons (normally younger than 55 years) who were previously established as researchers or who previously demonstrated potential through their own research products, and who are considered capable of fully establishing or re-establishing themselves as researchers within a five-year period after evaluation. Candidates should be South African citizens or foreign nationals who have been resident in South Africa for five years during which time they have been unable for practical reasons to realize their potential as researchers.</p> <p>Candidates who are eligible in this category include:</p> <ul style="list-style-type: none"> • black researchers • female researchers • those employed in a higher education institution that lacked a research environment • those who were previously established as researchers and have returned to a research environment. 	<p>This category was introduced to draw an increased number of researchers with potential from disadvantaged backgrounds as well as women into research. It also caters for persons previously established as researchers who have returned to a research environment after periods in industry or elsewhere. Applicants must demonstrate that they could not realize their potential or sustain their research ability by virtue of a lack of a research environment, or time spent in industry, or on maternity leave, or raising a family. For candidates to qualify for this category the employing institution must have demonstrated its financial commitment towards a development strategy for the staff member concerned.</p>
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Source: NRF, 2005.

The NRF researcher evaluation and rating system is an approach followed by a number of other countries, such as the “Performance Based Research Fund” in New Zealand, the National Science Council’s “Research Outcome Award” in Taiwan and the “National Researchers System” (SNI) in Mexico. All of these focus on promoting research excellence, retaining good academics within the higher education system and avoiding brain drain (Pouris, 2007:4).

The importance of quality research to South Africa is evidenced in policy making and policy implementation to promote and support research in South Africa, and the parliamentary vote to institutions such as the NRF. The NRF aims to improve the quality of research in South Africa through fulfilling the dual function of a support system and a rating and evaluation system. As a support system, the NRF aims to build research capacity, develop research areas, and enhance research and technology

through funding, human resource development and the provision of the necessary research facilities. The rating and evaluation or benchmarking system aims to promote and safeguard research excellence and generate and retain highly qualified researchers through acknowledging and rewarding outstanding scholarship. These efforts as a whole, have enabled the higher education system to make much progress in fulfilling the goal of the *White Paper 3: A Programme for the Transformation of Higher Education* and the priorities of the NPHE with regard to increasing doctoral student enrolments, doctoral graduate numbers and research outputs (CHE, 2009b:ix).

2.4.3.1 DOCTORAL EDUCATION TRENDS IN SOUTH AFRICA

Higher education enrolments showed substantial growth and almost doubled between 1990 and 2005 from 385 700 enrolments to 715 800 enrolments, while higher education graduates more than doubled in this same period of time, from 56 744 graduates to 120 385 graduates (CHE, 2009b:xi). The total number of doctoral student enrolments in South Africa increased from 1 897 in 2000 to 2 692 in 2005 (CHE, 2009b:8), while doctoral graduates increased slightly between 2000 and 2005, from 822 graduates to 1 176 graduates (CHE, 2009b:12).

The total number of doctoral students in 2005 was 9 434 students, with 2 692 (29%) first enrolments, 1 176 (12%) graduates and 5 566 (59%) ongoing enrolments (CHE, 2009b:xvii). The average annual growth rate for students enrolling for doctoral degrees was 7.3% or 164 enrolments per annum between 2000-2005 (CHE, 2009b:xii) and the average annual growth rates for doctoral graduates was 7.7% or 73 graduates per annum between 2000 and 2005 (CHE, 2009b:xv), compared to 26 graduates per year from 1995 to 2000. Three out of five (59%) of all enrolled doctoral students were historical enrolments, having increased from 54% in 2000 to 59% in 2005 (CHE, 2009b:xviii), which has resulted in the fact that doctoral graduates as a percentage of the total doctoral enrolments has decreased from 14% in 2000 to 12% in 2005 (CHE, 2009b:xvii). In addition to this pile-up effect, the number of post-graduate students has more than doubled in the last fifteen years, while the number of permanent academics has only increased by 40%. This has resulted in the burden of supervision increasing

from 3.8 to 5.2 students per academic personnel member at the master's level, and at the doctoral level from 1.3 to 2.2 students per academic personnel member (CHE, 2009b:xix).

The average time to completion for doctoral students is approximately 4.7 years, which compares favourably with international trends (Mouton, 2007:1088; CHE 2009b:xviii) with most students graduating at the age of 40 years (CHE, 2009b, xxiii). It is noteworthy that older students take significantly longer to complete their doctoral degrees (see Table 2.3). When focusing on the demographics, in 2005, 40% of these doctoral enrolments were female (CHE, 2009b:xx), 29% black, 6% coloured, 7% Indian and 59% white (CHE, 2009b:xxi), with 13% being in the under-30 age group, 40% in the 30-39 age group, and 29% in the 40-49 age group, (CHE, 2009b:35). Also, 26% of first time enrolments and 25% of doctoral graduates were non-South African students (CHE, 2009b:27-28).

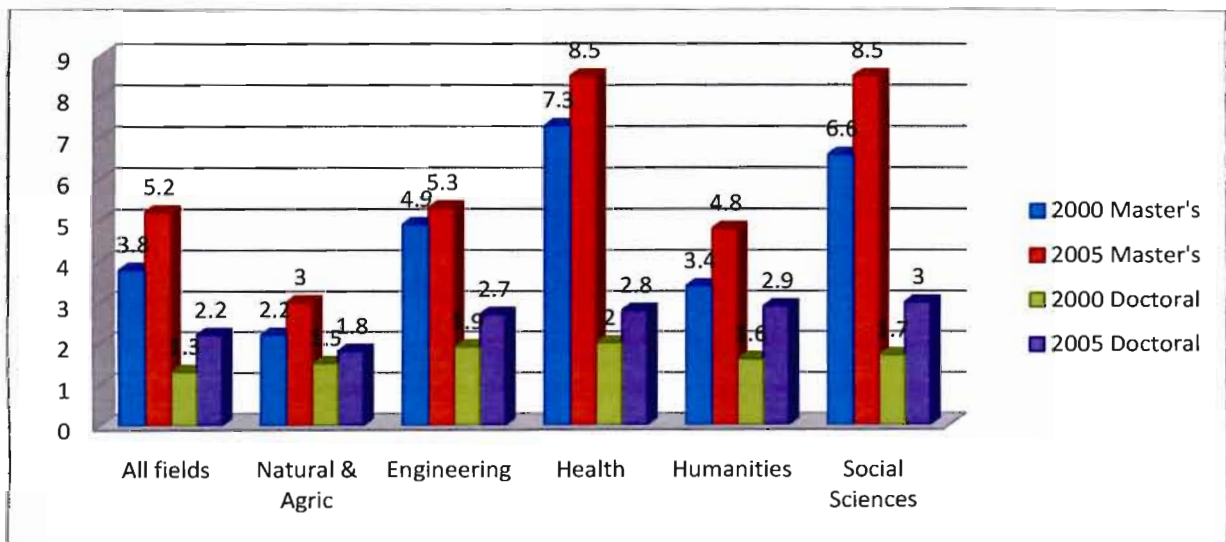
Table 2.3: Time (in years) taken by doctoral students to complete their degrees by age group, 2000 and 2005.

Age	2000		2005	
	Mean	N	Mean	N
< 30	3.7	89	3.5	139
30-39	4.5	251	4.7	443
40-49	5.0	171	4.9	321
50-59	5.7	62	5.3	150
60 or older	5.1	15	5.5	40
Total	4.6	588	4.7	1093

(SOURCE: Adapted from CHE, 2009b:xix)

In the health sciences, 302 students or 11.2% of the total doctoral enrolments, (CHE, 2009b:10) and 166 or 14.1% of the total doctoral graduates were registered for health science studies in 2005. The average annual growth rate for students enrolling for doctoral degrees in health sciences was 7.6% or 18 enrolments per annum (CHE,2009a:9), and the average annual growth rate for doctoral graduates in the health sciences was 9.5% or 11 graduates per annum between 2000-2005 (CHE, 2009b:14).

The completion rates for health science doctoral students was 4.5 years (CHE, 2009b:xviii), which compares favourably with the national and international doctoral study completion rate trends. Of concern, is that the burden of supervision for academic personnel in the health sciences is the second highest across all faculties (see Figure 2.3) and has increased from 7.3 to 8.5 students per academic personnel member at the master's level, and at the doctoral level from 2.0 to 2.8 students per academic personnel member (CHE, 2009b:xx).



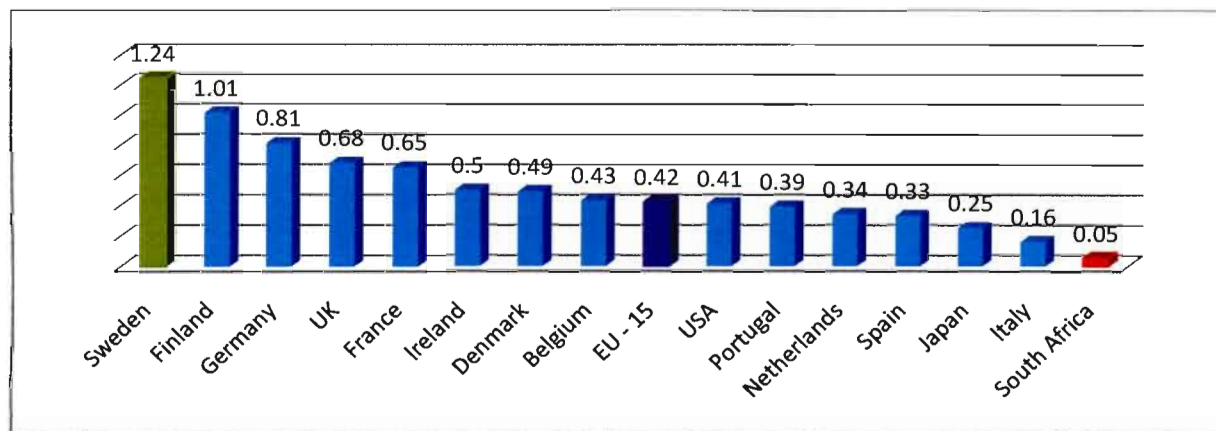
(Adapted from CHE, 2009:xx)

Figure 2.3 Burden of supervision by academic personnel: Average number of master's and doctoral students per academic personnel member

Although these statistics show an increase in doctoral enrolments and graduates, doctoral participation rates in South Africa, based on the total number of doctoral graduates per thousand of the population, show that merely 0.15 (0.05 black South Africans and 1.43 white South Africans) of the population from the 25-34 age group and 0.23 (0.09 black South Africans and 1.05 white South Africans) from the 35-44 age group are doctoral graduates (CHE, 2009b, xxiii). These doctoral participation rates do not compare favourably on an international level, as evidenced by the fact that South Africa presently graduates a mere 27 doctoral students per million of the population

compared to 42 in Brazil, 172 in South Korea, 240 in Australia and 259 in the UK (NRF, 2009a).

Furthermore, the most recent data which can be used to benchmark doctoral participation rates in South Africa as compared to the rest of the world is the number of doctoral graduates in science and engineering fields per thousand of the population for the age group 25 – 34 years in the year 2000 (see Figure 2.4). Sweden tops the European Union (EU) with 1.24 doctoral graduates per 1000 of the age group (25-34), the EU average for this tier was 0.42 and the statistic for South Africa was a meagre 0.05 (CHE, 2009b:xxiv; Mouton, 2007:1088).



(Source: CHE, 2009a:xxiv)

Figure 2.4 Doctoral graduates in science and engineering fields per 1000 in the 25-34 age group (2000).

In 2007, 41 383 permanent academic personnel members were employed in higher education institutions (decreasing from the 41 521 employed in 2004) (CHE, 2009a:71), of which 6 806 (16%) had doctoral degrees and 14 033 (34%) had master's degrees (improving from 14% with doctoral degrees and 30% with master's degrees in 2004) (CHE, 2009a:73). This directly translates into the fact that 50% of all permanent academic personnel are qualified at a level lower than a master's degree. Furthermore, doctorate qualified academic personnel are distributed unevenly within the different higher education institutions, with approximately 8% of academic personnel at

Universities of Technology having doctoral degrees; 12% at comprehensive universities and 21% at universities (CHE, 2009a:73). The fact that only 14% of academic personnel have doctoral degrees severely impacts on the quality of doctoral education, as these doctorate qualified academic personnel have the burden of supervising all doctoral students in South Africa. This directly impacts on the academic personnel member, who is burdened with such heavy workloads that it often precludes research activities and directly translates into a limited number of research programmes and funding opportunities available to doctoral students (Ketefian *et al.*, 2005b:107). It further impacts on doctoral students, as there is less time for individual student guidance, which often increases the time needed for completion of studies, and compromises the quality of work (Ketefian *et al.*, 2005b:112).

The NRF rating system, although not a perfect measure, gives some indication of the number of active researchers in the country. Of the total academic personnel members in higher education institutions, about 5% are NRF rated researchers (CHE, 2009a:71; NRF 2009b). In South Africa there are currently, 1 922 rated researchers of which 78 are A-rated researchers, 443 are B-rated researchers, 1 069 are C-rated researchers, 16 are P-rated researchers, 254 are Y-rated researchers and 62 are L-rated researchers (see Table 2.2 for the definition and description of the NRF categories) (NRF 2009b). The NRF rating system not only acknowledges exceptional researchers in the country, but further provides researchers with incentive funding and extended periods of research funding. This, in turn, directly impacts on the quality of doctoral education, as doctoral students have the opportunity to become involved in established research programmes with adequate funding for doctoral studies.

It is significant that, of the rated researchers, approximately 13% are black South Africans (increasing from 9% in 2003) and 25% are women (increasing from 21% in 2003) (NRF, 2007), with 12% between the age of 30-39 years, 33% between the age of 40-49 years, 36% between the age of 50-59 years and 19% over the age of 60 years (NRF, 2007). Based on these statistics, it is understandable that current trends demonstrate that between 38% and 65% of all research outputs are attributed to

authors over the age of 50 years, while in 1990 this statistic was significantly lower with between 14% and 42% of research being produced by authors over the age of 50 years (CHE, 2009a:59). This signifies that the active scientific workforce is aging (CHE, 2009a:58), and although higher education institutions are employing significant numbers of younger academics, many of them do not yet have their doctoral degrees, and are therefore not yet significantly contributing to the research output (CHE, 2009a:59).

Between 2001 and 2007, 38 238 ISI-indexed research papers from South Africa were produced with the presence of all 22 disciplines, indicating that the minimum thresholds in all disciplines had been reached (CHE, 2009a:47; Jeenah & Pouris, 2008:351). These ISI-indexed research papers were, however, dominated by the natural and agricultural sciences (53-55%), followed by the health sciences (25%) and the engineering sciences (10%) (CHE, 2009a:54), while the overall research outputs of journal articles from South Africa (including articles from non-indexed scientific journals) demonstrates that natural sciences account for 36% of journal articles, arts and humanities for 21%, medical and health sciences 20%, social and economic sciences 16%, and engineering sciences 6% (CHE, 2009a:52).

From 2003 to 2007, there has been a 69% growth of research outputs in South Africa (including articles from non-indexed scientific journals), which translates into an annual growth rate of approximately 14.3% (CHE, 2009a:47), although South African ISI-indexed research papers increased by only 2.4% from 1996 to 2005. This compares unfavourably with a 3.5% increase in international science, as reflected by the volume of publications in the ISI database (Jeenah & Pouris, 2008:352). This may be due to the fact that of the 255 South African research journals, only 23 are indexed scientific journals, a third of which have never been referenced in international journals (Schulze, 2008:644). On average, between 2003 and 2007, there were 60 monographs, 222 collected works and 484 chapters published per year, which attracts approximately 10% of the overall annual research outputs funding (CHE, 2009a:51).

Although South Africa contributes 64% of all research undertaken in Africa (Yusuf, MacKenzie, Shall & Ward, 2008:29), it does not compare favourably with India and Brazil, two other countries from the group of developing nations that are considered innovative. Between 1996 and 2005, South Africans published 39 553 articles, while Brazilians published 110 206 articles and Indians a staggering 189 192 articles, directly translating into the fact that South Africa produces only 21% as many papers as India and less than 35% of Brazil (Jeenah & Pouris, 2008:354). Furthermore, South Africa is rated in the top 20 countries with regard to the number of publications, in only two disciplines, plant and animal sciences at position 18 and geosciences at position 20, while Brazil is ranked in the top 20 countries in 12 disciplines, with the highest rank being position 11 (agricultural sciences), while India is in the top 20 countries in 13 disciplines, with 5 disciplines ranked in the top 10 in the world (Jeenah & Pouris, 2008:353). However, in terms of citations per paper, which measures the usefulness and impact of publications, and possibly its quality, South Africa outranks both India and Brazil in all 22 disciplines (Jeenah & Pouris, 2008:354) indicating that South African higher education institutions' research remains competitive despite many challenges and constraints.

The poor comparative research outputs between South Africa and its counterparts can be justified when one further compares doctoral graduation rates and the number of doctorally qualified academic personnel. In 2006, 9 500 doctoral students graduated in Brazil (increasing from 3 000 in 1996) (Bawa & Vale, 2008), compared to 1 176 doctoral graduates in South Africa in 2005 (CHE, 2009a:12). In 2004, 32 364 academic personnel members in Brazil were doctorally qualified (increasing from 19 600 in 1996) (Bawa & Vale, 2008), compared to 6 806 doctorally qualified academic personnel in South Africa in 2007 (CHE, 2009b:71). Even in India 0.1% of the population is doctorally qualified, compared to 0.01% in South Africa (Bawa & Vale, 2008).

Again, the inextricable link between research and doctoral education comes to the fore. South Africa's backlog in both research and doctoral education development is not only influenced by historical conditions, but the fact that both Brazil and India spend more on

research and development as a percentage of the GDP, namely \$943.6 billion and \$796.1 respectively, compared to \$200.5 billion in South Africa (Jeenah & Pouris, 2008:354). Most significantly countries such as Brazil have been putting strategies in place even for the last four decades to increase the number of post-graduate enrolments and graduates, as well as the quality of post-graduate research and education (Bawa & Vale, 2008).

2.4.3.2 DOCTORAL EDUCATION IN NURSING IN SOUTH AFRICA

In 1965, Dr C Searle was the first nurse in South Africa to be awarded a doctorate, for a thesis entitled: "The history of the development of nursing in South Africa 1952-1960: A socio-historical survey" (Potgieter, 1992:162; Kotze, 1984:13). In 1967, the first doctoral degree in nursing science in South Africa was instituted at the University of Pretoria (Potgieter, 1992:162). However, the first doctoral students in nursing could only enrol in the doctoral programme in 1970, as the admission requirement to the doctoral programme required a master's degree in nursing science, a two-year and six-month course, which had only been instituted for the first time in South Africa in 1966 (Potgieter, 1992:161). In 1976, Dr JM Mellish was the first nurse to be awarded a doctorate in nursing in South Africa, and by 1985 there were seven universities in the country offering doctoral degrees in nursing, with 17 nurses who had earned their doctorates (Potgieter, 1992:162).

Today, doctoral education in nursing is offered at sixteen higher education institutions in South Africa, namely at nine universities, five comprehensive universities and two universities of technology. In South Africa, doctoral degrees in nursing are all research intensive with no structured course work, although different types of doctoral degrees are awarded based on the nomenclature used at each respective higher education institution. These are the PhD, D.Phil, D.Cur, D.Soc.Sc., D.Tech or the D.Litt.et.Phil. Admission requirements to doctoral education in nursing vary among nursing schools/departments/divisions, but in general all higher education institutions require prospective doctoral students to be registered at SANC and to possess a master's degree or an equivalent qualification. Some nursing schools/departments/divisions

further require the submission of a detailed academic record together with a research proposal. The submitted research proposal is then reviewed by the nursing school/department/division graduate or admission committee, and the doctoral student is accepted or rejected on the committee's recommendation (Ehlers, 2007:5).

Once the prospective doctoral student has been selected for the doctoral programme, some nursing schools/departments/divisions require prospective doctoral students to register at the respective higher education institution immediately, to commence their doctoral studies. Other nursing schools/departments/divisions require that prospective doctoral students first complete a research proposal before they can register. Some nursing schools/departments/divisions make use of either voluntary or compulsory research workshops to orientate prospective/registered doctoral students to doctoral education in nursing. The decision regarding the topic and title of the research rests with the prospective/registered doctoral student, and generally promoters volunteer to be allocated to a prospective/registered doctoral student depending on their field of research, their research interests and expertise, and available capacity. At other times the prospective/registered doctoral student may request a specific promoter or a prospective/registered doctoral student may be assigned to a promoter by the nursing dean, or the admission or graduate committee. Co-promoters are allocated to prospective/registered doctoral students for mainly two reasons, either for their expertise in a methodology or field of study, or as an opportunity for newly doctorally qualified or inexperienced academic personnel to learn to supervise doctoral students. Co-promoters may be appointed from any department within the higher education institution, from other higher education institutions within or outside of South Africa, or even other relevant institutions (Ehlers, 2007:5).

Once the doctoral student has been registered, access is gained to the relevant higher education institution's library, including the library holdings, electronic databases, inter-library loans and librarian support. Statistical consultation services are also made available to doctoral students throughout the research process, in order to ensure validity and reliability of the measuring instrument in the development phase and to

analyze data and ensure correct interpretation of the data by doctoral students (Ehlers, 2007:5-7), although the availability and quality of these resources differ significantly among higher education institutions. Technical and language editing of a thesis is required by higher education institutions, but it is not a freely available resource and as such, it is the organizational and financial responsibility of the doctoral student to conduct technical and language editing at most higher education institutions (Ehlers, 2007:7).

Once the proposal has been completed, the proposal is submitted to a graduate committee for approval (i.e. the nursing school/department/division or faculty graduate committee). After such approval has been granted, some nursing schools/departments/divisions further require that the doctoral student present an oral defence of the proposal to the higher education and scientific community of the nursing profession. After successful completion, the proposal is submitted to the relevant higher education institution's ethical review board for ethical clearance. At this time the promoter is also required to register the title of the thesis, which is then approved by the nursing dean, and finally by the respective faculty research committee. The title is then also registered on the South African national database (NEXUS) to ensure that no other student/researcher conducts research on the same topic.

In South Africa, the thesis can be submitted in one of two formats, either the traditional 80 000 – 100 000 word thesis or in an article model format. Generally, the pattern adopted for a traditional thesis consists of several chapters (5-8). The first chapter provides the general background and introduction to the study, the second chapter reviews the literature relevant to the topic, the third chapter discusses and justifies the methodology used, while the next one to four chapters analyses and discusses the findings, and the final chapter highlights the limitations, conclusions and recommendations of the study (Ehlers, 2007:7). A thesis in the article model format has in common the first chapter providing the background and introduction, the second chapter reviewing the literature relevant to the topic and the final chapter comprising the limitations, conclusions and recommendations of the study. The chapters with the

methodology, and the analysis and discussion of the findings are incorporated into manuscripts that can be submitted for publication, the number of which depend on the discipline, the questions addressed and/or the hypothesis tested (Vorster, 2009:2). In both formats, the thesis must meet the requirements of doctoral education, in that it must constitute a unique contribution to the scientific knowledge of nursing science, and it must be meaningful and should have an impact at provincial and national level (Klopper, 2007b:2).

At the sixteen higher education institutions that offer doctoral degrees in nursing, the minimum duration for full-time study ranges between two to three years, while the maximum duration is five years. The minimum duration for part-time study ranges between three to four years, and the maximum duration ranges from six to seven years. Registration each year is dependent on progress reports submitted by the promoter to advise the respective higher education institution of the student's progress (Ehlers, 2007:8).

The promoter enters into a supervision relationship with the doctoral student, giving structure to the doctoral research project and guiding the doctoral student as required, but the doctoral student is responsible for reading and compiling the chapters, which are submitted to the promoter chapter by chapter for review and feedback (Ehlers, 2007:8). The promoter and student relationships can be divided into six types: the delegator, the friend, the expert guide, the coach, the quality controller and the co-writer. The delegator type is often the dean, head of school/department/division or leader of a large research programme that successfully acquires research projects and funding because of their reputation in the field, but they spend most of their time managing their projects. They spend little or no time supervising doctoral students, with the result that supervision of doctoral students is delegated to others. The friend type focuses largely on the personal matters of the doctoral student, with little or no attention paid to the doctoral study. The expert guide promoter keeps a distance with regard to the personal matters of the doctoral student and aims to help doctoral students develop as scholars by directing them, encouraging innovation, co-ordinating work schedules, monitoring

progress against work schedules and acting as a broker. The coach promoter is also committed to the development of doctoral students, but more with regard to professional and personality development of doctoral students than with their doctoral study and development as a scholar. The quality controller promoter will only meet the student after a concept chapter or publication has been handed in as they are only concerned with the scientific quality of written products of doctoral students, which they critique without any suggestions for improvements, believing that students need to figure it out themselves. Finally, the co-writer promoter invests a lot of time writing or designing written products with the student, they are often focused on the language and communicative intent of the written products, often correcting mistakes and suggesting improvements to sentences, paragraphs or parts of the thesis (Dietz, Jansen & Wadee, 2006:71-74).

Prior to completion, the doctoral student and promoter notify the respective higher education institution in writing of the doctoral student's intention to complete the doctoral research study, and at this time the promoter appoints examiners for the thesis, which is then approved by the nursing dean, and thereafter by the respective faculty research committee. Subsequent to such approval, three to four bound copies of the completed thesis are sent to the appointed examiners, one or two of which are internal examiners within the respective higher education institution, and at least two of which are external examiners in higher education institutions within or outside of South Africa (Ehlers, 2007:8).

The examiners are provided with an examiner's report form by the respective higher education institution's administration. This allows different elements of the thesis to be evaluated, as well as the specific contributions to the science to be highlighted, and the suitability for publication to be indicated. Thereafter, a final indication of the acceptance of the thesis is marked as accepted with minor amendments, accepted with major amendments or not accepted. These reports are then submitted to a non-examining chairperson and/or the promoter, who prepares a combined report for the examination committee. When there is a large discrepancy amongst the examiners' reports, an

additional examiner or arbitrator might be appointed, or the doctoral student may be offered an oral examination opportunity, or a final opportunity to amend the thesis. In the case of minor amendments, the doctoral student and promoter amend the thesis accordingly, and inform the examining committee upon completion, while major amendments require the thesis to be re-examined (Ehlers, 2007:8). Publication of articles from the thesis prior to examination of the thesis or before graduation from the doctoral programme is based on the requirements outlined by that respective higher education institution's policy (Ehlers, 2007:9).

Although all sixteen nursing schools/departments/divisions offer research intensive doctoral degrees, it is apparent that each nursing school/department/division differs significantly with regard to the aim, title, mode of delivery, prerequisites, content, assessment standards and awards of doctoral degrees in nursing.

2.5 QUALITY OF DOCTORAL EDUCATION IN NURSING

With such fundamental variances between different doctoral programmes in nursing, not only between nations, but also between higher education institutions within nations (Slevin & Hanucharurnkul, 2005:1), leaders in nursing increasingly began to question the quality and standards of doctoral education in nursing (Ketefian *et al.*, 2005:152; Kim *et al.*, 2005:147; Kim *et al.*, 2006:478). Especially in light of the fact that doctoral education in nursing has been rapidly proliferating in many parts of the world, with over 273 programmes in more than 31 countries worldwide (Meleis, 2005:xii; Ketefian *et al.*, 2005:150 & 152).

To address this issue of the quality of doctoral education in nursing, the International Network for Doctoral Education in Nursing (INDEN) constituted the Quality Criteria, Standards, and Indicators for doctoral education in nursing (QCSI) task team in 2000. This body had fifteen members from eight different countries, namely: Australia, Brazil, Canada, Korea, Poland, South Africa, United Kingdom and the United States of America, covering five continents. Their task was to develop a set of criteria, standards

and indicators that can be applied worldwide to ensure the quality of doctoral education in nursing (Kim *et al.*, 2006:477, 481). The QCSI task team investigated doctoral education in each of these eight countries, in two phases over a three-year period. The team drafted a document based on the Position Statement of AACN on “Indicators of Quality in Research-focused Doctoral Education in Nursing” (AACN, 2001) along with the inputs of experienced educators and leaders in doctoral education in nursing worldwide, relevant literature from a number of countries, and material provided by various committee members from their respective institutions. The QCSI document was circulated thrice over the three-year period to all INDEN members and their inputs were incorporated in the document. Criteria, standards or indicators that were identified by members as being not applicable in their countries were removed in the final version of the document (Kim & Ketefian, 2004:1; Kim *et al.*, 2006:481). The final draft of the QCSI document was shared with the INDEN membership in November 2003. This was the fourth time the evolving document was shared with the membership electronically, in addition to face to face discussions at the biennial meetings of the INDEN in 2001 and 2003 (Kim *et al.*, 2006:481).

The seven major criteria that were identified in this investigation included: the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources and evaluation of the programme (Kim *et al.*, 2006:477-478, Kim & Ketefian, 2004:1). The mission of the institution was identified as an important criterion as it largely dictates the quality and nature of the doctoral programme presented by the nursing school/department/division (Kim *et al.*, 2005:148; Kim *et al.*, 2006:482). The criteria of quality of academic personnel, doctoral students, curriculum, programme administration, availability of institutional resources, and evaluation of the programme all have sub-criteria with standards and indicators to measure the quality of each specific criterion with regard to the doctoral programme in nursing (see Table 2.4).

Table 2.4: Criteria, sub-criteria, standards and indicators to measure the quality of doctoral education in nursing (Adapted from Kim *et al.*, 2005:483-488 and Kim & Ketefian, 2004:3-13).

CRITERIA	SUB-CRITERIA	STANDARDS	INDICATORS
ACADEMIC PERSONNEL	Qualification	Qualified to contribute to the doctoral programme	<ul style="list-style-type: none"> Academic personnel satisfy the requirements of the higher education institution to teach doctoral education, supervise doctoral students and conduct research.
	Academic personnel roles	Fulfill diverse responsibilities and roles	<ul style="list-style-type: none"> Academic personnel demonstrate fulfillment of responsibilities and roles including the tripartite mission of research, teaching, advising and mentoring, and practice and service
	Research	Qualified for research	<ul style="list-style-type: none"> Academic personnel have earned doctorates in nursing or related fields Academic personnel exhibit sufficient evidence of programmes of research and scholarship Academic personnel exhibit evidence of extramural support for their research and success in obtaining funding for their students
	Teaching, advisement and mentoring	Provide students with challenging learning experiences	<ul style="list-style-type: none"> Academic personnel have teaching experience in nursing education prior to working with doctoral students Academic personnel exhibit evidence of expertise in the subject areas appropriate for student learning Academic personnel have evidence by students' report of the degree of diverse intellectual perspectives and challenges
	Practice and service	Demonstrate clinical competence and provide service for professional organizations at national and international level	<ul style="list-style-type: none"> Academic personnel have evidence of certificates in nursing specialties and membership in professional organizations

Admission	Demonstrate intellectual capacity, knowledge and experience in research and professional career plan	<ul style="list-style-type: none"> • Students meet requirements of the higher education institution for doctoral education • Students have an acceptable level of research knowledge and are able to articulate professional career plan goals • Registered nurse
	Students' goals congruent with academic personnel expertise and institutional resources	<ul style="list-style-type: none"> • Students' research goals and objectives are congruent with the academic personnel members' research expertise and scholarship, and institutional resources
Progression	Successful in obtaining academic and research funding and awards	<ul style="list-style-type: none"> • Students have evidence of academic, service and research awards
	Meet the milestones of the programme	<ul style="list-style-type: none"> • Students demonstrate acceptable participation/ presentation in doctoral and other seminars • Students successfully pass all assigned work or examinations
	The administration has systems in place to ensure that academic personnel provide regular and appropriate supervision of student's progress	<ul style="list-style-type: none"> • Presence of a monitoring system for regular and appropriate supervision of student progress
	Establish a pattern of productive scholarship, collaborating with researchers in nursing and other disciplines in scientific endeavours	<ul style="list-style-type: none"> • Students have evidence of scientific production disseminated in scientific meetings and indexed scientific journals
Graduation	Demonstrate qualification for graduation as specified by the doctoral programme	<ul style="list-style-type: none"> • Fulfill qualifying requirements of the higher education institution • Approval of dissertation research proposal and completed research • Students have evidence of scientific production disseminated in scientific meetings and indexed scientific journals
	Quality of thesis is acceptable in terms of the norms of the doctoral programme	<ul style="list-style-type: none"> • Students have evidence of scientific production disseminated in scientific meetings and indexed scientific journals
Time frame	Graduate within acceptable period	<ul style="list-style-type: none"> • Graduate within acceptable period in accordance to the requirements of the higher education institution

CURRICULUM	Goal and content	The goals of the nursing programme are consistent with the mission of the institution and the discipline of nursing	<ul style="list-style-type: none"> Consistency with philosophy and mission of the parent higher education institution and nursing programme
		Emphasis is on nursing science and research training	<ul style="list-style-type: none"> Evidence of emphasis on nursing science and research training in the curriculum
		Research focus areas are presented to familiarize students to academic personnel research expertise	<ul style="list-style-type: none"> Students are introduced to academic personnel's research areas
		Core courses and other courses appropriate for doctoral degree in nursing are described	<ul style="list-style-type: none"> Description of core courses is presented
		Ethics course on protection of human/ animal subjects in research	<ul style="list-style-type: none"> All students receive formal training in ethics
		Written course descriptors are made available for students and academic personnel	<ul style="list-style-type: none"> Descriptors of courses regarding credits, hours, methods of teaching and evaluation, are stated. Different types of courses including seminars, thesis research and the balance between different types of courses are stated.
ADMINISTRATION AND INFRASTRUCTURE	Learning environment	The environment is supportive of students' learning	<ul style="list-style-type: none"> Evidence of mentorship, an intellectually challenging environment, and financial assistance available for students
		The programme has a process in place that fosters socialization of students to doctoral education, and facilitates interaction among students, and academic personnel and students	<ul style="list-style-type: none"> Mechanisms in place for socialization among students, and between academic personnel and students Evidence of close mentor-student relationships In the case of distance education, email and internet access is available, accessible and affordable, and chat rooms on the internet are set up
		The doctoral programme has a sufficient number of academic personnel to facilitate learning	<ul style="list-style-type: none"> Generally, each academic personnel member should serve as the major adviser for no more than 3-5 doctoral students
	Administration	The administration has systems in place to ensure that academic personnel conduct	<ul style="list-style-type: none"> Evidence of academic personnel meeting regularly with students and monitoring student progress through an accepted system within the higher

RESOURCES		regular and appropriate supervision of the students' progress	education institution	
		Sufficient materials and information are available about the nursing school/department/division and opportunities for students	<ul style="list-style-type: none"> • Appropriate information is provided on the doctoral programme features and requirements • Evidence of career advising and job placement 	
		Research infrastructure is appropriate for facilitating research and education	<ul style="list-style-type: none"> • Administrative structure is in place with appropriate technical staff for academic personnel, consultation on grant proposal development and statistics, and peer discussion of research projects, mentoring and exchange of expertise 	
		The higher education institution rewards faculty and students for their research and scholarly activities	<ul style="list-style-type: none"> • Evidence of scientific production disseminated in scientific meetings and indexed scientific journals 	
	Human Resources		The doctoral programme has a sufficient number of academic personnel to facilitate learning	<ul style="list-style-type: none"> • Judgments are made as to academic personnel responsibilities in various units of the higher education institution
			Number of support staff is sufficient to support the academic personnel and students	<ul style="list-style-type: none"> • Number of technical staff and support staff is in relation to the size of the doctoral programme
			Salaries are appropriate for the titles and roles	<ul style="list-style-type: none"> • Competitive to market levels within the region or country for all personnel
	Material and technical resources		Advanced computing facility with internet access in place	<ul style="list-style-type: none"> • Advanced computing facility with internet access to national and international networks • Advanced information technology available for distance education
			Library has sufficient holdings, search engines and databases	<ul style="list-style-type: none"> • Library holding includes international literature search facilities, and systems for inter-library loans
			School building provides sufficient space for academic personnel and student activities	<ul style="list-style-type: none"> • Adequate space available for teaching and research such as offices, seminar/conferences and students' socialization
		School is equipped with sufficient resources	<ul style="list-style-type: none"> • Adequate resources available for teaching and research 	
		School has relevant and ancillary facilities for education, training and	<ul style="list-style-type: none"> • Adequate resources such as clinical agencies and other ancillary resources 	

EVALUATION		School is equipped with sufficient resources	<ul style="list-style-type: none"> • Adequate resources available for teaching and research
		School has relevant and ancillary facilities for education, training and research	<ul style="list-style-type: none"> • Adequate resources such as clinical agencies and other ancillary resources available
		The school has various sources of funding for students	<ul style="list-style-type: none"> • Evidence of internal and external funding sources for students • Reports of the percentage of doctoral students fully and partially supported with financial aid
	Programme Evaluation	Programme evaluation system in place that is systematic, ongoing and comprehensive, and focuses on areas identified under each of the above criteria	<ul style="list-style-type: none"> • Evidence that doctoral programme objectives are met • Evidence of ongoing and periodic evaluation mechanisms in place
		Programme evaluation system should adhere to ethical and procedural standards for formal programme evaluation	<ul style="list-style-type: none"> • Confidentiality and rigorous quantitative and qualitative analyses are practiced and utilized • Programme assessment done by relevant stakeholders
		Programme evaluation system should provide a comparison of programme processes and outcomes with the standards of its higher education institution and selected peer higher education institutions within nursing at a national and international level	<ul style="list-style-type: none"> • Evidence of national rankings and or comparative statistics available for the programme

Each of these quality criteria, sub-criteria, standards and indicators will be discussed and integrated within the accepted body of knowledge in nursing and doctoral education in South Africa, in order to explore what is currently known about the quality of doctoral education in nursing in South Africa.

2.5.1 MISSION OF THE INSTITUTION

The mission of the institution largely dictates the quality and nature of doctoral education offered at the higher education institution, as well as the overall value of research to the core business of the higher education institution (Kim *et al*, 2006:482; Kim & Ketefian, 2004:7). The primary focus of the higher education institution, whether research-intensive (Mode 1 higher education institution), teaching and learning, and research intensive (Mode 2 higher education institution), as well as the explicit commitment of the higher education institution to research, will largely prescribe the emphasis of the curriculum of the doctoral programme in nursing and the importance of research to the nursing school/department/division in keeping with the mission of the institution (Kim *et al.*, 2005:148; Kim *et al.*, 2006:482).

In South Africa, most higher education institutions are either research-intensive (Mode 1 higher education institution), or teaching and learning, and research intensive (Mode 2 higher education institution). Suffice it to say that all higher education institutions place great value on teaching and research outputs, due to the South African funding framework. The HEQC institutional audit criteria also specifically evaluates the mission of the higher education institution with regard to planning, resource allocation and quality management (CHE, 2004b:9) (see Paragraph 2.4.2.3).

Schulze (2008:651) states that quality at a higher education institution is ensured when there is a strong research culture. Such a research culture is evidenced by 1) a reward system for scholarship, including monetary rewards, managerial praise and public recognition; 2) the identification of models of good research processes (Schulze, 2008:650), 3) adequate infrastructure inclusive of modern computer facilities, a well-resourced library with efficient staff, and language services (Schulze, 2008:656); and 4) institutional support, which includes the provision of time for research (Schulze, 2008: 651). This should amount to at least 20% (Creswell cited in Schulze, 2008:651), but preferably 30-40% (Bland & Schmitz, 1986:26). Other indicators are sabbatical leave; research policies formulated by high-performing researchers; financial support for research projects and conference attendance; and differentiated support for differing

needs of academic personnel members, including administrative staff, full-time research assistants, research committees, secretaries, statistical consultation services and staff development activities (Schulze, 2008:651).

2.5.2 QUALITY OF ACADEMIC PERSONNEL

Academic personnel and their scholarship, including their qualifications, their research and publication record, their teaching, advising and mentoring of students, and their practice and service, are the most crucial contributing factors to the quality of doctoral education in nursing (Ketefian, 2001:52). To ensure the quality of academic personnel they must fulfill the requirements established by the higher education institution to teach doctoral education, supervise doctoral students and do research. Academic personnel must demonstrate fulfillment of responsibilities and roles in the tripartite mission of research, teaching, advising and mentoring, and practice and service. In terms of research, academic personnel must have earned a doctorate in nursing or a related field, demonstrate sufficient evidence of programmes of research and scholarly competitiveness, have extramural funding for their research and achieve success in obtaining funding for their students (Kim & Ketefian, 2004:4-5, Kim *et al.*, 2005:149; Kim *et al.* 2006:482; AACN, 2001).

In terms of teaching, advising and mentoring, academic personnel must have teaching experience in nursing education prior to working with doctoral students and must provide students with challenging learning experiences as evidenced by expertise in the subject area appropriate for student learning, and students' reports of the degree of diverse intellectual perspectives and challenges. And lastly, in terms of practice and service, academic personnel must demonstrate clinical competence and provide service for professional organizations at national and international levels, as evidenced by certification in nursing specialities and membership in professional organizations and societies (Kim & Ketefian, 2004:4-5, Kim *et al.*, 2005:149; Kim *et al.* 2006:482; AACN, 2001).

The publication record of academic personnel gives a good indication of the scholarship and quality of academic personnel. A recent analysis of nursing scholarship in Africa showed that between 1996 and 2006, 1 860 research articles in nursing were published in indexed scientific journals. Of these, 1 252 (67.3%) were from South Africa. Trends within these publications showed that nurses publish in African and non-African journals almost equally, 980 (52.7%) and 880 (47.3%) respectively, with the articles being almost evenly divided between research based 939 (50.5%) and non-research based 921 (49.5%) articles, with 664 (70.7%) being quantitative studies, 237 (25.2%) qualitative studies and 38 (4.1%) mixed methods. The three main focus areas of the research publications were community health nursing with 299 (16.1%) publications, HIV and AIDS with 221 (11.9%) publications and education in nursing with 221 (11.9%) publications (Adejumo & Lekalakala-Mokgele, 2009:64-67) with only HIV and AIDS being a priority of the National Department of Health (Department of Health, 2008a:2-3) and the Essential National Health Research (ENHR) strategy (COHRED, 2001:32), which is noteworthy as “addressing national priorities” is seen as an important indicator of research quality in the USA (Yates, 2005:394). Of concern is that 606 (64.3%) of the research based articles focus on health professionals, while only 336 (35.73%) focus on patients. A further matter of concern is the lack of collaboration on research studies, with a total of 1 687 (90.7%) of articles being written by a single author, with only 173 (9.3%) showing indication of collaboration with more than one author (Adejumo & Lekalakala-Mokgele, 2009:67). Both of these concerns were previously raised by Brink (1992:31).

A mere 1 252 articles published in indexed scientific journals over a decade is a sure sign that research results are neither disseminated effectively nor utilized or implemented optimally in South Africa (du Plessis, 2007:33; Zeelie, Bornman & Botes 2003:10; Bergman 1992:33; Hunt, 1995:1). A fundamental reason for this may be that nurses are seen predominantly as a service profession, to the exclusion of their research and scholarship function. This is evidenced by the fact that the 2008 nursing strategy for South Africa does not address research as a strategic focus area, and only

mentions it as one strategic objective: "To improve the research capacity of nurses" (Department of Health, 2008b:24).

This flows into numerous other reasons, such as nurses' limited access to research funds, with recorded reasons being that funding agencies generally question nurses' ability to conduct high quality research (Bergman, 1992:29). Also nurses are often inexperienced researchers and are therefore not successful in generating their own research funds or writing proposals to apply for competitive funding (Bergman, 1992:32). Authors such as du Plessis (2007:34); Zeelie *et al.* (2003:8), Schulze (2008:656), and Uys (cited in Webb, 1998:485) argue that the quality of research in nursing will only be enhanced if and when funding agencies make a concerted effort to invest in nursing. Another reason documented for poor research outputs in nursing is that the number of nurse researchers conducting research is limited (Botes, 1993:24; Potgieter, 2003:2). This is evidenced by the fact that a mere eight South African nurse researchers are NRF rated, 1 B-rated, 5 C-rated, 1 Y-rated and 1 L-rated (NRF 2009b), a rating system which is believed to be an indication of the number of active researchers in nursing in the country.

2.5.3 QUALITY OF STUDENTS

The quality of students is an important determinant of the overall quality of doctoral education. In terms of admission, students must meet the requirements of the higher education institution for doctoral education, have an acceptable level of research knowledge and be able to articulate professional career goals, be registered as a nurse, and their research goals and objectives/research interest area must match the academic personnel research expertise and scholarship, and institutional resources. With regard to progression, students must be successful in obtaining academic and research funding and awards, must meet the milestones of the programme as evidenced by participation and presentation in doctoral and other seminars, and pass all assigned work or examinations. Furthermore, they must establish a pattern of productive scholarship, collaborating with researchers in nursing and other disciplines in scientific endeavours, as evidenced by scientific production disseminated in scientific

meetings and indexed scientific journals. In terms of time to graduation, students should graduate within an acceptable period of time in accordance with the requirements of the higher education institution. Finally with regard to graduation, students must fulfill the qualifying requirements of the higher education institution, receive approval of the thesis proposal and completed research, and present their doctoral research at national and international conferences. Additionally, they should publish in indexed scientific journals, which also serves as a measure to ensure that the quality of the thesis is acceptable to the norms of doctoral education in nursing (Kim & Ketefian, 2004:3-4; Kim *et al.*, 2005:151-152; Kim *et al.* 2006:483-485; AACN, 2001).

In the USA, approximately 457 doctoral theses in nursing are completed per year (Redman & Chenoweth, 2005:90), while South Africa has only produced 472 doctoral theses in nursing in almost four decades, from 1967 to 2006 (Klopper, 2007a), although in such a comparison, one must keep in mind that the USA has a much greater population and a higher standard of living in general. An important quality indicator of doctoral research in nursing is the presentation of doctoral research studies at national and international conferences, and the publishing of articles in indexed scientific journals. The only research studies that could be found to illustrate this practice in nursing in South Africa, were two studies conducted in 2006 and 2007 to profile post-graduate critical care research in nursing in South Africa, and these studies highlighted a distressing trend. During 2000 and 2006, 90 master's and three doctoral studies were completed, of which only 17 (18.3%) were presented at conferences, 16 at national conferences and one at an international conference, and only 13 have been published (14.0%), of which only one was an indexed scientific journal (Scribante & Bhagwanjee, 2006:79; Scribante, 2007:71).

Even bleaker results were found with regard to publishing tendencies among post-graduate students in nursing, when all post-graduate research studies' titles in nursing from 2000-2005 (n=216) were searched for in articles. Only 15 articles were published in indexed scientific journals (du Plessis, 2006:134), compared with Jourbert (2005:772-773) who conducted a similar study for the Faculty of Health Sciences at the University

of the Free State and found that between 2001 and 2004, 53 master's and doctoral studies were completed, of which 22 (42%) were doctoral studies and a median of three publications were planned for each doctoral research study. Of these completed studies 59% (12.98) had been published (95% resulted in only one publication), 18% (3.96) had been rejected, 10% (2.2) were in the process of publication and 14% (3.08) had made no attempt to publish the work. However, the School of Medicine contributed most significantly to the published articles, as they were most likely to publish or at least draft a manuscript by the time of graduation. These publishing tendencies among post-graduate students in nursing may very well be attributed to the scholarship mentored to them by academic personnel in nursing, as discussed in Paragraph 2.5.2.

2.5.4 QUALITY OF THE CURRICULUM

The success of doctoral education is based largely on the quality of the curriculum. In terms of the goal and content of the curriculum, the programme goals in nursing must be consistent with the mission of the institution and the discipline of nursing, and the emphasis of the doctoral programme content must be on nursing science and research training. Research focus areas must be presented to students in order to familiarize them with academic personnel expertise. Core courses, as well as other courses appropriate for a doctoral degree in nursing must be described and presented. Core courses would include content such as advanced theories in nursing, philosophy of science, scientific theories, theory development, research methodologies for quantitative and qualitative research, statistics, dissertation seminars, with all students receiving formal training in ethics. Other courses would include content on leadership, political and policy analysis to investigate the social, ethical, cultural, economic and political issues related to nursing and health care, with written course descriptors being made available for students and academic personnel (Kim & Ketefian, 2004:6; Kim *et al*, 2005:485; Kim *et al*, 2006:485; AACN, 2001).

In South Africa, doctoral education in nursing is research focused. There is no formal coursework, but some nursing schools/departments/divisions make use of either voluntary or compulsory research workshops for prospective/registered doctoral

students where the nursing school's/department's/division's focus areas are presented. Content on advanced theories in nursing, philosophy of science, scientific theories, theory development, research methodologies for quantitative and qualitative research, statistics, dissertation seminars and ethics are offered. Other relevant information is presented based on academic personnel expertise and the topics selected by prospective/registered doctoral students, in order to orientate prospective/registered doctoral students to doctoral education. The necessity of such research workshops in South Africa is evidenced by the findings of a study conducted by Lessing and Schulze (2002:142) among post-graduate students in education science. This study found that as many as 32% of master's and doctoral students in education science had not completed a course in research methods when admitted to post-graduate studies, and the success of such research workshops for preparing students for post-graduate studies are reported by all (100%) students participating in such research workshops (Lessing & Schulze, 2002:142)

2.5.5 QUALITY OF ADMINISTRATION AND INFRASTRUCTURE

The quality of the administration and infrastructure is essential in ensuring the quality of doctoral education in nursing. In terms of the administration, there must be systems in place to ensure that academic personnel have regular and appropriate supervision of their students' progress, there must be sufficient materials and information available about the school/department/division, programme features and requirements, and career opportunities available for students. The research infrastructure must be appropriate for facilitating research and education, as evidenced by having an administrative structure in place with appropriate technical staff for academic personnel, consultation on grant proposal development and statistics, and peer discussion of research projects. Furthermore, the higher education institution must reward academic personnel and students for their research and scholarly activities. In terms of the learning environment, it must be supportive of students learning as evidenced by mentorship, an intellectually challenging environment, and financial assistance available to students. It must also have a process in place that fosters socialization of students to doctoral education, and facilitates interaction among students, academic personnel and

students, and furthermore it must have a sufficient number of academic personnel to facilitate learning (Kim & Ketefian, 2004:6; Kim *et al.*, 2005:154-155; Kim *et al.*, 2006:485-487; AACN, 2001).

Regular and appropriate supervision of doctoral students' progress is of utmost importance, and deserves special mention. No such study has been conducted with post-graduate students in nursing in South Africa. However, a study conducted with master's (n=111) and doctorate (n=74) students in education science for the period 1999-2001 in South Africa (Lessing & Schulze, 2002:147), found that 55% of students reported that they received their evaluated chapters back in four weeks, while 22% waited between four to six weeks and 3% waited more than eight weeks (Lessing & Schulze, 2002:143). Furthermore they reported that 53% of promoters would follow-up with the student in cases where the student was unproductive (Lessing & Schulze, 2002:145). Whether this can be inferred to doctoral education in nursing is questionable as health science academic personnel have greater supervision burdens (see Figure 2.3), and furthermore, 64 academic personnel in education are NRF rated, compared to 8 academic personnel in nursing (NRF 2009b).

In South Africa, the Department of Education provides subsidies to higher education institutions based on their research and teaching outputs (see Paragraph 2.4.2.2). At the discretion of the higher education institutions councils, a part of the subsidy is passed to the research units of the higher education institutions which then distribute part of it as monetary incentives to academic personnel, based on their research and teaching outputs (Jourbert, 2005:776). These monetary incentives are channelled to the academic personnel member's personal research fund, and may be used for attending conferences, paying membership fees to professional associations or buying resources to support personal research; academic personnel may, however, request that these monies be paid out in cash which is subject to tax deductions (Schulze, 2008:655). The Forum of University Nursing Deans (FUNDISA), undertook an analysis of the incentives provided to academic personnel between different higher education institutions. The discrepancies are extensive, with the incentive for a published article in

an indexed scientific journal ranging from R1 000 to R30 000 between different higher education institutions. Successful supervision of a master's student ranges from no compensation to as much as R20 000, and successful promotion of a doctoral student ranges from no compensation to R30 000 (FUNDISA 2009b). These discrepancies and their impact on graduate and research outputs have not been determined, but may be a significant indication of the overall value placed on research at different higher education institutions.

Furthermore, it is well documented that higher education institutions need to have a research environment of collegiality and active interchange with the community: in nursing this means active collaboration between researchers, doctoral students and nurses in practice (Hinshaw & Leino-Kilpi 2005:38; Holderness, 2000:16). Otherwise, doctoral students are impacted negatively and experience feelings of isolation (Holderness, 2000:16; Lessing & Schulze, 2002:147)

2.5.6 QUALITY OF RESOURCES

Doctoral education in nursing is reliant on a sufficient variety of resources, both human and material and technical resources, in order for academic personnel and students to achieve doctoral programme goals. With regard to human resources, quality is ensured by having a sufficient number of academic personnel in proportion to the number of doctoral students, having enough support staff to assist the academic personnel and students, and paying appropriate salaries according to titles and roles. In terms of material and technical resources, there must be advanced computing facilities with internet access, the library must have sufficient holdings, search engines and databases, the nursing school/department/division must be equipped with sufficient resources for teaching and research, the nursing school/department/division building must provide sufficient space for academic personnel and student activities, the nursing school/department/division must have relevant and ancillary facilities for education, training and research, and the nursing school/department/division must have various sources of funding for students (Kim & Ketefian, 2004:8-9; Kim *et al.*, 2005:153-154; Kim *et al.*, 2006:488; AACN, 2001).

A sufficient number of qualified academic personnel to teach and supervise doctoral students is necessary to ensure the quality of doctoral education in nursing in South Africa. The shortage of academic personnel in nursing is of great concern to South African nursing leaders, and is frequently discussed in nursing forums and organizations, but to date there has been no research conducted to quantify the severity of the shortage. The AACN has done much work to capture the gravity of this situation for the USA. In the USA, approximately 0.6% of all registered nurses were doctorally qualified in 2000 (Geolot, 2003 *in* Ketefian *et al.*, 2005b:104), with approximately 49.4% of all permanent academic personnel being doctorally qualified (2001) (Berlin & Sechrist, 2002:50). In view of this, shortages of academic personnel are rampant, with 803 vacancies identified at 554 schools of nursing (AACN, 2009a), the mean vacancy being 1.4 per school with a range of 1-13 vacancies (AACN, 2009a). Besides these vacancies, nursing schools cited the need to create an additional 279 academic personnel positions to accommodate student demand, as up to 1 002 qualified applicants were turned away from doctoral studies in 2008 because of academic personnel shortages. Most vacancies (90.6%) require or prefer a doctoral degree, but nursing schools report difficulty in filling these positions, the two reasons most often cited being that academic personnel salaries are uncompetitive compared to positions in the practice arena (32.2%) and the pool of doctorally qualified academic personnel is limited (30.3%) (AACN, 2009a). The annual average salary of a nurse practitioner with a master's degree, across settings and specialties, is USD 89 579 (Rollet, 2010:29), compared to the annual average salary of USD 69 489 for an academic personnel member with a master's degree (AACN, 2009a). A nursing practitioner with a PhD would earn as much as USD 101 693 per annum, nursing practitioners openly stating nationwide that academia is one of the "lowest paying practice settings" (Rollet, 2010:29).

This shortage of academic personnel shows no sign of improving when one considers that the average age of doctorally qualified academic personnel in the USA is 53.2 years and that the average age of retirement is 62.5 years, with a projected number of between 200 and 300 doctorally qualified academic personnel being eligible for

retirement each year from 2003-2012 (Berlin & Sechrist, 2002:51). Enrolments for research-focused doctorates have increased by only 0.1% or three students for the 2007-2008 academic year (AACN, 2009a). Consistent with the mean age, the proportion of academic personnel older than 50 years has increased from 50.7% in 1993 to 70.3% in 2001, while the proportion of academic personnel in the age groups 36-45 years has decreased by 17.3%, and the 35 years and younger age group by 0.8% (Berlin & Sechrist, 2002:52).

Furthermore, a national study in the USA showed that the average number of years students were registered for doctoral studies was 8.8 years, and time elapsed between entry into a graduate programme to completion of doctoral studies was 10.5 years (AACN, 2005). The average age of recipients of doctoral degrees was 46.2 years (in 1999), with 48.8 % between the ages of 45 and 54, and only 6.8% younger than 35 years, (Berlin & Sechrist, 2002:52). About 25% of doctoral graduates reported employment commitments outside of academia. Another trend is that in 2001, more than half (59.1%) of doctoral students were part-time (Berlin & Sechrist, 2002:53). Across the world, prominent nursing organizations such as the International Council of Nurses (ICN), the Canadian Association of Schools of Nursing (CASN), Council of Deans and Heads of United Kingdom University Faculties for Nursing and Health Professionals (CDH) and the Council of Deans of Nursing and Midwifery Australia and New Zealand (CDNM), have identified shortages of academic personnel in nursing as a crisis and are putting strategies in place to address the situation.

In South Africa, there are no statistics available with regard to the number of doctorally qualified nurses in South Africa, but there are currently 105 doctorally qualified nurses employed at nursing schools/departments/divisions across the country in 2009 (compared to 96 in 2008) (FUNDISA, 2009a; FUNDISA 2008a). The total number of registered nurses in South Africa in 2005 was 101 204 (SANC, 2007). It can be deduced from this number that approximately 0.001% of the registered nurse population is doctorally qualified, with about 33.9% of academic personnel (both permanent and part-time appointments) being doctorally qualified. The number ranges from 1 to 13 per

nursing school/department/division (FUNDISA, 2009a). Doctoral enrolment and graduation trends, academic personnel age distribution, age of doctoral students and graduates, time to completion of degree and career plans are unknown. Also, where the USA has annual average salary discrepancies between academia and practice, South African academic personnel face salary discrepancies not only between academia and practice, with academe excluded from the Occupation Specific Dispensation (OSD) agreement that pays nurses in practice according to their specialization and years of relevant experience in that specialization (Department of Health, 2008c). Moreover, discrepancies occur even within academia between higher education institutions and colleges and, most worrisome of all, between nursing schools/departments/divisions themselves, with differences ranging from as much as R196 442 to R339 051 for senior lecturers (which require doctoral qualification and is referred to as an assistant professor in international literature) (FUNDISA, 2008b).

Furthermore, international research shows that shortages of academic personnel further impact on the availability of institutional resources, as experienced doctorally qualified academic personnel are burdened with such heavy workloads that they are precluded from research activities and this directly translates into a limited number of research programmes and funding opportunities for doctoral students (Ketefian *et al.*, 2005b:107). While new doctoral graduates are often expected to function in leadership roles and management positions, without much mentoring, which often jeopardizes their research careers, inhibiting them from becoming productive scholars and seasoned supervisors of doctoral students, further impacting on both human resources and funding opportunities (Ketefian *et al.*, 2005b:111; Kim *et al.*, 2006:481).

One of the greatest causes for concern is that academic personnel shortages demand that doctorally qualified academic personnel take on more student supervision than may be academically sound, which directly impacts on doctoral students, as there is decreased time for individual student guidance. This often increases the time to completion of studies and compromises the quality of work (Ketefian *et al.*, 2005b:112).

2.5.7 QUALITY OF EVALUATION

Quality evaluation of the doctoral programme in nursing is required in order to generate data that will allow areas of strength and excellence, as well as areas in need of development to be identified and goals for improvement to be set. It also allows the adequacy of resources to be determined, demonstrates accountability in the use of public resources, evaluates the responsiveness of the doctoral programme to internal and external interventions and changes over time, and enables comparative analysis with peer programmes (Ketefian, 2001:47-48, Kim *et al.*, 2006:486). With regard to programme evaluation, there should be an evaluation system in place that is systematic, ongoing and comprehensive, and focuses on areas identified under each of the above criteria. The programme evaluation should adhere to ethical and procedural standards for formal programme evaluation and be evaluated by relevant stakeholders, such as academic personnel, students, graduates, peer groups, employers and external examiners, and regular feedback should be provided to such stakeholders. Furthermore, the programme evaluation system must provide a comparison of programme processes and outcomes with the standards of its higher education institution and selected peer higher education institutions within nursing at a national and international level. It should also provide comprehensive data in order to determine patterns and trends of doctoral education in nursing and recommend future directions at regular intervals (Kim & Ketefian, 2004:10; Kim *et al.*, 2005:155-156; Kim *et al.*, 2006:486-487; AACN, 2001).

In South Africa, quality audits of higher education institutions with regard to policies, systems, strategies, structures, resources, processes and activities, including the relevant academic support services for ensuring provision of quality teaching and learning, research, and community engagement are conducted by the HEQC (see Paragraph 2.4.2.3). No literature on specific evaluation processes within doctoral programmes in nursing in South Africa could be found. This is a matter of concern as evaluation processes allow nursing schools/departments/divisions to collect evidence of their performance, allowing areas of strength and excellence to be identified and marketed. Also, areas in need of development can be recognized and goals for

improvement set. Evaluation processes also allow the adequacy of resources to be determined, demonstrates accountability in the use of public resources, evaluates the responsiveness of the doctoral programme to internal and external interventions and changes over time, enables benchmarking with national and international doctoral programmes in nursing and ensures that the programme is on par with international trends.

The quality criteria, standards and indicators provide doctoral education in nursing with a generally agreed upon set of guidelines to ensure quality doctoral education in nursing in South Africa and globally which will facilitate benchmarking with national and international doctoral programmes in nursing (Ketefian, 2001:51; Ketefian *et al.*, 2005:152). However, it becomes apparent from this review how little research has been conducted in South Africa with regard to the QCSI criteria of nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources and evaluation of the programme. Thus the quality of doctoral education in nursing in South Africa is relatively unexplored, with no real baseline data to identify threats to the quality of doctoral education in nursing or even to strategize to minimize these threats.

In this study, the quality of doctoral education in nursing was defined as consisting of both quality assurance and fitness for purpose components (see Paragraph 1.6.2.2). Quality assurance was discussed in Paragraph 2.4.2.3. Fitness for purpose assesses the level or standard of satisfaction with the total system and the continuous improvement of processes, products and services in the system, that bear on its ability to give complete customer satisfaction, both internal and external, which is based on TQM philosophy.

2.6 TOTAL QUALITY MANAGEMENT

TQM has been accepted as a disciplined management process in industry in order to interact with the competitive marketplace and to focus on quality in both its products and

services to ensure customer satisfaction at every stage, internally and externally. Although TQM had its roots established predominantly in industry, many researchers feel that the philosophy of TQM can be applied to higher education (Brigham, 1993; Susan, 1995; Idrus, 1996; Koch & Fisher, 1998; Bathe, Smith, Stein & Swann, 2004; Peat, Taylor & Franklin, 2005; Venkatraman, 2007). The theoretical foundations of TQM philosophy will be explored as means of demonstrating how TQM can be applied to improve the quality of doctoral education in nursing in South Africa.

2.6.1 THEORETICAL FOUNDATIONS OF TQM

The theoretical foundations of TQM are based on four interdependent bodies of knowledge, namely systems theory, variation (statistical theory), theory of knowledge and theory of psychology (Evans & Dean, 2000:45; de Bruyn, 2003:39).

2.6.1.2 SYSTEMS THEORY

A system is a network of elements or sub-systems that are interdependent and synergistic, and function as a unified whole to attain goals. The system makes its boundaries explicit by defining which people, functions, components and aims are included in the system and which are not; and there is an emphasis on the interface between the various sub-systems of the organization, as much as on the nature of the sub-systems themselves. The sub-systems must serve the total system and not the individual sub-systems, as any benefit or threat to a sub-system, directly impacts on the effectiveness and quality of the total system (Berry 1997:57; de Bruyn, 2003:39).

Doctoral education in nursing can be regarded as working like a system, with the QCSI criteria of the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme, being the sub-systems. These sub-systems are interdependent, synergistic and function as a whole to ensure the effectiveness and quality of doctoral education in nursing. Nursing deans work *on the system* to attain and optimize the quality of doctoral education in nursing, while

academic personnel work *in the system* to attain and optimize the quality of doctoral education in nursing.

2.6.1.2 VARIATION (STATISTICAL THEORY)

A system consists of a production process that combines the input of many different people, materials, equipment, methods and environments to produce an output. That output has a distribution with variation. If the output has a distribution that is consistent over time, the system is said to be stable. Understanding a stable system is essential for managing and improving the quality of a system, as the system must be stable before it can be improved. It is for this reason that outputs must be measured over time to determine whether the system is stable or not, and statistical control is of central importance to improve the output, reduce variability and improve reliability of the system. Improvements are made by changing the input or process to increase the output or by changing the input or process to reduce variability. Along with the output, each step of the process and every input must be examined in order ensure stability of the system, and for improvements to be applied (de Bruyn, 2003:40-41; Evans & Dean, 2000:46-47; Tenner & DeToro, 1992:32).

To improve the quality of doctoral education in nursing it becomes necessary to have more knowledge about variation in outputs, processes and inputs of doctoral education in nursing. This study examined the outputs, processes and inputs of the sub-systems of doctoral education in nursing with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme. This allowed some variables to be measured and improved through the development of a strategy to improve the quality of doctoral education in nursing. However, in order to truly benefit from this theory to reduce variability, the variations in outputs, processes and inputs in doctoral education in nursing must be measured over time, either nationally as in this study, or at a nursing school/department/division level on an annual basis.

2.6.1.3 THEORY OF KNOWLEDGE

The theory of knowledge is a branch of philosophy concerned with the nature and scope of knowledge. TQM subscribes to the fact that knowledge can only be advanced in the existence of a theory and that experience alone does not establish a theory. In order to improve a system the process must be clearly defined and conceptualized, so that it can be understood by customers, both internal and external, and people in the system, and the improvement must be based on a theory. The theory establishes a cause-and-effect relationship that can be used for prediction, and should be based on knowledge or experience or on some restructuring of elements within and/or outside the present process (de Bruyn, 2003:41; Evans & Dean, 2000:48).

The key sub-systems of doctoral education in nursing with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme were defined, and standards and indicators to measure these sub-systems were developed by the QCSI task team. These definitions, standards and indicators of each sub-system allow the quality of doctoral education in nursing to be understood among customers, both internal and external, and people in the doctoral education system in nursing. Furthermore, the improvement of the quality of doctoral education in nursing in South Africa was based on the philosophy of total quality management, which has been successfully applied in higher education to improve quality (Brigham, 1993; Susan, 1995; Idrus, 1996; Koch & Fisher, 1998; Bathe, Smith, Stein & Swann, 2004; Peat, Taylor & Franklin, 2005; Venkatraman, 2007).

2.6.1.4 THEORY OF PSYCHOLOGY

The theory of psychology helps one to understand human nature with regard to interactions between people and circumstances, interactions between leaders and employees, motivation, and any system of management. People differ from one another in the ways they learn, the speed with which they learn, the level at which they perform and their motivation. Leaders have an obligation to make changes in the system that will stabilize the system and/or provide opportunities to improve outputs,

processes and inputs while honouring individual differences and preserving the positive innate attributes of people in the system (de Bruyn, 2003:42; Evans & Dean, 2000:49).

The nursing deans should *work on* the doctoral programmes in nursing in order to stabilize and/or to provide opportunities to improve the outputs, processes and inputs of the sub-systems of doctoral education in nursing with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme. However, the nursing dean should pay attention to psychological principles through honouring the individual differences of academic personnel and optimizing their strengths, abilities and inclinations to *work in* the doctoral programme in nursing to attain and optimize the quality of doctoral education in nursing.

These theories are fundamental to understanding total quality management philosophy and how it can be applied to improve the quality of doctoral education in nursing in South Africa.

2.6.2 TQM APPROACH

In this study, TQM is defined as a comprehensive, people-focused management system that involves all employees at all levels, and continually aims to improve the quality of processes, products and services to increase customer satisfaction (Tenner & DeToro, 1992:32; Evans & Dean, 1998:13).

TQM is based on three fundamental principles that encompass its overall concept and, if they are efficiently administered, will promote the continuous improvement of an organization. The three fundamental principles of TQM are: focus on the customers, internal and external; process improvement and total involvement (Tenner & DeToro, 1992:32) along with six supporting elements – leadership, education and training, supportive structure, communications, reward and recognition, and measurement (Tenner & DeToro, 1992:32). Figure 2.5 presents a graphical presentation of the TQM approach.

OBJECTIVE	CONTINUOUS IMPROVEMENT		
PRINCIPLES	Customer Focus	Process Improvement	Total Involvement
ELEMENTS	Leadership Education and Training Supportive Structure Communications Reward and Recognition Measurement		

Figure 2.5. Graphical presentation of TQM (Tenner & DeToro, 1992:32).

The principles and elements of TQM will now be discussed and applied to the quality of doctoral education in nursing.

2.6.2.1 PRINCIPLES OF TQM

TQM is based on the objective of continuous improvement of the organization and three fundamental principles that encompass its overall concept, namely: focus on the customers, internal and external; process improvement and total involvement (Tenner & Irving, 1992:32)

The customer focus principle is based on the concept that everyone has a customer, internal and external, and that the requirements, needs, and expectations of that customer must be met and/or exceeded every time. This means that the system must really understand the requirements of its customers, in order to ensure effective service delivery. (Tenner & DeToro, 1992:32; Sallis, 1993:26-27). This principle requires the total system to have organizational plans and priorities to ensure complete customer satisfaction, and that the total system should be dedicated to the aim of achieving the highest standards of performance as required by their customers. The quality of an organization has been achieved when the customer's needs are met (Murgatroyd & Morgan, 1993:60; Daresh & Playko, 1995:20-21; de Bruyn, 2003:17-19).

In this study, the internal customer is the doctoral student. Literature increasingly refers to students as customers, but use of this terminology continues to be debated, with critics believing that marketplace terminology has no place in education. Advocates of this terminology on the other hand feel that university students pay an increasing proportion of their education costs, which makes them a customer of the higher education institutions, and they should therefore be treated in the same way as any other purchaser of goods or services (Eagle & Brennan, 2007:55). In this study, the external customers are doctoral graduates, health care practice and society-at-large.

The process improvement principle is built on the premise that work is the result of a series of well co-ordinated and interrelated steps and activities of the total system – every sub-system, every activity and every single person at every level – that results in an output. Continuous attention to and generation of quality in each of these steps and activities in the work process is necessary to reduce the variability of the output and improve the reliability of the process – reliability in the sense that they produce the desired output each time with no variation (Tenner & DeToro, 1992:33; Berry, 1997:57; de Bruyn, 2003:21).

The total involvement principle stresses a systematic, integrated, consistent, value-based, organization-wide perspective involving the total system – everyone and everything. It begins with the active leadership of senior management and includes efforts that utilize the talents of all employees in the system fully and creatively, regardless of their position or status, to share responsibility and be involved in the enterprise of continuous improvement in all sub-systems and activities in the system to gain a competitive advantage in the marketplace. This includes the internal interrelationships among the various sub-systems of the system, as well as the relationships with customers (Tenner & DeToro, 1992:33; Rhodes, 1992:80; Berry, 1997:58; de Bruyn, 2003:15-16).

However, to institute the principles of TQM the supporting elements of leadership, education and training, supportive structure, communication, reward and recognition

and measurement must be installed in the nursing schools/departments/divisions (Tenner & Irving, 1992:32-33).

2.6.2.2 SUPPORTING ELEMENTS OF TQM

The elements of leadership, education and training, supportive structure, communication, reward and recognition, and measurement, support the principles of TQM and the overall objective of continuous improvement, and will be discussed in relation to the quality of doctoral education in nursing.

- **Leadership:** The supporting element of leadership refers to the fact that nursing deans must advocate, teach, guide and coach academic personnel in the process of continuous improvement of the quality of doctoral education in nursing based on TQM philosophy. Furthermore, that nursing deans and academic personnel must lead in enhancing and developing the knowledge and skills of the nursing profession through quality doctoral education and scholarship in nursing (Tenner & DeToro, 1992:33-34).
- **Education and Training:** The supporting element of education and training refers to the fact that academic personnel must be educated and trained in the process of continuous improvement of the quality of doctoral education in nursing based on TQM philosophy, so that they have the necessary information and skills to resolve problems, secure stability and improve the quality of doctoral education in nursing in South Africa. Education and training also refers to the fact that nursing deans and academic personnel must prepare doctoral students as leaders, teachers, managers, researchers, clinicians, advocates and scholars through quality doctoral education and scholarship in nursing (Tenner & DeToro, 1992:33-34).
- **Support Structure:** Nursing deans require a small supportive structure of academic personnel who will help the nursing dean in driving the process of continuous improvement of the quality of doctoral education in nursing based on TQM philosophy. This structure helps the nursing school/department/division to understand the process of continuous improvement of the quality of doctoral education in nursing and serves as a resource on the topic. Support structure also

refers to the fact that there must be adequate institutional support, human and technical and material resources, and administration and infrastructure for nursing deans and academic personnel to enhance and develop the knowledge and skills of the nursing profession through quality doctoral education and scholarship in nursing (Tenner & DeToro, 1992:33-34).

- **Communication:** The process of continuous improvement of the quality of doctoral education in nursing based on TQM philosophy should be communicated to customers, internal and external, and people in the doctoral education system in nursing so that the process is understood by all. Furthermore communication between nursing deans, academic personnel and customers, internal and external, should be encouraged so to improve the quality of doctoral education and scholarship in nursing (Tenner & DeToro, 1992:33-34).
- **Reward and Recognition:** Nursing deans and academic personnel must be rewarded and recognized for resolving problems, securing stability and improving the quality of doctoral education in nursing, and nursing deans, academic personnel and doctoral students should be rewarded for scholarship (Tenner & DeToro, 1992:33-34).
- **Measurement:** The quality of doctoral education in nursing must be regularly evaluated at a national and nursing school/department/division level using the QCSI criteria. This data should be compared with baseline data to resolve problems, ensure stability and to improve the quality of doctoral education in South Africa. Feedback should be provided to customers, internal and external, and academic personnel; and the doctoral programme in nursing should be benchmarked with other national and international doctoral programs (Tenner & DeToro, 1992:33-34).

In this study quality was defined as consisting of both quality assurance and fitness for purpose components, of which fitness for purpose is founded on TQM philosophy. TQM philosophy was discussed with regard to its theoretical foundations of systems theory, variation (statistical theory), theory of knowledge and theory of psychology, as well as the TQM approach, with regard to the objective of continuous improvement. The TQM objective of continuous improvement constantly evaluates, monitors, controls and

improves quality, by relying on the three principles of TQM. These are: focus on the customers, internal and external, process improvement and total involvement which is instituted through six supporting elements – leadership, education and training, supportive structure, communication, reward and recognition, and measurement, all of which were applied to the quality of doctoral education in nursing.

2.7 SUMMARY

In this chapter, the educational context of doctoral education in South Africa was explored with regard to the historical conditions, political events, social issues and cultural changes that have taken place in the higher education sector in the last fifteen years, and its impact on research outputs and the advancement of doctoral education. Doctoral education and research were discussed with regard to policies developed and implemented to promote and support research in South Africa, and the establishment of institutions such as the NRF to promote and support basic and applied research, and innovation. The trends in doctoral education were examined and benchmarked, and its effects on research outputs highlighted. Within this educational context and background doctoral education in nursing in South Africa was discussed, with the many differences between nursing schools/departments/divisions highlighted, in order to justify the need for quality criteria, standards, and indicators for doctoral education in nursing in South Africa, and globally. The quality of doctoral education in nursing in relation to the seven major QCSI criteria of the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources and evaluation of the programme and their sub-criterion, standards and indicators was discussed. Each of these QCSI criteria was then discussed and integrated within the accepted body of knowledge in nursing and doctoral education in South Africa, in order to explore what is currently known about the quality of doctoral education in nursing in South Africa. In conclusion, the philosophy of TQM was discussed with regard to the quality of doctoral education in nursing.

Chapter Three

Research Design



Education is for improving the lives of others and for leaving your community and world better than you found it.

~ Marian Wright Edelman~

<http://www.garryconn.com/wp-content/uploads/2008/09/web-hosting-evaluation.jpg>

CHAPTER THREE

RESEARCH DESIGN AND METHOD

3.1 OVERVIEW OF THE CHAPTER

The purpose of this chapter is to outline the research design and method of the study. The chapter commences with a review of the objectives of the study and a discussion of the research design applied to this study. Thereafter the research methods are discussed in relation to the research design with regard to each phase of the study, namely the empirical research phase (Phase 1) and the strategy development phase (Phase 2). The rigour applied to the study is then discussed, while the ethical considerations of the study are detailed and conclude the chapter.

3.2 INTRODUCTION

In the first chapter, the overall aim of this study was stated: to develop a strategy to improve the quality of doctoral education in nursing in South Africa. To attain this aim the following objectives were set:

- To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of nursing deans with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.
- To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of academic personnel with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.

- To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of doctoral graduates with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.
- To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of doctoral students with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.
- To develop a strategy to improve the quality of doctoral education in nursing in South Africa.

In the next section, the research design is discussed in accordance with the aim and objectives of the study and the research methods of each phase of the study are described in relation to the research design.

3.3 RESEARCH DESIGN

A research design is the overall plan or framework that is developed from the research objectives or the purpose of the study, with the aim of clearly stating the procedures to be followed and the conditions under which the collection and analysis of the data will be done, in order to achieve greater control of and validity in examining the research problem (Mouton & Marais 1996:33; Polit & Hungler, 1997:153; McMillan & Schumacher, 2001:31; Burns & Grove, 2005:231). Furthermore, Terre Blanche, Durrheim and Painter (2006:34) and Yin (1994:19) illustrate that the research design is a logical sequence or a strategic framework for action that serves as a bridge between the research objectives or the purpose of the study, and the execution of the research, and ultimately to its conclusion. According to Botes (1995:7) and Klopper (2008:68), the research design includes the research strategy, the methods or techniques for data

collection and data analysis, the target population, the sampling method and the method to ensure the rigour of the study.

This study adheres to a **quantitative** research design, with **exploratory, descriptive** and **contextual** research strategies, in order to achieve the objectives of this study. **Quantitative** research refers to an inquiry that uses a general set of orderly, systematic and disciplined procedures to acquire empirical evidence – evidence that is rooted in objective reality, rather than in the personal beliefs or views of the researcher. In quantitative research, evidence is gathered logically through a series of steps, according to a pre-specified plan that applies mechanisms to control the study and uses formal instruments to collect the necessary information, in order to ensure that biases are minimized, and validity and reliability of the study are maximized (Polit & Hungler, 1997:14).

A quantitative research design will be used in the form of a **cross-sectional research design**. A cross-sectional research design is used to collect data on more than one case or groups of participants in various stages of development in a process, at a single point in time, in order to collect a body of quantitative or quantifiable data in connection with two or more variables. These are then examined to describe the status of or changes in phenomena across stages, and to detect patterns of association (Bryman, 2001:41; Burns & Grove, 2005:236). The cross-sectional design is based on the assumption that the “stages are part of a process that will progress over time” (Burns & Grove, 2005:236). Thus, participants are selected at various stages of development in a process, which will provide important information about the totality of the process, as it manifests at that fixed point in time; rather than having to monitor the same participants over an extended period of time through each stage of development in a process. The process of development selected for the study might be related to changes in attitudes, position in an educational system, growth pattern or disease stages (Polit & Hungler, 1997:172; Burns & Grove, 2005:236).

In this study, a **cross-sectional research design** was used to explore and describe the quality of doctoral education in nursing in South Africa. Doctoral education in nursing can be considered the process. The quality of doctoral education was determined with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme. Information was obtained from participants at different stages of development in the process, related to their position in the doctoral education system in nursing, namely: nursing deans, academic personnel, doctoral graduates and doctoral students.

3.3.1 RESEARCH STRATEGIES

The research strategies used in this study are explorative, descriptive, and contextual strategies. The word strategy is defined as the “art of planning and directing larger movements and operations” or a “plan of action” (OED, 1986:552) and originates from the Greek word *strategos* which means “general” (Dictionary.com, 2004). It can therefore be said that a research strategy is the “general” or “plan of action” which gives direction to the study, with respect to the methods and techniques that must be used to realize the aim of the research.

The purpose of **exploratory** research is to investigate the full nature of a relatively unknown phenomenon and all the factors to which it is related (Polit & Hungler 1997:20). This is to gain new insights into phenomena, to explain concepts and constructs, to do preliminary research prior to a more structured study, to determine priorities for future research and to develop new hypotheses (Mouton & Marais, 1996:43). In fact, Selltiz *et al.*, (1976:92-101) claim that exploratory research can only be conducted by three methods, namely: a review of literature, a survey of people who have experience with the phenomenon being studied and analysis of “insight stimulating” examples. In this study all three methods were used to investigate the full nature of the quality of doctoral education in nursing in South Africa.

The purpose of **descriptive** research is to identify and understand the nature of phenomena in real-life situations, as well as the relationships among them, in order to describe what exists and generate new knowledge and meaning about phenomena for which limited or no research has been conducted (Burns & Grove, 2005:44). Furthermore, to promote understanding of situations, and classify information for use in the nursing discipline (Burns & Grove, 2005:3). The descriptive research strategy enabled the researcher to identify and describe the current status of doctoral education in nursing in South Africa. The aim was to generate new knowledge about the quality of doctoral education in nursing in South Africa from the perspective of nursing deans, academic personnel, doctoral graduates and doctoral students with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources and evaluation of the programme, for which limited or no research had been conducted. In this, the intention was to promote understanding of the quality of doctoral education in nursing in South Africa and to identify threats to the quality in order to develop a strategy to improve the quality of doctoral education in nursing in South Africa.

Contextual research is depicted as extensively describing differences and distinguishing characteristics of a single case, group or sub-culture of intrinsic interest in *its immediate*, unique, value and time-space context (Mouton & Marais, 1996:49-50; Botes, 1995:9). Contextual research does not aim to generalize findings of the research, but rather aims to analyze and describe the reality of a particular research setting in such detail, that transferability of the research findings will be possible in a similar context (Botes, 1995:9). The context of this study was nursing science (the body of knowledge that directs nursing), nursing education and specifically the quality of doctoral education in nursing in South Africa.

3.4 PHASE ONE – EMPIRICAL RESEARCH

In this section, the research method of the empirical research (Phase 1) of the study is discussed in accordance with the aim and objectives of the study, and in relation to the research design.

3.4.1 RESEARCH METHOD – EMPIRICAL RESEARCH

The research method is discussed in relation to the research instrument, the study population, the sampling method, the pilot study, data collection and data analysis.

3.4.1.1 RESEARCH INSTRUMENT

For the purpose of this study, a questionnaire was selected as the research instrument. The international collaborative study refers to the research questionnaires as surveys, thus the terms questionnaire and survey will be used interchangeably in this study.

The rationale for the use of a questionnaire will now be presented with regard to its use as a research instrument, its advantages and limitations, the development of the questionnaire and the format of the questionnaire.

I. THE QUESTIONNAIRE AS A RESEARCH INSTRUMENT

A questionnaire is a self-report form designed to elicit factual data about variables of interest to the researcher that can be obtained through the written responses of the participant, for purposes of statistical compilation or comparison of the information gathered (Best & Kahn, 1993:230; Tuckman, 1994:216; Buckingham & Saunders, 2005:43; Burns & Grove, 2005:398). In addition, Buckingham and Saunders (2004:43), and Burns and Grove (2005:398) state that questionnaires are a prepared set of written questions designed to determine facts or attributes about the participant or persons known by the participant; facts about actions, events or situations known by the participant; or beliefs, attitudes, opinions, levels of knowledge, or intentions of the participant.

Questionnaires can have varying degrees of structure, namely structured (closed form) and unstructured (open form). In a structured questionnaire, participants choose between preconceived answers which are easy to fill out and take little time to complete, while in unstructured questionnaires, participants answer questions in an unrestricted manner which requires greater effort as participants have to formulate their own answers (McMillan & Schumacher 2001: 260-261; Best & Kahn, 2003: 301-302; Brink, 2006:149). Questionnaires can be distributed to very large samples, either directly in person, by mail (Burns & Grove 2005:398) or by internet-mediated methods (Hewson, Yule, Laurent & Vogel, 2003:42).

Internet-mediated questionnaires can be administered by electronic mail (email) or placed on a website (Web-based survey). Using the Internet as a tool for administering questionnaires has many advantages, compared with traditional methods. These are that the distribution of a questionnaire by the Internet reduces both the time and cost associated with the production, distribution and data collection, and converting of data into a format ready for analysis; and furthermore enables access to a vast and diverse number of participants from all over the world (Hewson *et al.*, 2003:42-44).

This study forms part of an international collaborative study to compare the quality of doctoral education in nursing in Australia, Japan, Korea, South Africa, Thailand, United Kingdom and the United States of America, and to develop strategies for improving the quality of doctoral education in nursing among these countries. A structured (Likert type) internet-mediated questionnaire was selected as the research instrument for this international collaborative research study. A Likert type questionnaire is designed to determine the opinion or attitude of a participant; it contains a number of declarative statements with a scale after each statement (Burns & Grove, 2005:741). The internet-mediated questionnaire allowed access to the entire population of nursing deans, academic personnel, doctoral graduates and doctoral students in South Africa, enabling factual data to be elicited with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.

The international collaborative study further allowed the researchers in each study country to decide whether they would distribute the questionnaire through the international Web-based survey, or by email. In this study, the researcher decided to distribute the questionnaire by email, as this increased the level of researcher control and involvement, as the researcher could directly contact each participant and apply follow-up measures to increase response rates (Hewson *et al.*, 2003:44).

II. ADVANTAGES OF QUESTIONNAIRES

Some of the advantages of the structured internet-mediated questionnaire, as used in this study are according to Fraenkel & Wallen, (1990:421); Best & Kahn, (1993:230); Tuckman, (1994:216); McMillan & Schumacher, (2001:257); Hewson *et al.*, (2003:42-43), and Brink, (2006:147):

- it can be distributed to any number of participants with financial and time cost effectiveness;
- it enables access to vast and diverse numbers of people all over the world;
- since the questions are phrased identically, the questionnaire allows for uniformity and elicits more comparable data;
- respondents can complete the questionnaire at a time and in a place that suits them, without pressure for an immediate response;
- the influence that an interviewer might have on the participant is eliminated;
- questionnaires are one of the easiest research instruments to test for reliability and validity;
- conversion and analysis of data are made easy by the standard format of the questionnaire; and
- due to its impersonal nature, the questionnaire may elicit more honest and objective, thus more valid, responses.

III. LIMITATIONS OF QUESTIONNAIRES

The use of a structured internet-mediated questionnaire as a research instrument has several limitations such as those referred to by Fraenkel and Wallen, (1990:336); Best

and Kahn, (1993:230); Tuckman, (1994:216); Bryman, (2001: 130-132); Hewson *et al.*, (2003:42) and Brink, 2006:147):

- a low response rate is frequently the biggest disadvantage of the questionnaire;
- as the questionnaire is distributed through a computer terminal, the researcher is less able to judge the extent to which responses are misleading, the conditions under which the questionnaire was answered, and the state of the participant at the time the questionnaire was answered;
- it is difficult to determine whether participants who respond to the questionnaire are indeed representative of the population;
- questions might be interpreted and understood differently by participants, as there is little or no opportunity for participants to ask questions or clear up ambiguous terms;
- participants may fail to answer all of the questions;
- participants may feel that their personal opinions are left out;
- participants may be unwilling to respond to questions on private matters or controversial issues, and may consequently provide what they regard as socially acceptable answers;
- the length of the questionnaire may result in low response rates or may lead to careless or inaccurate responses;
- questionnaires often do not probe deep enough to reveal a true picture of opinions and feelings; and
- participants may have little interest in a particular problem, which may result in low response rates or may lead to careless or inaccurate responses.

Brink (2006:146) states that careful and insightful attention to the development and format of the questionnaire will help to identify and make full provision for the limitations of questionnaires.

IV. DEVELOPMENT OF THE QUESTIONNAIRE

The international collaborative study made use of three different surveys, one for nursing deans, one for academic personnel, and one for doctoral graduates and doctoral students. The surveys were developed from the work of the Quality Criteria, Standards, and Indicators (QCSI) task team, who were charged by the International Network for Doctoral Education in Nursing (INDEN) in 2000, to determine the standards of doctoral education in nursing worldwide (Kim & Ketefian, 2004:1) (see the discussion in the literature review, Paragraph 2.5).

The task team consisted of 15 members from eight countries, namely: Australia, Brazil, Canada, Korea, Poland, South Africa, United Kingdom and the United States of America. Doctoral education in nursing was investigated in each of these countries in two phases, over a three-year period, and a document based on the Position Statement of the American Association of Colleges of Nursing (AACN) on “Indicators of Quality in Research-focused Doctoral Education in Nursing” (AACN, 2001) was drafted. The document was circulated thrice over a three-year period to all INDEN members and their inputs were incorporated in the document. Criteria, sub-criteria, standards or indicators that were identified by members to be inapplicable in their countries were removed in the final version of the document (Kim & Ketefian, 2004:1).

The seven major criteria that were identified in this investigation included: the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources and evaluation of the programme (Kim *et al.*, 2006:477-478, Kim & Ketefian, 2004:1). Each of these criteria have sub-criteria with specific standards and indicators to measure quality (see Table 2.4), and the surveys were developed from these quality criteria, indicators and standards.

V. FORMAT OF THE QUESTIONNAIRE

The questionnaire format and items, and the introductory covering letter are the main sources of information that the participant will refer to in deciding whether or not to

complete the questionnaire (Ary, Jacobs & Razavieh, 1990:429). In this study the questionnaires were distributed by email, so the researcher adhered to the following rules of questionnaire formatting:

- the questionnaire should be attractively laid out;
- questions should be organized in such a way that the questionnaire is easy to respond to;
- questions should follow a logical sequence, so that it keeps the participant moving towards completion;
- the questionnaire items and pages must be numbered;
- brief, clear and bold-type print instructions for answering, and keys for ranking the items should be provided in each section; and
- the questionnaire should not be too long and should include enough information so that items are interesting to participants.

VI. STRUCTURE OF THE QUESTIONNAIRES

In this study, four questionnaires were used, one for nursing deans, one for academic personnel, while the doctoral graduates' and doctoral students' questionnaires were split into two (see rationale for this decision, Paragraph 3.4.1.3).

A. Nursing dean survey

This survey requires nursing deans to respond to 42 items. The survey consists of three sections, namely Sections A, B and C. Section A consists of 22 items. The items are focused on an overview of the doctoral programme in nursing with regard to the nature of the mission, academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme. Section B contains seven items, related to doctoral programmes that offer research doctorates without coursework requirements, and are focused on supervision. Section C consists of twelve items, and gathers the biographic information of the participants such as age, gender, and information with regard to their doctoral degree. (See Addendum A for an example of the nursing dean survey).

B. Academic personnel survey

This survey requires academic personnel to respond to 82 items. The survey consists of six sections, namely Sections A, B, C, D, E and F. Section A consists of 23 items. The items are focused on the quality of the doctoral programme in nursing with regard to the nature of the mission, doctoral students, curriculum, and programme administration and infrastructure. Section B contains 22 items, and is focused on the quality of academic personnel with regard to their qualifications, research, teaching, advising and mentoring, practice and service, and their academic roles. Section C consists of nine items. The items are focused on the availability of institutional resources with regard to human resources, and material and technical resources. Section D contains nine items, and items are focused on evaluation of the programme. Section E, consists of thirteen items, and is related to the biographic information of the participants such as age, gender, and information with regard to their doctoral degree. Section F consists of six items. The items are related to doctoral programmes that offer research doctorates without coursework requirements, and are focused on supervision. (See Addendum B for an example of the academic personnel survey).

C. Doctoral graduates survey

This survey requires doctoral graduates to respond to 79 items. The survey consists of six sections, namely Sections A, B, C, D, E and F. Section A consists of 23 items. The items are focused on the quality of the doctoral programme in nursing with regard to the nature of the mission, doctoral students, curriculum, and programme administration and infrastructure. Section B contains fourteen items, and is focused on the quality of academic personnel with regard to their qualifications, research, teaching, advising and mentoring, practice and service, and their academic roles. Section C consists of nine items. The items are focused on the availability of institutional resources with regard to human resources, and material and technical resources. Section D consists of nine items, and the items are focused on evaluation of the programme. Section E consists of eighteen items, and is related to the biographic information of the participants such as age, gender, and information with regard to their doctoral degree. Section F contains six items. The items are related to doctoral programmes that offer research doctorates

without coursework requirements, and are focused on supervision. (See Addendum C for an example of the doctoral graduate survey).

D. Doctoral students survey

This survey requires doctoral students to respond to 76 items. The survey consists of six sections, namely Sections A, B, C, D, E and F. Section A consists of 23 items. The items are focused on the quality of the doctoral programme in nursing with regard to the nature of the mission, doctoral students, curriculum, and programme administration and infrastructure. Section B contains fourteen items, and is focused on the quality of academic personnel with regard to their qualifications, research, teaching, advising and mentoring, practice and service, and their academic roles. Section C consists of 9 items. The items are focused on the availability of institutional resources with regard to human resources, and material and technical resources. Section D contains 9 items, and the items are focused on evaluation of the programme. Section E, consists of 15 items, and is related to the biographic information of the participants such as age, gender, and information with regard to their doctoral studies. Section F consists of 6 items. The items are related to doctoral programmes that offer research doctorates without coursework requirements, and are focused on supervision. (See Addendum D for an example of the doctoral student survey).

3.4.1.2 POPULATION AND SAMPLE

A population (N) is the entire set of persons, events, organizations, objects or study elements that meets the designated criteria which the researcher is interested in studying (Polit & Hungler, 1997:223; Burns & Grove, 2005:342; Brink, 2006:123; Babbie, 2007:190). In a sample population (n), the researcher selects some of the persons, organization, objects or study elements to represent the population under investigation (Mouton, 2002:135).

In this study, an all-inclusive sampling method was applied to the population. The population consisted of all nursing deans, academic personnel, doctoral graduates and

doctoral students at South African nursing schools/departments/divisions that offer a nursing doctoral programme (N=16; n=15). The selection criteria were:

- nursing deans who currently serve as the head of school/department/division of a nursing school/department/division that offers a doctoral programme in nursing (N=15; n=12).
- academic personnel employed at a nursing school/department/division that offers a doctoral programme in nursing and who contribute to such a programme (N=50, n=26).
- doctoral graduates who have completed their doctoral education in nursing at a nursing school/department/division in the most recent three years (2006-2008) (N=43; n=24); and
- doctoral students who are registered for doctoral education at a nursing school/department/division that offers a doctoral programme in nursing (N=106; n=63).

There were participants in this study who fitted into more than one category of the population, this was managed as follows: where a nursing dean also fitted in the category of the doctoral graduate or doctoral student population, the participant was only included in the nursing dean population and where academic personnel also fitted in the category of the doctoral student or doctoral graduate population; the participant was only included in the doctoral student or doctoral graduate population.

3.4.1.3 PILOT STUDY

A pilot study is a small-scale version or a trial run of the proposed study, conducted in preparation for the real research study, to further develop or refine the methodology, such as the treatment, instrument, or data collection process (Polit & Hungler, 1997:44; Burns & Grove, 2005:746; Brink, 2006:206). Additionally, Tuckman (1994:235), and Brink (2006:206) state that during piloting, the researcher tests the practical aspects of the research study and obtains information for improving the instrument or data collection process. This helps the researcher deal with unforeseen problems such as

phrasing, ambiguous instructions or wording, terminology, sequence and length of the questions.

In this study, surveys were submitted for comments and suggestions to ten participants at three higher education institutions. The pilot study population selected did not form part of the study population, but had similar characteristics, in that they were academic personnel that worked at a nursing school/department/division with a doctoral programme, but they did not contribute to the doctoral programme and they were not doctorally qualified or enrolled in the doctoral programme. The questionnaire was also submitted to the promoter, an expert in nursing education, and the Statistical Consultation Services of the North-West University (Potchefstroom Campus). Recommendations were made with regard to the organization of the items (eg. keeping similar themes together, so that the questionnaire follows a logical sequence) and terminology used (eg. replacing US terms with terms more commonly used in South Africa, such as faculty with academic personnel, core content with curriculum). Items that did not apply to the South African context, were deleted (eg. items about PhD coursework and examinations) and the doctoral student and doctoral graduate surveys were split into two separate surveys, so that the surveys were easier to complete. The relevant recommendations were accepted and changes were incorporated into the surveys before the commencement of data collection.

3.4.1.4 DATA COLLECTION

The research study was introduced to the nursing deans at a business meeting of the Forum of University Nursing Deans in South Africa (FUNDISA). A letter stipulating the purpose of the study; the importance of the study, the requirements of participating in the study, and the ethical considerations applied in this study (Burns & Grove, 2005:181, Brink 2006:32; Polit & Hungler, 1997:133; MRC, 2006:86) was supplied to the nursing deans. The letter contained a request for permission to include their respective nursing school/department/division in the study (See Addendum E for an example of this explanatory letter).

Two weeks thereafter, the nursing deans were contacted by email to enquire whether their respective nursing/school/department division could be included in the study. Five nursing deans granted permission to include the respective nursing/school/department division in the research study. A month after the first request, the nursing dean population that had not responded to the first reminder, were again reminded by email and the original letter requesting permission to conduct research at the respective nursing school/department/division, was provided to them. A further three nursing deans granted permission to include their nursing school/department/division in the research study. Six nursing deans then requested that the researcher apply for ethical clearance at their respective higher education institutions' ethical review boards or institutional management, to include the respective nursing schools/departments/divisions in the study. One nursing dean reported that the nursing school/department/division did not have the capacity to be involved in another research project, and was excluded from the study. Fifteen of the sixteen nursing schools/departments/divisions in South Africa were included in this study.

Once permission was granted by either the nursing dean or higher education institution, nursing deans were requested to provide the name and contact information of the person who leads or directs the doctoral programme or the name of a contact person in that nursing school/department/division who would be able to compile a list of doctoral graduates who had completed their doctoral education in nursing at the nursing school/department/division in question in the most recent three years (2006-2008), and a list of students who were registered for doctoral education in nursing with their email addresses, and a telephone number, if possible was also sought.

Once these lists were provided to the researcher, academic personnel employed at nursing schools/departments/divisions with a doctoral programme in nursing and who contribute to such a programme; were listed from the FUNDISA contact detail booklet. Academic personnel who were already included in the doctoral graduate or doctoral student study population were excluded. The surveys were distributed by email with a cover letter (See Addendum F). The letter outlined the purpose of the study; the

importance of the study, the name of the researcher; the institution supporting the study; the person's right to choose to participate in the study or not, without any external influence; the responsibilities of the researcher towards the participant and the research study; the potential risks and benefits that could result from participation in the study, the approximate time it would take to complete the form, and the person's right to withhold information or withdraw from the study at any given time without any consequence (Burns & Grove, 2005:181, Brink 2006:32; Polit & Hungler, 1997:133; MRC, 2006:86). Two weeks after distributing the surveys, another courteous email was sent with the cover letter and questionnaire attached, as a reminder to non-responders. Another follow-up email with the introductory cover letter and questionnaire attached, was sent to non-responders a month after the first contact (See Addendum G for examples of the follow-up emails). After a month, non-responders whose telephone numbers were available to the researcher were contacted with a final request to complete the survey.

3.4.1.5 RESPONSE RATE

A total number of 214 surveys for nursing deans, academic personnel, doctoral graduates and doctoral students were distributed at 15 nursing schools/departments/divisions in South Africa. Of this number 125 (58.4%) were returned. Table 3.1 below indicates the survey distribution and response rates for each population group.

Table 3.1: Distribution and response rates to surveys

Population Groups	Questionnaires Distributed	Questionnaires Received	
	f	f	%
Nursing Deans	15	12	80
Academic Personnel	50	26	52
Doctoral Graduates	43	24	56
Doctoral Students	106	63	59

According to Burns and Grove (2005:401) the response rate for questionnaires is generally lower than other forms of self-reporting, especially for mailed questionnaires where response rates are usually small between 25% and 30%. Also, Burns and Grove (2005:401) and Babbie (2007:262) report that a response rate of at least 50% is required to ensure the representativeness of the sample population, and the reliability and validity of the findings; thus the response rate in this study which ranges from 52% to 80%, as well as the fact that it includes an all inclusive sample of each respective population group, ensures that the findings of this study is valid, reliable and representative of the general population.

A number of strategies were applied in this study to increase the response rate. These included sending a cover letter with an appeal to complete the survey, personalizing the email by addressing the email to the participant directly, including their title, name and surname, sending two follow-up personalized emails with the introductory cover letter and survey two weeks and one month after the first contact, and making a phone call follow-up after one month if telephone numbers were available. Also, ensuring the survey was attractive and easy to complete, providing a deadline to return the survey and offering to make the survey results available to participants (Yammarino, Skinner & Childers, 1991:616-617; Burns & Grove, 2005:401). The most commonly cited reason for non-response was that of being too busy and this may be attributed, in part, to the fact that the questionnaires were longer than four pages. Long questionnaires, according to a meta-analysis conducted by Yammarino *et al.*, (1991:627), is one of the most important factors contributing to a poor response rate.

A further aspect that needs to be highlighted is that the contact details of several individuals from the list of doctoral graduates and doctoral students that met the criteria of the study were incorrect. In these instances, email communication to the email addresses was not possible or the telephone numbers did not exist or did not belong to the individual as listed. The researcher made the following attempts to gain access to the population: following up with the contact persons at the respective nursing school/department/division in regard to the correct contact details, and where possible

contacting the promoter of the student. If this provided no further information, the researcher searched for the individual on Google or Facebook. After all these attempts, eight doctoral graduates and sixteen doctoral students were excluded from the study.

3.4.1.6 ANALYSIS OF DATA

The Statistical Consultancy Services Department of the North-West University (Potchefstroom Campus) used the EpiData programme to create four EpiData data files and four EpiData check files for each of the questionnaires (Lauritsen, 2008), to allow double entry verification. The researcher entered the data from the retrieved questionnaires into the EpiData data files, while a second person entered the data into the EpiData check files, and the error detection features of the programme were used to check for discrepancies. Where discrepancies were noted, the original questionnaire was traced by means of its unique identification number and the data entry item was corrected accordingly.

The EpiData data files were sent to the Statistical Consultancy Services Department of the North-West University (Potchefstroom Campus) for analysis. The analysis was done using the SAS programme (SAS Institute Inc., 2003), which provided descriptive statistics and measures of effect sizes. Descriptive statistics are used to describe and synthesize data, in this study, data was reported as frequencies (f), means (M), percentages (%) and standard deviations (SD) (Brink, 2006:172). Effect sizes are used to determine the importance of the differences or relationships, or the strength of a relationship in the sample population (Steyn, 2009:1; Gravetter & Wallnau, 2005:474).

In this study, effect size is given by $p = \sqrt{\frac{X^2}{n}}$, where X^2 is the usual Chi-square statistic for the contingency table and n is the sample size. Cohen (1988) gives the following guidelines for the interpretation of this effect size: (a) small effect: $p=0.1$, (b) medium effect: $p=0.3$, (c) large effect: $p=0.5$. The researcher did not make use of the Chi-square test in specific, as this study incorporates the entire study population, and therefore no generalisation about the population needs to be made.

One open ended question, “What additional questions/comments would you pose about nursing doctoral education?” was analyzed by means of content analysis into the seven major criteria of the study namely, the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme, and discussed under each of these respective criteria in the analysis and interpretation of data.

3.5 PHASE TWO –STRATEGY DEVELOPMENT

In this section, the research method of the strategy development (Phase 2) of the study is discussed with the aim and objectives of the study in mind, and in relation to the research design.

3.5.1 RESEARCH METHOD – STRATEGY DEVELOPMENT

Deductive and inductive logic was used in the formulation of the strategy. Deductive logic is a form of reasoning that moves from the general to the specific or from a general premise to a particular situation. In deductive logic, two or more premises as relational statements provide the conclusion with complete support (Chinn & Kramer, 2008:296; Burns & Grove, 2005:733; Rossouw, 2003:39). Inductive logic is a form of reasoning that moves from the specific to the general, and the premises provide only partial support for the conclusion, it is a series of particular instances that are observed and then combined into a larger whole or set of things, or a general statement (Rossouw, 2003:40; Chinn & Kramer, 2008:299; Burns & Grove, 2005:739).

In this study, deductive logic was applied to identify problems or formulate conclusion statements about the quality of doctoral education in nursing in South Africa from the comprehensive literature review and the empirical research findings of the study. These problems identified (or conclusion statements) were used as the basis or evidence for the strategy developed to improve the quality of doctoral education in nursing in South Africa. Deductive logic was used to develop strategy objectives from the problems identified (or conclusion statements), while inductive and deductive logic were applied to

develop functional tactics to put into action and implement the strategy developed to improve the quality of doctoral education in nursing in South Africa. Refer to Figure 3.1 below for a graphic presentation of the method of strategy development.

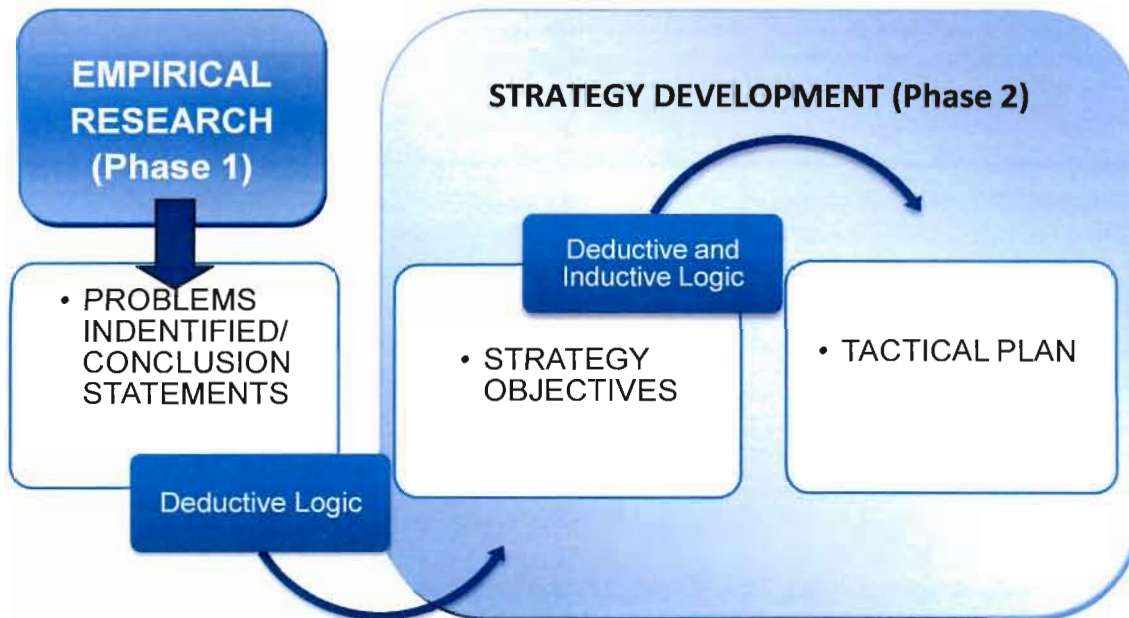


Figure 3.1: Graphical presentation of the method of strategy development

3.6 RIGOUR OF THE STUDY

The rigour of the study was ensured through testing the validity and reliability of the research instrument, applying the construct of trustworthiness, and ensuring the theoretical and inferential validity of the study to make certain that the strategy developed to improve the quality of doctoral education in nursing in South Africa is valid scientific knowledge (Botes, 2003:176).

3.6.1 RELIABILITY OF THE QUESTIONNAIRES

The reliability of a measure refers to the internal consistency of question items within a specific category (De Vos, Strydom, Fouche & Delpont, 2005:163) or the consistency of results obtained in the use of a particular instrument repeatedly over time (Burns & Grove, 2005:374, Brink, 2006:163-164). In this study, reliability was ensured as the

questionnaire was based on the comprehensive work of the Quality Criteria, Standards, and Indicators (QCSI) task team of the International Network for Doctoral Education in Nursing (INDEN) as discussed in Paragraph 3.4.1.1 (IV) and 2.5. Furthermore, these surveys have recently been used in a study conducted in Korea, by the principal investigator of this international collaborative study (the articles have not yet been published). The reliability of the questionnaires was also determined through the application of the Cronbach Alpha co-efficient. The results were:

Table 3.2 Cronbach Alpha co-efficient

SECTION OF THE QUESTIONNAIRE	NURSING DEANS SURVEY	ACADEMIC PERSONNEL SURVEY	DOCTORAL GRADUATES SURVEY	DOCTORAL STUDENTS SURVEY
	Co-efficient	Co-efficient	Co-efficient	Co-efficient
Section A – Programme	N/A	0.96	0.89	0.93
Section B – Academic Personnel	N/A	0.95	0.93	0.93
Section C – Resources	N/A	0.87	0.93	0.84
Section D – Evaluation	N/A	0.90	0.94	0.92
Section F – Supervision	0.83	0.89	0.84	0.86

It is clear from Table 3.2 that all categories registered co-efficients closer to 1.0, meaning that the research instruments are reliable.

3.6.2 VALIDITY OF THE QUESTIONNAIRES

The validity of an instrument is a determination of the extent to which the instrument adequately reflects or measures the abstract construct being examined, or the integrity of the conclusions that are generated from the research (Polit & Hungler, 1997:299; Bryman, 2001:30; Burns & Grove, 2005: 376). The validity of the instrument will be discussed with regard to its construct and content validity.

3.6.2.1 CONSTRUCT VALIDITY

Construct validity is the ability of an instrument to measure all the major elements relevant to the construct being measured (Brink, 2006:200).

In this study, the quality criteria with reference to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme, formed the major constructs of this study. The validity of each construct was established by examining empirical evidence of each construct and developing standards and indicators to clarify and interpret the construct (see Table 2.4), which was conducted by the Quality Criteria, Standards, and Indicators (QCSI) task team of the International Network for Doctoral Education in Nursing (INDEN) as discussed in Paragraphs 3.4.1.1 (IV) and 2.5.

3.6.2.2 CONTENT VALIDITY

Content validity examines the extent to which the method of measurement covers the scope and range of the information that is sought (Burns & Grove, 2005:732; Brink, 2006:200).

Content validity was ensured as the questionnaire was based on an extensive literature review and consultation of experts in the field by the Quality Criteria, Standards, and Indicators (QCSI) task team of the International Network for Doctoral Education in Nursing (INDEN) as discussed in Paragraphs 3.4.1.1 (IV) and 2.5. In addition, the researcher conducted a comprehensive literature review with a focus on the South African higher education institution context and doctoral education in nursing in South Africa to ground and integrate the quality criteria, standards and indicators within the accepted body of knowledge in nursing and doctoral education in South Africa. Furthermore, the researcher conducted a pilot study with a pilot study population that had similar characteristics as the study population, to ensure that participants would understand the constructs and terminology of the questionnaires in the South African context. The findings from the literature review and suggestions from the pilot study

population were incorporated in the final questionnaire, in consultation with the promoter, an expert in the field of nursing education and the Statistical Consultancy Department of the North-West University (Potchefstroom Campus). In addition, content validity of the study was ensured through the representativeness of the nursing dean, academic personnel, doctoral graduate and doctoral student population groups (as evidenced in Paragraph 3.4.1.5.) to ensure that the conclusions that were generated from the research findings was valid scientific knowledge.

3.6.3 TRUSTWORTHINESS

The construct of trustworthiness consists of the epistemological standards of truth value, applicability, consistency and neutrality, as well as the theoretical and inferential validity of the study (Klopper, 2006:17-18).

3.6.3.1 TRUTH VALUE

Truth value is the assurance the researcher has in the believability of the findings and data, with reference to the research design, information, participants and the context in which the research was conducted. Truth value is obtained through the strategy of credibility which includes the techniques of prolonged engagement, triangulation, peer examination, negative case analysis and member checking (Lincoln & Guba, 1985:294-296; Klopper, 2006:17; Polit & Hungler, 1997:304-305; Sliep *et al.*, 2001:69; Klopper & Knobloch, 2010:319).

In this study, the researcher spent an extended period of time immersed in the collection and analysis of data and made use of data source triangulation by means of collecting data from multiple data sources – nursing deans, academic personnel, doctoral graduates and doctoral students – with regard to the quality of doctoral education in nursing in South Africa, as well as the inclusion of literature. The researcher is also an academic personnel member working at a higher education institution for the last three years, and thus has experienced prolonged engagement in the context. Peer examination was also utilized through contact sessions with the promoter, who is an expert in the field of nursing education, meetings with statistical

consultation services, evaluation of the proposal by the School of Nursing Science research committee and an oral defence of the proposal in the presence of the North-West University scientific community. Also the proposal was institutionally reviewed by the ethical review board of the North-West University and eight other higher education institutions' ethical review boards, while the thesis was evaluated by subject specialists.

3.6.3.2 APPLICABILITY

Applicability is the ability to transfer data from research findings of a particular inquiry to other contexts and settings, and the ability to generalize from the findings to larger populations through the strategy of transferability. The strategy of transferability includes the techniques of thick description and saturation of data (Lincoln & Guba, 1985:297; Klopper, 2006:17; Polit & Hungler, 1997:307-308; Sliep *et al.*, 2001:69; Botes, 2003:181; Burns & Grove, 2005:358; Klopper & Knobloch, 2010:320-321).

To ensure applicability of the findings to other contexts and professions, a thick description was given of the background and rationale of the study, the aim and objectives of the study, the ontological, epistemological and methodological assumptions of the researcher, the context of higher education in South Africa, and the research methodology. The research methodology, including the design, methods, data collection, data analysis, and interpretation of the data and development of the strategy to improve the quality of doctoral education in nursing in South Africa was comprehensively documented and linked to the objectives and the theoretic foundations of the study.

3.6.3.3 CONSISTENCY

Consistency is the ability to reproduce the study with the same population in a similar context and yield the same or comparable results (Lincoln & Guba, 1985:298-299; Sliep *et al.*, 2001:69; Klopper & Knobloch, 2010:322). According to Klopper (2006:17-18) consistency is ensured through the strategy of dependability which includes both indirect and direct techniques. Indirect techniques include the measures of credibility, while direct techniques include stepwise replication, an inquiry audit and triangulation.

In this study, the researcher applied data source triangulation (see Paragraph 3.6.3.1). An inquiry audit trail was established through dense description of the context of higher education in South Africa and the research methodology used in this study, so that the dependability of the data and supporting documentation could be audited, and that another researcher can clearly follow the discussion trail that the researcher used in this study.

3.6.3.4 NEUTRALITY

Neutrality is described as the application of partiality in the collection, analysis and interpretation of data in such a manner that it is based singularly on the selected population and is devoid of personal intentions, interests and perceptions (Lincoln & Guba, 1985:300; Sliep *et al.*, 2001:70; Klopper & Knobloch, 2010:323). Klopper (2006:18) states that the strategy of confirmability ensures neutrality through the techniques of a confirmability audit and triangulation.

In this study, the researcher applied data source triangulation (see Paragraph 3.6.3.1). A confirmability audit was applied through stating the ontological, epistemological and methodological assumptions of the researcher. This was done so that the study can be evaluated to determine to what extent the findings of the study were determined by the participants and conditions, versus the researcher's biases, motivations, interests or perspectives. Also, to ensure that the raw data, data reduction and analysis products, process notes, material relating to the intentions and dispositions, instrument information and data reconstruction products were made available for external peer review. A dense description of the study's theoretical foundation, the context of higher education in South Africa, methods, findings, interpretations and auditability also contribute to the standard of neutrality in this study.

Table 3.2 presents a summary of the epistemological standards and techniques that were applied to ensure the trustworthiness of this study.

Table 3.3 Summary of the standards and techniques applied to ensure trustworthiness of the study

EPISTEMOLOGICAL STANDARD	TECHNIQUES APPLIED IN THIS STUDY	APPLICATION IN THIS STUDY
Truth value	Prolonged engagement	<ul style="list-style-type: none"> immersion for an extended time in the collection and analysis of data
	Triangulation	<ul style="list-style-type: none"> data source triangulation by means of collecting data from multiple data sources – nursing deans, academic personnel, doctoral graduates and doctoral students
	Peer examination	<ul style="list-style-type: none"> contact sessions with promoter meetings with statistical consultation services evaluation of the proposal by the School of Nursing Science ethics committee oral defence of the proposal in the presence of the North-West University scientific committee institutional reviews by nine South African ethical review boards evaluation of the thesis by subject specialists
Applicability	Thick description	<ul style="list-style-type: none"> thorough in-depth description of the background and rationale of the study, the aim and objectives of the study, the researcher's assumptions, the context and the research methodology
Consistency	inquiry audit	<ul style="list-style-type: none"> thorough in-depth description of the research context and methodology, in order to allow for external peer review of the dependability of the data and supporting documentation
	Triangulation	<ul style="list-style-type: none"> data source triangulation by means of collecting data from multiple data sources – nursing deans, academic personnel, doctoral graduates and doctoral students

Neutrality	Confirmability audit	<ul style="list-style-type: none"> stated the assumptions of the researcher and ensured that the raw data, data reduction and analysis products, process notes, material relating to the intentions and dispositions, instrument information and data reconstruction products were made available for external peer review
	Triangulation	<ul style="list-style-type: none"> data source triangulation by means of collecting data from multiple data sources – nursing deans, academic personnel, doctoral graduates and doctoral students

3.6.4 THEORETICAL VALIDITY

Theoretical validity is linked to the theoretical meaning or definition of a concept. To ensure the theoretical validity of a concept two methods can be employed, namely a concept analysis or conceptualization. In this study conceptualization was applied, which is a process of describing the key concepts in the research, as well as the grounding and integration of research within the accepted nursing body of knowledge (Botes, 1995:11-12 Klopper & Knobloch, 2010:318).

3.6.5 INFERENTIAL VALIDITY

Inferential validity is the evaluation of the legitimacy and relevance of the statements through to the conclusions (Mouton & Marais, 1996:106-107). To ensure inferential validity statements must be acceptable, relevant to the conclusions, and adequately support and qualify the conclusions (Botes, 2003:184; Klopper & Knobloch, 2010:323). In this study, inferential validity was ensured by inferences (problems identified) through deductive logic from a comprehensive literature review and empirical research. By developing strategy objectives, through deductive logic, that were based on the problems identified from the comprehensive literature review and empirical research, and TQM philosophy, and the development of functional tactics, through deductive and inductive logic, that were based on the strategy objectives, QCSI criteria and TQM philosophy through the application of TQM elements (Refer to Paragraph 3.5.1.)

3.7 ETHICAL CONSIDERATIONS

All research conducted must be ethical and of a high standard that protects the well-being and rights of research participants. The principles of beneficence, respect for persons and justice are the fundamental ethical principles in research, that function to protect the participants' human rights of self-determination, privacy, anonymity, confidentiality, fair treatment and protection from discomfort and harm (Burns & Grove, 2005:181; Brink 2006:31-32; Polit & Hungler, 1997:130-137; MRC, 2006:85-87; NCESSRH, 2005:5).

3.7.1 THE PRINCIPLE OF BENEFICENCE

The principle of beneficence can be described as doing good and preventing harm, which may be physical, emotional, spiritual, social, economic or legal (Burns & Grove, 2005:190; Brink, 2006:32). The researcher has a responsibility to conduct research that will protect participants from discomfort and harm while bringing about the greatest possible benefits and minimizing all risks involved in the research (Burns & Grove, 2005:190; MRC, 2006:86).

3.7.1.1 FREEDOM FROM EXPLOITATION

The researcher has the responsibility to ensure that the participant is not placed in a disadvantaged position, is not exposed to a situation for which he/she is unprepared and is not exploited in any way (Polit & Hungler, 1997:130). In this study, the researcher ensured freedom from exploitation by informing the participant of the nature and purpose of the research and assuring the participant that his/her voluntary participation in the study and all information shared with the researcher during the study will not be used against him/her or his/her respective nursing school/department/division in any way.

3.7.1.2 RISK/BENEFIT RATIO

The researcher has the responsibility to carefully envisage the outcome of the study, as well as determine the inherent risks and benefits in the research study. Equipped with

this information, the researcher can then aim to maximize the benefits of the research, while minimizing the risks of the study (Burns & Grove, 2005:191). This research study provides baseline data of the quality of doctoral education in nursing in South Africa from the perspectives of nursing deans, academic personnel, doctoral graduates and doctoral students. The data covered the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme, and a strategy to improve the quality of doctoral education in nursing in South Africa. This research study has direct benefits to nursing deans, academic personnel and doctoral students. There were no foreseeable physical, emotional, spiritual, social, economic or legal risks involved, except for the time that each individual invested in the completion of the questionnaire.

3.7.2 THE PRINCIPLE OF RESPECT FOR PERSONS

The principle of respect for persons refers to the researcher's acknowledgement that the participant is an autonomous individual, who is capable of self-determination and individual choice. Respect for persons also includes the protection of those individuals with diminished autonomy (Burns & Grove, 2005:181; Brink 2006:32; NCESSRH, 2005:7; MRC, 2006:85).

3.7.2.1 RIGHT TO FULL DISCLOSURE

Full disclosure means that the researcher fully informs the participant of: 1) the purpose of the study, 2) the person's right to voluntarily choose to participate in the study or not, 3) the responsibilities of the researcher towards the participant and the research study, 4) the potential risks and benefits that could possibly result from participation in the study, as well as 5) the person's right to withhold information or withdraw from the study at any given time without any consequence (Burns & Grove, 2005:181, Brink 2006:32; Polit & Hungler, 1997:133; MRC, 2006:86). In this research project the right to full disclosure was respected by ensuring that each questionnaire was accompanied by a cover letter, so that each participant was fully informed about every aspect of the research project.

3.7.2.2 INFORMED CONSENT

Informed consent means the prospective participant agrees to participate in the research study after receiving the necessary information, with the person having an adequate understanding of the research that is to be conducted, having a free choice to take part in the study and being capable of making such a decision. If the participant complies with all these elements, a written consent form is signed by the participant (Burns & Grove, 2005:193-197, Brink 2006:35-39; Polit & Hungler, 1997:134; MRC, 2006:88-89). Informed written consent must also be sought from the research site and the relevant authorities where the research will be conducted (Klopper, 2006:71). Informed written consent was sought from each nursing dean prior to data collection, and where required, from each respective higher education institutions' ethical review board. Once permission was granted, participants were provided with a cover letter about the research study and a survey, and each participant had the choice to complete the survey. Completion of the survey implied consent (Polit & Hungler, 1997:134).

3.7.3 THE PRINCIPLE OF JUSTICE

The principle of justice was upheld through ensuring the participant's right to fair treatment and privacy prior to, during, and after commencement of the research study (Polit & Hungler, 1997:137).

3.7.3.1 RIGHT TO FAIR TREATMENT

In research the selection and treatment of participants should be fair, and the risks and benefits of the study should be shared equally by all the participants involved in the study. Participants should be randomly selected from the general population based on pre-determined inclusion criteria that is directly related to the research problem and not based at all on the availability, social conditions or the ability to manipulate the participants (Burns & Grove, 2005:189, Brink 2006:33; Polit & Hungler, 1997:137; MRC, 2006:87). The all-inclusive sample was selected from the fifteen nursing schools/departments/divisions with doctoral education programmes in nursing that granted permission to be included in the study. Nursing deans, academic personnel, doctoral graduates and doctoral students of these nursing

schools/departments/divisions were selected based on the stated inclusion criteria for this study (see Paragraph 3.4.1.2).

3.7.3.2 RIGHT TO PRIVACY

Privacy is the freely chosen ability of the participant to decide when, how and under which circumstances personal information may be shared with others. Thus, when a participant agrees to partake in a research study it is the researcher's responsibility to ensure that all data collected throughout the study will be kept private through the procedures of anonymity and confidentiality. Anonymity is ensured by keeping the identities of the participants secret while confidentiality is assured through keeping all data that was gathered during the study safe and guarding against any information being divulged or shared with any other person (Burns & Grove, 2005:186-189; Brink 2006:33-35; Polit & Hungler, 1997:137-138).

In this study anonymity and confidentiality were ensured by making certain that the names and contact details of participants and nursing schools/departments/divisions where research was conducted, were known only by the researcher. A unique code number was assigned to each participant and nursing school/department/division, so that there were no traces to the participant personally or to the nursing school/department/division through the completed survey. All information collected was kept in a locked filing cabinet at the office of the researcher, and all computers and back-up media on which data was stored, was password protected. Master lists containing individual participant names, contact information and numerical identifiers was stored separately from the surveys. All raw data collected will remain the property of the North-West University, and paper versions of the completed survey will be destroyed by shredding ten years after the project ends, while electronic data will be deleted upon completion of the project. The principal investigator of the international collaborative study was provided with the EpiData data files for analysis.

3.7.4 OTHER ETHICAL PRINCIPLES

The Department of Health (2004:3-9) describes other crucial guiding ethical principles, along with the basic ethical principles of beneficence, justice and respect for persons, which must be regarded when conducting health research in South Africa. These guiding principles include relevance, scientific integrity, investigator competence, publication of results and ethical review.

3.7.4.1 RELEVANCE

Health research conducted in South Africa should be relevant to the national and individual needs of those who endure suffering and should culminate in the production of results that can be used to improve the health of individuals (Department of Health, 2004:3). This research focused on the quality of doctoral education in nursing in South Africa from the perspectives of nursing deans, academic personnel, doctoral graduates and doctoral students with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme. This information enabled the researcher to develop a strategy to improve the quality of doctoral education in nursing in South Africa, which will ultimately improve nursing education in South Africa and even the health of individuals at a national level.

3.7.4.2 SCIENTIFIC INTEGRITY

Health research must be of a high standard using sound methodology that will answer the posed research questions, in addition to being grounded in literature and open to peer review (Department of Health, 2004:3). The planning, implementation, analysis and reporting of this research was grounded in literature and was conducted at the highest standard possible, with every step of the research process being documented in detail, so that peer review and evaluation of the entire process would be possible.

Plagiarism, another important aspect of scientific integrity (Brink, 2006:40; NWU, 2007:34; Bak, 2005:28), is described as the presentation of someone else's ideas or work as your own new, original work (NWU, 2007:33). Plagiarism was excluded in this

research by correctly referencing sources, both in the written text and bibliography of the study. Furthermore, direct quotations were explicitly identified as such and were limited through the scientific use of paraphrasing and summarizing.

3.7.4.3 INVESTIGATOR COMPETENCE

The investigator competence is determined by technical and research competence that is made available through provision of an appropriate clinical and research environment, as well as high-quality research mentoring (Department of Health, 2004:3; WHO, 2006:16; Bak, 2005:28). In this study, the research design and the topic of study falls within the promoter's area of expertise, and the resources needed to conduct the study were available at the North-West University (Potchefstroom Campus).

3.7.4.4 PUBLICATION OF RESULTS

Researchers have a responsibility to publish the results of their research in an ethical, honest, timely and proficient manner, not only to the scientific community, but also to the participants and members of the community where the study was conducted (DOH, 2004:6; Klopper, 2006:71). The results of this study will be presented to the participants, and will be disseminated in the scientific community through publication in peer-reviewed journals and presentations at conferences.

3.7.4.5 ETHICAL REVIEW

All health research conducted in South Africa must be reviewed by a research ethics committee, and the study may only commence once permission has been granted by this committee (DOH, 2004:9). The international collaborative study as a whole has been reviewed by seven international institutional ethical review boards – Australia, Japan, Korea, Thailand, United Kingdom, the United States of America and South Africa. The South African part of the research study was reviewed by the School of Nursing Science research committee, the proposal was presented to the North-West University scientific community by means of an oral defence and the proposal was reviewed by the Research Ethics Committee of the North-West University, ethics

number: (NWU-0085-08-A1) (see Addendum H). The proposal was also reviewed by eight other higher education institutions' ethical review boards.

3.8 SUMMARY

In this chapter, the research design was described in accordance with the aim and objectives of the study, and the research methods were described in relation to the empirical research phase (Phase 1) and the strategy development phase (Phase 2) of the study. The empirical research phase was discussed with regard to the research instrument, the study population, the sampling method, the pilot study, data collection, data analysis and the strategy development phase in regard to deductive and inductive logic. The rigour of the study was discussed and the chapter concluded with a portrayal of the ethical considerations of the study.

Chapter Four

Analysis and interpretation of data



<http://www.strategicvisionlimited.co.uk/analysis2.jpg>

It is in fact a part of the function of education to help us escape, not from our own time -- for we are bound by that -- but from the intellectual and emotional limitations of our time.

~ Thomas Stearns Eliot ~

CHAPTER FOUR

ANALYSIS AND INTERPRETATION OF DATA

4.1 OVERVIEW OF THE CHAPTER

In this chapter, the analysis and interpretation of the results of the empirical research are discussed. The chapter commences with an orientation to the study, followed by the analysis and interpretation of the data with reference to the biographic data of the population groups and the QCSI criteria. The QCSI criteria data is analyzed and interpreted with regard to the mission of the institution, the quality of academic personnel, the quality of students, the quality of the curriculum, the quality of administration and infrastructure, the quality of resources and the quality of evaluation of doctoral education in nursing in South Africa. An integrated discussion of doctoral education in nursing in South Africa concludes the chapter.

4.2 INTRODUCTION

The first four objectives of this research were to gather data on the quality of doctoral education in nursing in South Africa from the perspectives of nursing deans, academic personnel, doctoral graduates and doctoral students with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.

The population of this empirical survey included an all-inclusive sample of nursing deans who currently serve as the head of school/department/division of a nursing school/department/division with a doctoral programme in nursing; academic personnel employed at a nursing school/department/division with a doctoral programme in nursing and who contribute to such a programme; doctoral graduates who have completed their

doctoral education in nursing at a nursing school/department/division in the most recent three years (2006-2008); and doctoral students who are registered for doctoral education at a nursing school/department/division with a doctoral programme in nursing.

A total of 15 questionnaires were distributed to nursing deans, of which 12 questionnaires (80%) were returned. A total of 50 questionnaires were distributed to academic personnel. Of these, 26 (52%) were returned. Altogether 43 questionnaires were distributed to doctoral graduates, of which 24 (56%) were returned. A total of 106 questionnaires were distributed to doctoral students. Of these, 63 (59%) were returned. According to Burns and Grove (2005:401) the response rate for such questionnaires is generally lower than other forms of self-reporting, especially for mailed questionnaires where response rates are usually small between 25% and 30%. Burns and Grove (2005:401) report that a response rate of at least 50% is required to ensure the representativeness of the sample population, and the reliability and validity of the findings. The response rate in this study, which ranges from 52% to 80%, as well as its inclusion of an all-inclusive sample of each population group, ensures that the findings of this study are valid, reliable and representative of the population category included in the study.

The data are presented using descriptive statistics in the form of frequencies (f), percentages (%), means (M) and standard deviations (SD), and effect sizes as phi coefficients (ϕ). In the case of single responses to items, the researcher rounded off the percentages to the second decimal space, and thus percentages may not add up to precisely 100%.

Since this study aims to develop a strategy to improve the quality of doctoral education in nursing in South Africa, the researcher only highlights the negative aspects related to the quality of doctoral education in nursing in South Africa, although it must be noted that doctoral education in nursing in South Africa excels on many avenues and has many positive aspects related to the quality of doctoral education in nursing in South

Africa. This chapter represents the analysis and interpretation of the results of the empirical research.

4.3 BIOGRAPHIC DATA

This section presents the analysis and interpretation of the biographic data of the nursing dean, academic personnel, doctoral graduate and doctoral student participants, including their gender, age, employment and information about their doctoral degrees.

4.3.1 GENDER

This section of the research presents the nursing dean, academic personnel, doctoral graduate and doctoral student participants' gender.

Table 4.1: Gender

GENDER	NURSING DEANS (n=12)		ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)		DOCTORAL STUDENTS (n=63)	
	f	%	f	%	f	%	f	%
Female	12	100	26	100	24	100	60	95.2
Male	0	0	0	0	0	0	3	4.8

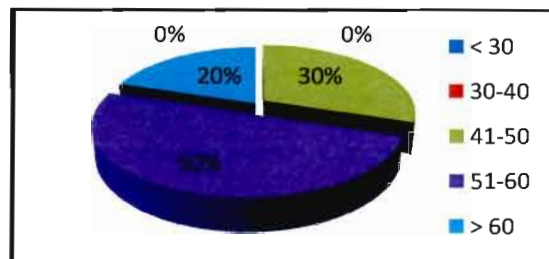
All of the nursing dean, academic personnel and doctoral graduate participants were female. The doctoral student participants were also essentially female (95.2%), with males accounting for only 4.8% of doctoral student participants, and a mere 2.5% of the total number of participants. The findings indicate that the nursing academe population consists predominantly of females, which is similar to national registered nurse statistics, which show that 103 848 (93.3%) registered nurses are female, with a mere 7 451 (6.7%) of registered nurses being male (SANC, 2009a). In view of these national statistics, and that doctoral graduates and doctoral students, the future of nursing academe in South Africa, are all essentially female, male representativeness in nursing academe shows no inclination of improving in the near future.

4.3.2 AGE

This section of the research depicts data on the nursing dean, academic personnel, doctoral graduate and doctoral student participants' age. Table 4.2 presents the age of nursing dean participants, Table 4.3 presents the age of academic personnel participants, Table 4.4 presents the age of doctoral graduate participants, Table 4.5 presents the age of doctoral student participants and Table 4.6 presents the age of the national registered nurse workforce.

Table 4.2: Age: Nursing deans

AGE	NURSING DEANS (n=12)	
	f	%
<30	0	0
30-40	0	0
41-50	3	30.0
51-60	5	50.0
>60	2	20.0

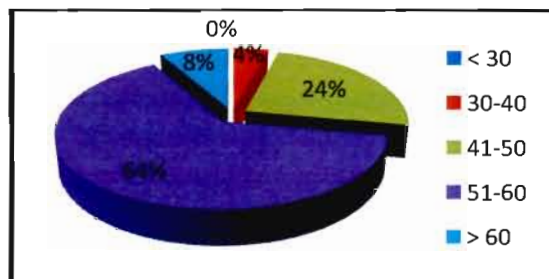


Missing Frequency =2

The nursing dean participants, whose ages ranged between 44 and 63 years old, had a mean age of 53.9 (SD 7.7).

Table 4.3: Age: Academic personnel

AGE	ACADEMIC PERSONNEL (n=26)	
	f	%
<30	0	0
30-40	1	4.0
41-50	6	24.0
51-60	16	64.0
>60	2	8.0

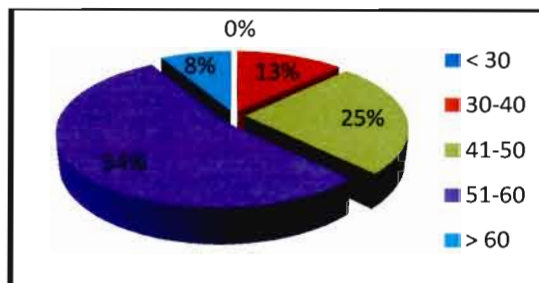


Missing Frequency =1

The academic personnel participants, whose ages ranged between 39 and 65 years old, had a mean age of 53 (SD 5.5).

Table 4.4: Age: Doctoral graduates

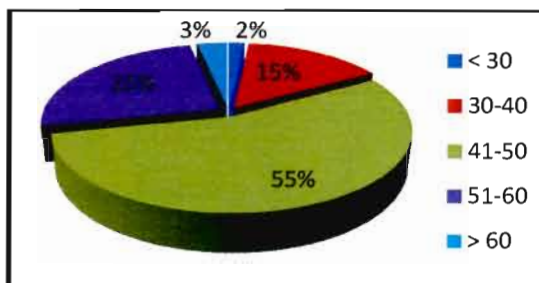
AGE	DOCTORAL GRADUATES (n=24)	
	f	%
<30	0	0
30-40	3	12.5
41-50	6	25.0
51-60	13	54.2
>60	2	8.3



The doctoral graduate participants, whose ages ranged between 35 and 63 years old, had a mean age of 51.3 (SD 7.7).

Table 4.5: Age: Doctoral students

AGE	DOCTORAL STUDENTS (n=63)	
	f	%
<30	1	1.7
30-40	9	15.0
41-50	33	55.0
51-60	15	25.0
>60	2	3.3



Missing Frequency =3

The doctoral student participants, whose ages ranged between 27 and 65 years old, had a mean age of 46.3 (SD 8.2).

The average age of nursing dean participants was 53.9 years old, with half of the participants (50%) being in the 51-60 years age group, while the average age of academic personnel participants was 53 years old, with the majority of the participants (64%) also being in the 51-60 years age group. This finding concurs with the findings reported in the literature study (see Paragraph 2.5.6), which states that the average age of academic personnel in the USA is 53.2 years (Berlin & Sechrist, 2002:51).

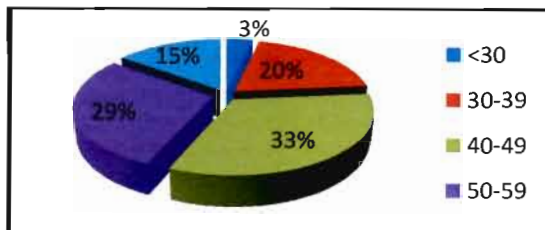
Higher education institutions in South Africa enforce different retirement ages, which range between 60 and 65 years old. From this information, one can surmise that in the next nine to fourteen years, 70% of all nursing dean and 72% of all academic personnel

participants will retire. Reflecting on the average age of doctoral graduate and doctoral student participants, which is the future of nursing academe in South Africa, these vacancies will not be adequately filled, as these future academics are almost the same age as current academics. The average age of doctoral graduate participants is 51.3 years old, with the majority of participants (54.2%) being in the 51-60 years age group, and the average age of doctoral student participants is 46.3 years old, with the majority of participants (55%) being in the 41-50 years age group.

The average age of doctoral graduates in nursing in South Africa is higher at 51.3 years, than the national average age of doctoral graduates at 40 years and the average age of doctoral graduates in nursing in the USA at 46.2 years old (Berlin & Sechrist, 2002:52) (see Paragraph 2.5.6). In fact the average age of doctoral graduates in the USA is closer to the average age of doctoral students in South Africa at 46.3 years. This may be due to predominantly two reasons; one being that young baccalaureate students in nursing do not immediately enter into post-graduate studies because it is not actively encouraged during their baccalaureate studies in nursing. Also related to this reason, is that many baccalaureate students in nursing who show an interest in post-graduate studies are often first encouraged to gain several years of clinical experience before embarking on post-graduate studies, in which time they start their families and launch their careers, with very few of these baccalaureate graduates in nursing ever returning to post-graduate studies. The second reason is that the national registered nurse workforce, which serves as the pool for future doctoral students, is also an aging population (see Table 4.6) when you consider that only 23.5% of all registered nurses in South Africa are under the age of 39 years old, and a mere 3.6% of all registered nurses in South Africa are younger than 30 years old (SANC, 2009a).

Table 4.6: Age: Registered nurses

AGE	REGISTERED NURSES	
	f	%
<30	3 964	3.6
30-39	21 956	19.9
40-49	36 288	32.9
50-59	31 760	28.8
>60	16 474	14.9



(SANC, 2009a)

PROBLEMS IDENTIFIED:

- Nursing deans and doctorally qualified academic personnel are an aging population.
- The majority of nursing dean and doctorally qualified academic personnel will retire in the next nine to fourteen years.
- Doctoral graduate and doctoral students, the future of nursing academe, are an aging population.

4.3.3 EMPLOYMENT

This section of the research presents the number of part-time and full-time doctoral student participants, as well as the places of employment for both doctoral graduate and doctoral student participants, and the position of employment for doctorally qualified academic personnel participants.

The vast majority of doctoral student participants (87.3%) were part-time students, with only 12.7% being full-time students. The number of part-time students in South Africa far exceeds the findings discussed in the literature review (see Paragraph 2.5.6) where it was reported that 59.1% of doctoral students in the USA are part-time students (Berlin & Sechrist, 2002:53). This may be because doctoral students in South Africa are of a much older population group (see Paragraph 4.3.2) than in the USA, with dependants and established careers that do not allow for full-time study.

The places of employment for both doctoral graduate and doctoral student participants are indicated in Table 4.7.

Table 4.7: Employment: Doctoral graduates and doctoral students

EMPLOYMENT	DOCTORAL GRADUATES (n=24)		DOCTORAL STUDENTS (n=63)	
	f	%	f	%
Full-time academic personnel in a nursing school/ department/ division	16	66.7	33	52.4
Part-time academic personnel in a nursing school/ department/ division	2	8.3	2	3.2
Full-time nurse in hospital	2	8.3	4	6.4
Part-time nurse in hospital	1	4.2	2	3.2
Unemployed	0	0	4	6.4
Other	3	12.6	18	25.8

Doctoral student missing frequency = 1

Table 4.7 reveals that most doctoral graduate participants (75%) are employed as academic personnel in a nursing school/department/division, with 25% of doctoral graduate participants being employed outside of academia, a finding which is concomitant with the findings of the literature review (see Paragraph 2.5.6), where 25% of doctoral graduates in the USA reported employment commitments outside of academe (Berlin & Sechrist, 2002:53). Only 12.5% of doctoral graduate participants reported being employed at hospitals, while other places of employment reported include: primary health care clinics, as a manager (4.2%); private nursing colleges (4.2%) and donor partners (4.2%).

The finding that only 25% of doctoral graduates are employed outside of academe may also point to a negative trend, namely that doctoral graduates do not enter the clinical practice and general marketplace, because there is no human resource plan or career path for doctorally qualified nurses in the clinical practice and marketplace. The lack of a human resource plan and career path has resulted in a lack of understanding in the market or even nursing practice itself, for the need and purpose of a doctorally qualified nurse, and therefore no appreciation for the type of contribution such a person could make. This is evidenced by the following variables made by doctoral graduate and doctoral student participants:

"No recognition of PhD qualification in the clinical field – no mentorship, leadership, clinical research, consultant positions available in clinical areas." "Most nursing students complete PhD studies to reach their own personal dreams/goals and do not gain professionally from it." "Career paths for nurses with doctoral education working as nurse practitioners should be explored and encouraged."

Interestingly, this trend has also been noted in Brazil, where doctoral graduates mainly work in academe, due to a lack of recognition of doctorally qualified nurses in the general marketplace (Ketefian *et al.*, 2005:107).

The majority of doctoral student participants (55.6%) are employed as academic personnel in a nursing school/department/division, with 41.8% of doctoral student participants being employed outside of academe, 9.6% being employed at hospitals. Other places of employment reported include: primary health care clinics (1.6%); government, as a director (3.2%); government nursing college, as the principal of the nursing college (1.6%); nursing schools, as a clinical facilitator (3.2%); universities, as managers (3.2%), and researchers (1.6%); non-governmental organizations (4.8%); own practice (6.4%); training and development at mining peripheral clinics, as a unit manager (1.6%) and the health professions council (1.6%).

The fact that the majority of doctoral students are already employed as full-time faculty has a positive aspect. This is that doctoral students are already orientated to the academic environment prior to completion of their doctoral studies, but it also has an overriding negative aspect, in that most doctoral students are already absorbed in the academic workforce. This means that the only future source to replace academics as they retire, is from doctoral graduates and doctoral students employed outside of academe – a very limited pool. Furthermore, an academic career in itself places great demands on an individual, but when doctoral studies is added to this workload, the demands become overwhelming, as evidenced by the following variables made by doctoral student and doctoral graduate participants:

“Doing a doctoral degree concurrent with full-time employment (academic personnel) is a great challenge.” “It is a challenge to be a full-time employee (academic personnel) and study towards your PhD.” “How does one balance a teaching load (at an Academic Institution) with doctoral study?” “Full-time academic personnel need study leave and support of work.” “Full-time academic personnel need study leave.” “There are discrepancies within institutions of who gets study leave and for how long.” “More academic personnel should be employed, so that I can have more time for scholarly activities. At the present moment I spend most time in class with students.”

Interestingly, the issue of balancing full-time employment with doctoral studies, was only raised by one other doctoral student outside of academia, indicating that the demands of full-time employment and doctoral studies is most sorely felt by full-time academic personnel that are registered for doctoral studies.

With regard to the position of employment for academic personnel participants, the majority of academic personnel participants are employed in the more junior positions of lecturer (15.4%) and senior lecturer (38.5%), followed by the position of associate professor (26.9%) and full professor (19.2%). That the majority of academic personnel (53.9%) are employed in the more junior positions of lecturer and senior lecturer may be because the majority of academic personnel are newly doctorally qualified (see Paragraph 4.3.4.1) and do not qualify to be appointed in senior positions.

PROBLEMS IDENTIFIED:

- The majority of doctoral students are unable to pursue full-time studies.
- The majority of doctoral students are employed as full-time academic personnel.
- Doctoral students appointed in full-time academic personnel positions find it difficult to balance their workload with doctoral studies.
- There are no career paths for doctoral graduates in South Africa outside of academe.
- The majority of academic personnel are not appointed in senior positions.

4.3.4 DOCTORAL DEGREES

This section of the research depicts data on when participants were granted their doctoral degrees, how long participants took to complete their doctoral degrees, where their doctoral degrees were granted, the type of doctoral degrees granted, the primary field to which the science of their doctoral theses and doctoral studies best applies, the objects of study or analysis in their doctoral theses and doctoral studies, and a discussion of the concepts of their doctoral theses and doctoral studies.

4.3.4.1 DOCTORAL DEGREES GRANTED

This section of the research presents the time frame within which doctoral degrees were granted to nursing dean and academic personnel participants.

The majority of nursing dean participants were granted their doctoral degrees in the time frame of 2001 to 2005, while the majority of academic personnel participants were granted their doctoral degrees in the time frame of 2006 to 2008. This is a significant finding when you consider that the majority of nursing deans and academic personnel are in fact newly doctorally qualified, with 45.5% of nursing deans and 31.6% of academic personnel being considered experienced academics (completing their doctoral degrees before the year 2001).

Table 4.8: Doctoral degrees granted

DOCTORAL DEGREES GRANTED	NURSING DEANS (n=12)		ACADEMIC PERSONNEL (n=26)	
	f	%	f	%
1980-1985	0	0	3	7.9
1986-1990	0	0	2	5.3
1991-1995	2	18.2	3	7.9
1996-2000	3	27.3	4	10.5
2001-2005	5	45.5	10	26.3
2006-2008	1*	9.1	16**	42.1

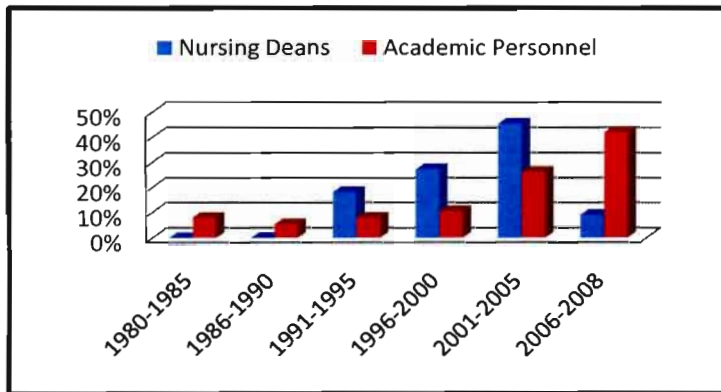
Nursing deans frequency missing = 1;

Academic personnel frequency missing = 4;

Doctoral graduate frequency missing =3

* Nursing dean doctoral graduate included only in nursing dean population

** Doctoral graduates that indicated they are employed as full-time faculty (see Table 4.7)



A further finding that needs to be highlighted is that one nursing dean only was granted her doctoral degree in 2006, while another, reported as a missing frequency, is currently enrolled for her doctoral studies.

These findings are disconcerting when you consider that these newly doctorally qualified academics represent the bulk of nursing academe, and therefore they are pushed into leadership roles and management positions, with little or no mentoring or experience, because of a dearth of experienced nurse academics.

This trend also has a severe impact on scholarship within the nursing profession, as newly doctorally qualified academics are not adequately mentored or given the opportunity to launch their research careers (see Paragraph 4.5.9). This limits the amount of research programmes and funding opportunities available to doctoral students (see Paragraph 4.5.3), and results in many doctoral students being mentored by newly doctorally qualified academic personnel that are often inexperienced in the supervision of doctoral students.

The dearth of experienced academics in nursing academe deserves further exploration, but may be the result of senior nurse academics being absorbed into senior institutional

management posts within their respective higher education institution, as reflected in the minutes of the meeting of FUNDISA (FUNDISA, 2009:21).

Another finding that should be highlighted is that, of the number of nursing schools/departments/divisions that have doctoral programmes in nursing, two nursing schools/departments/divisions had no doctoral graduate outputs in nursing for the period of 2006 to 2008, and a further four nursing schools/departments/divisions had only one doctoral graduate output. This finding deserves further exploration, but may indicate that the doctoral programmes are either newly established and this is supported by the comment of one doctoral student participant that suggested: "*Assistance for newly established doctoral programmes*", or that there are insufficient doctorally qualified faculty. This variable was evidenced by the fact that when nursing deans, doctoral graduates and doctoral students were excluded from the academic personnel population, one higher education institution had no doctorally qualified academic personnel, two higher education institutions had only one doctorally qualified academic personnel member, and a further four higher education institutions had only two doctorally qualified academic personnel members, which may be related to a discrepancy between salaries among different higher education institutions (see Paragraph 2.5.6). Finally, the reason may very well be that, as previously discussed, newly doctorally qualified academics are inexperienced in mentoring doctoral students to the completion of their doctoral studies.

Table 4.8 further shows a positive growth trend in doctoral degrees awarded to nursing deans and academic personnel, increasing by more than 100% between 1996 to 2000 and 2001 to 2005, and with a continued growth curve in 2006 to 2009.

PROBLEMS IDENTIFIED:

- The majority of nursing deans and academic personnel are newly doctorally qualified.
- There are nursing schools/departments/divisions that had no doctoral graduate outputs for the years 2006-2008.
- There are nursing schools/departments/divisions with no doctorally qualified academic personnel.
- There is a discrepancy between salaries among different higher education institutions.

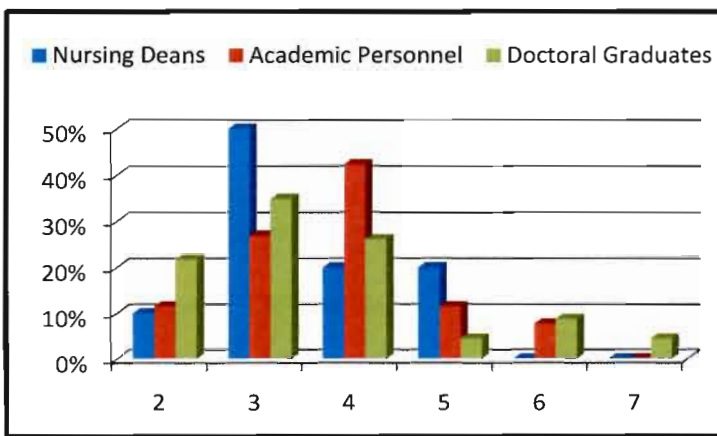
4.3.4.2 NUMBER OF YEARS TO COMPLETE DOCTORAL DEGREE

This section of the research presents the number of years nursing dean, academic personnel and doctoral graduate participants took to complete their doctoral degrees, as well as the number of years doctoral student participants were registered for doctoral studies in 2009. Table 4.9 presents the number of years nursing dean, academic personnel and doctoral graduate participants took to complete their doctoral degrees, while Table 4.10 presents the number of years doctoral students were registered for doctoral studies in 2009.

Table 4.9: Number of years to complete doctoral degree

NUMBER OF YEARS	NURSING DEANS (n=12)		ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)	
	f	%	f	%	f	%
2	1	10.0	3	11.5	5	21.7
3	5	50.0	7	26.9	8	34.8
4	2	20.0	11	42.3	6	26.1
5	2	20.0	3	11.5	1	4.4
6	0	0	2	7.7	2	8.7
7	0	0	0	0	1	4.4

Nursing deans missing frequency = 2
 Doctoral graduates missing frequency = 1



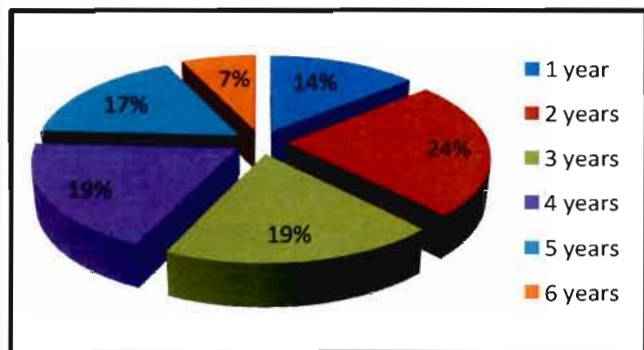
Exactly half of the nursing dean participants (50.0%) took three years to complete their doctoral degrees, with a mean of 3.7 years (SD 1.2), ranging from two to five years. The greatest single proportion of academic personnel participants (42.3%) took four years to complete their doctoral degrees, with a mean of 3.8 years (SD 1.1), ranging from two to six years. The largest single proportion of doctoral graduate participants (34.8%) took three years to complete their doctoral degrees, with a mean of 3.6 years (SD 1.4) ranging from two to

seven years.

Table: 4.10: Number of years doctoral students were registered (2009)

NUMBER OF YEARS REGISTERED	DOCTORAL STUDENTS (n=63)	
	f	%
1	8	13.8
2	14	24.1
3	11	19.0
4	11	19.0
5	10	17.2
6	4	6.9

Doctoral students frequency missing = 5



The largest single proportion of doctoral student participants (24.1%) had been registered for two years in 2009, with a mean of 3.2 years, ranging from two to six years.

Overall, the completion rates of nursing deans, academic personnel and doctoral graduates and the number of years doctoral students are registered for doctoral studies are within the permitted time range of two to five years for full- time study, and three to seven years for part time study (see Paragraph 2.4.3.2). Furthermore, the average years to completion compare favourably with the findings discussed in the literature review (see Paragraph 2.4.3.1) where it was found that health science doctoral degree completion rates were 4.5 years on average (CHE, 2009a:xviii).

4.3.4.3 WHERE DOCTORAL DEGREE WAS GRANTED

This section of the research presents data on where nursing dean, academic personnel and doctoral graduate participants' doctoral degrees were granted, and also whether doctoral degrees were earned from the same school/department/division as their baccalaureate degrees in nursing. Table 4.11 indicates where participants' doctoral degrees were granted, and Table 4.12 shows whether participants' doctoral degrees were earned from the same school/department/division as their baccalaureate degrees in nursing.

Table 4.11: Where doctoral degree was granted

WHERE GRANTED	NURSING DEANS (n=12)		ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)	
	f	%	f	%	f	%
National	8	88.9	26	100	19	86.4
International	1	11.1	0	0	3	13.6

Nursing deans frequency missing = 3; Doctoral graduates frequency missing = 2

The overwhelming majority of nursing dean (88.9%) and doctoral graduate participants (86.4%), and all academic personnel participants were granted doctoral degrees from South African higher education institutions, with only 11.1% of nursing dean participants and 13.6% of doctoral graduate participants being granted doctoral degrees from

international nursing schools/departments/divisions/colleges. International doctoral education is a vast resource that South African nursing schools/departments/divisions have not even begun to explore and utilize, as evidenced by the fact that a mere 6.5% of nursing academe have graduated with doctoral degrees from international nursing schools/departments/divisions/colleges.

International doctoral education exchange programmes, co-operation and collaboration need to be explored and implemented by South African nursing schools/departments/divisions, because the findings of this study demonstrate that the entire academe, including future nursing academics, are an aging population and that the nursing academe population will soon retire faster than what doctoral graduates can be produced (see Paragraph 4.3.2), thus alternatives to increasing doctoral graduate outputs need to be explored and implemented urgently.

Table 4.12: Doctoral degree earned from same school/department/division as baccalaureate degree

Did you earn your doctoral degree from the same school/ department/ division where you earned your nursing baccalaureate degree?	NURSING DEANS (n=12)		ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)	
	f	%	f	%	f	%
	1	9.1	7	28.0	7	30.4

Nursing deans frequency missing = 1; Academic personnel frequency missing = 1; Doctoral graduates frequency missing = 1.

Table 4.12 displays a steady trend with 9.1% of nursing dean participants, 28.0% of academic personnel participants and 30.4% of doctoral graduate participants earning their doctoral degrees from the same nursing school/department/division as their baccalaureate degree in nursing. Also of note, is that five (19.2%) of the academic personnel reported that they were employed at the same nursing school/department/division where they had earned their baccalaureate degree in nursing.

An increase in the number of doctoral graduates earning their doctoral degrees from the same nursing school/department/division as their baccalaureate degree in nursing would indicate that nursing academe is making a concerted effort to “grow their own timber”, identifying young baccalaureate students in nursing with the potential to become excellent researchers and immediately enabling them to pursue post-graduate studies. However, the statistics above and the average age of doctoral students (see Paragraph 4.3.2) indicate that this practice is unfortunately not widely implemented at nursing schools/departments/divisions in South Africa.

PROBLEMS IDENTIFIED:

- Nursing schools/departments/divisions do not make use of international doctoral education exchange programmes, co-operation and collaboration.
- Nursing schools/departments/divisions do not implement the practice of “growing their own timber”.

4.3.4.4 TYPE OF DOCTORAL DEGREE GRANTED

This section of the research presents the type of doctoral degree granted to nursing dean, academic personnel and doctoral graduate participants (see Paragraph 2.4.3.2 for a discussion of the types of doctoral degrees granted to doctoral graduates in South Africa).

Table 4.13: Type of doctoral degree granted

TYPE OF DOCTORAL DEGREE	NURSING DEANS (n=12)		ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)	
	f	%	f	%	f	%
PhD	7	63.6	10	38.5	15	62.5
D.Cur	2	18.2	7	26.9	2	8.3
D.Litt. et. Phil	1	9.1	8	30.8	5	20.8
DNS	1	9.1	0	0	2	8.3
D.Ed	0	0	1	3.9	0	0

Nursing deans frequency missing = 1

The majority of nursing dean (63.6%) and doctoral graduate (52.5%) participants and the greatest single proportion of academic personnel (38.5%) were awarded a PhD-type

doctoral degree, with the D.Litt.et.Phil being the second most awarded to academic personnel (30.8%) and doctoral graduate (20.8%) participants. D.Cur was the second most awarded type of doctoral degree among nursing dean (18.2%) participants. The DNS-type doctoral degree, which is an international degree, was awarded to one nursing dean and two doctoral graduates. Furthermore, one academic personnel member in nursing had no doctoral qualification in nursing, but one in education science.

4.3.4.5 OBJECTS OF STUDY OR ANALYSIS IN THE DOCTORAL THESIS

This section of the research presents the objects of study or analysis in nursing dean, academic personnel, doctoral graduate doctoral theses and doctoral student participants' studies.

Table 4.14: Objects of study or analysis in the doctoral thesis

OBJECTS OF STUDY	NURSING DEANS (n=12)		ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)		DOCTORAL STUDENTS (n=63)	
	f	%	f	%	f	%	f	%
Persons	11	100	19	76.0	21	87.5	54	85.7
Systems	0	0	5	20.0	2	8.3	17	27.0
Animals	0	0	0	0	0	0	0	0
Literature/ Databases	3	27.3	9	36.0	7	29.2	11	17.5
Other	0	0	0	0	1	4.2	2	3.2

Nursing deans frequency missing = 1; Academic personnel frequency missing = 1

All nursing dean participants, the majority of academic personnel (76%) and doctoral graduate (87.5%) participants' theses, as well as doctoral student (85.7%) participants' studies, object or object analyzed was persons. Literature/databases was the second most studied or analyzed amongst nursing dean (27.3%), academic personnel (36%) and doctoral graduate participants (29.2%), and systems being the second most studied or analyzed object amongst doctoral student (27%) participants.

4.3.4.6 PRIMARY FIELD OF DOCTORAL THESES

This section of the research presents the primary field to which the science of nursing dean, academic personnel and doctoral graduate participants' theses, as well as the studies of doctoral student participants, best applies.

Table 4.15: Primary field of doctoral theses

PRIMARY FIELD	NURSING DEANS (n=12)		ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)		DOCTORAL STUDENTS (n=63)	
	f	%	f	%	f	%	f	%
Medical/ Surgical Nursing	0	0	2	7.7	1	4.2	4	6.4
Child Health Nursing	0	0	0	0	1	4.2	4	6.4
Community Health Nursing	1	9.1	0	0	2	8.3	10	15.9
Geriatric Nursing	0	0	0	0	1	4.2	1	1.6
Mental Health Nursing	0	0	5	19.2	4	16.7	9	14.3
Nursing Administration	2	18.2	3	11.5	1	4.2	11	17.5
Nursing Informatics	0	0	0	0	0	0	0	0
Women and Family Health including Midwifery	1	9.1	9	34.6	2	8.3	11	17.5
Biological Nursing Science	0	0	0	0	0	0	0	0
Others	7	63.6	7	26.9	12	50.0	13	20.6

Nursing dean frequency missing = 1

The primary field to which nursing dean participants' theses best applies is nursing education (36.4%), reported under the field of others, followed by nursing administration (18.2%). Other fields reported included psychosocial nursing (9.1%). The primary field to which academic personnel participants' theses best applies is women and family health including midwifery (34.6%), followed by mental health nursing (19.2%). Other fields reported included nursing education (7.7%), indigenous knowledge (3.9%), philosophy (3.9%), child mental health (3.9%) and neonatal nursing (3.9%). The primary field to which doctoral graduate participants' theses best applies is mental health nursing (16.7%) followed by nursing education (12.5%), reported under the field others. Other fields reported included nursing research (4.2%), neonatal nursing (4.2%), emergency nursing (4.2%), nursing leadership (4.2%), professional practice and ethics (4.2%), and spiritual nursing care (4.2%). The primary field to which doctoral

student participants' studies best applies is women and family health including midwifery (17.5%) and nursing administration (17.5%), followed by community health nursing (15.9%). Other fields reported included: nursing education (9.5%), palliative nursing (1.6%), critical care nursing (3.2%), public health (1.6%), spiritual nursing care (1.6%), health of nurses (1.6%), and cardiovascular nursing care (1.6%).

Two trends that the researcher would like to highlight from this table are, first, there is no research being conducted in biological nursing science and nursing informatics. The absence of research in biological nursing science can be linked, in part, to the lack of clinical studies being conducted by nurse researchers in South Africa (see Paragraph 4.3.4.7). This is of great concern and is also highlighted in the literature review (see Paragraph 2.5.2) and may point to a lack of leadership and expertise in the field. Of further concern is that no research is being conducted on nursing informatics in the age termed the information era, which is marked by globalization, internationalization, scientific advancements and technological developments; an era where it is expected that academic personnel and clinicians positively adopt and integrate new technological methods into their teaching portfolios (Billings, 2005:343). This may be due to predominantly three reasons; one being that the overall level of information technology literacy and sophistication in South Africa and in the South African health services is poor, relative to other (developed) countries. Secondly, nurse academe is not exposed to new technology such as haptics, phonecasting, webcasts, screencasts, webinars and podcasts, to mention a few, and therefore they have no knowledge of such information technology, much less experience of using, teaching and researching such technology. The third reason being that academic personnel are experiencing unrealistic pressures and stress in the academic workplace, with constant competing and additional demands on their time, and therefore the need for further training in using information technology is experienced negatively and avoided (Glass, 2007:112). All of these reasons have a further impact, in that nurse informatics is not introduced in the curricula of baccalaureate nurses.

The second noteworthy trend is that both nursing dean and academic personnel participants' experience is in primarily five fields of nursing science, while doctoral graduate and doctoral student participants are undertaking research in a diversity of fields. This trend may in fact influence the quality of doctoral education in nursing, as academic personnel are challenged to supervise doctoral students in these diverse fields of which they have little experience. Furthermore, because academic personnel are required to supervise doctoral students outside of their areas of expertise, the focus of their research is spread among many diverse fields. This ultimately affects their scholarship and ability to become NRF-rated scientists, which requires a specific research focus (refer to Paragraph 2.4.3 for a discussion about the NRF rating and evaluation process). This is evidenced by the fact that only eight nurses in South Africa are NRF-rated scientists (see Paragraph 2.5.5).

PROBLEMS IDENTIFIED:

- No research is conducted in biological nursing science and nursing informatics.
- Academic personnel are required to supervise doctoral students outside of their research expertise area.
- The majority of academic personnel are not NRF-rated scientists.

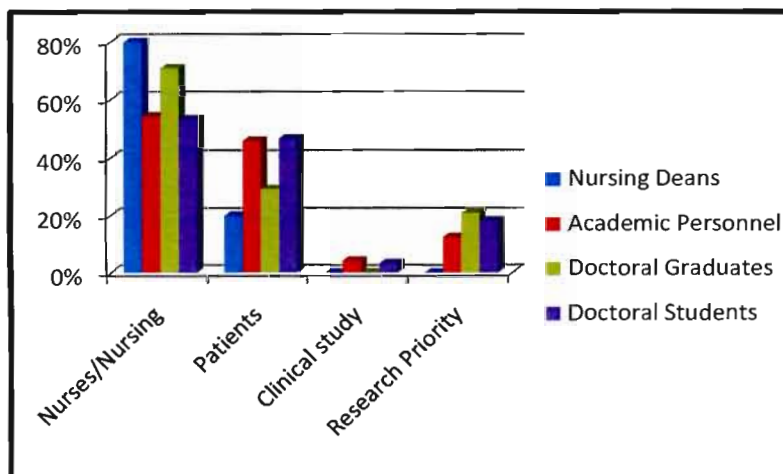
4.3.4.7 CONCEPTS OF THE DOCTORAL THESES

This section of the research presents an analysis of the concepts under the primary field of nursing dean, academic personnel and doctoral graduate participants' theses, as well as the studies of doctoral student participants. Table 4.16 depicts an analysis of the concepts under the primary field of participants' theses and doctoral studies.

Table 4.16: Analysis of the concepts under the primary field of participants' theses and doctoral studies

ANALYSIS OF CONCEPTS	NURSING DEANS (n=12)		ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)		DOCTORAL STUDENTS (n=63)	
	f	%	f	%	f	%	f	%
Research on Nurses/Nursing	8	80	13	54.2	17	70.8	32	53.3
Research on Patients	2	20	11	45.8	7	29.2	28	46.7
Clinical study	0	0	1	4.2	0	0	2	3.3
National DoH Research Priority	0	0	3	12.5	5	20.8	11	18.3

Nursing deans frequency missing = 2; Academic personnel frequency missing = 2



Nursing dean, academic personnel, doctoral graduate and doctoral student participants were asked to list three concepts under the primary field of their theses and doctoral studies. An analysis of these concepts showed that the majority of nursing dean, academic

personnel and doctoral graduate participants' theses and doctoral student participants' studies focused on nurses' or nursing (well-being of nurses, experience of nurses, nurse education, roles of nurses, nurse management), with a mere three (2.5%) clinical studies being conducted. Probably the most disconcerting finding is that of all theses and doctoral studies conducted; only 17.3% focused on national DoH research priorities. All these findings are in accord with the findings discussed in the literature review (see Paragraph 2.5.2).

The core business of nursing is the provision of quality nursing care to patients, thus the fact that the majority of theses and doctoral studies focused on nurses and nursing, is disconcerting. This trend of researching nurses and nursing may be due to primarily two reasons, one being that the majority of doctoral graduates and doctoral students are

employed in academe (see Paragraph 4.3.3), probably with little or no contact with clinical practice, especially patients. Secondly, clinical studies are rarely performed by nurse academics as presented in the findings above (see Table 4.16). This is linked to the fact that no research is being conducted in biological nursing science (see Table 4.15). Furthermore, the fact that so few theses and doctoral studies focused on national DoH research priorities is an important finding, and was also alluded to by one nursing dean who asked “Are the national health research priorities a consideration in approving doctoral research topics?” It would be a logical conclusion that nurse academics would have a vested interest in researching national health research priority areas, but the findings of this study show that this is not current practice. On the other hand, one might consider that this finding points to a much more significant underlying issue, which is that nurse academics feel that there are other relevant issues to be researched, and that nurse academe should be consulted when national DoH research priorities are determined.

PROBLEMS IDENTIFIED:

- The majority of doctoral students conduct research on nurses and nursing, rather than on patients and patient care.
- The majority of doctoral students do not conduct clinical studies.
- The majority of doctoral students do not consider the national DoH research priorities as topics for research.

In this section the biographic data of the nursing dean, academic personnel, doctoral graduate and doctoral student participants, including gender, age, employment and information about their doctoral degrees was analyzed and interpreted. Problems that were identified with regard to age include: nursing deans and academic personnel participants are an aging population, the majority of nursing deans and academic personnel participants will retire in the next nine to fourteen years and doctoral graduates and doctoral students, the future of nursing academe, are an aging population.

Problems identified regarding employment include: the majority of doctoral students are unable to pursue full-time studies, the majority of doctoral students are employed as full-time academic personnel, doctoral students appointed in full-time academic personnel positions find it difficult to balance their workload with doctoral studies. Other problems identified were: there are no career paths for doctoral graduates in South Africa outside of academe, and the majority of academic personnel are not appointed in senior positions.

Problems identified with regard to doctoral degrees include: the majority of nursing deans and academic personnel are newly doctorally qualified, there are nursing schools/departments/divisions that had no doctoral graduate outputs for the years 2006-2008, and there are nursing schools/departments/divisions with no doctorally qualified academic personnel. Other problems identified were: there is a discrepancy between salaries among higher education institutions, nursing schools/departments/divisions do not make use of international doctoral education exchange programmes, co-operation and collaboration, nursing schools/departments/divisions do not implement the practice of “growing their own timber”. Yet further problems identified were: that no research is conducted in biological nursing science and nursing informatics, academic personnel are required to supervise doctoral students outside of their research expertise area, the majority of academic personnel are not NRF-rated scientists, the majority of doctoral students conduct research on nurses and nursing, rather than on patients and patient care, the majority of doctoral students do not conduct clinical studies and the majority of doctoral students do not consider the national DoH research priorities as topics for research.

4.4 MISSION OF THE INSTITUTION

In this section the first QCSI criterion, namely the mission of the institution from the perspectives of the nursing dean, academic personnel, doctoral graduate and doctoral student participants, is analyzed and interpreted.

4.4.1 MISSION OF THE INSTITUTION: ACADEMIC PERSONNEL (AP), DOCTORAL GRADUATE (DG) AND DOCTORAL STUDENT (DS) PERSPECTIVES

This section of the research depicts data about the mission of the institution from the perspectives of academic personnel (n=26), doctoral graduate (n=24) and doctoral student (n=63) participants.

Table 4.17: Mission of the institution: Academic personnel, doctoral graduates and doctoral students perspectives

ITEM NO.	MISSION OF THE INSTITUTION	ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)		DOCTORAL STUDENTS (n=63)		PHI CO-EFFICIENT
		M	SD	M	SD	M	SD	p
1 (AP; DG; DS)	The importance of research is clearly stated as a goal of the doctoral programme by both the institution and the school/department/division of nursing.	3.7 1	0.6	3.7	0.6	3.7 1	0.5	0.08
4 (AP; DG; DS)	The emphasis of the programme content is consistent with the mission of the university and the discipline of nursing.	3.3 1	0.7	3.3 1	0.6	3.5 2	0.5	0.20

4.4.1.1 ITEM 1 (AP, DG, DS)

On average, academic personnel, doctoral graduate and doctoral student participants strongly agree (M 3.7) that the importance of research is clearly stated as a goal of the doctoral programme by both the higher education institution and the nursing school/department/division. The phi co-efficient also indicates that there is a small effect (p 0.08) in the relationship between the different population groups and the variable.

4.4.1.2 ITEM 4 (AP, DG, DS)

The data reveal that on average academic personnel (M 3.3) and doctoral graduate (M 3.3) participants agree that the emphasis of the programme content is consistent with the mission of the higher education institution and the discipline of nursing, while on

average doctoral student participants (M 3.5) strongly agree with this variable. The phi co-efficient indicates that there is a small effect ($p < 0.20$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.18.

Table 4.18: Analysis of item 4 (AP, DG, DS)

ITEM 4 (AP, DG, DS) The emphasis of the programme content is consistent with the mission of the university and the discipline of nursing.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	0	0	3	12.0	12	48.0	10	40.0
Doctoral graduates	0	0	2	8.7	11	47.8	10	43.5
Doctoral students	0	0	1	1.6	30	49.2	30	49.2

This table reveals that academic personnel participants were more likely to disagree (12.0%) with this variable than the other population groups; while doctoral student participants were more likely to agree (49.2%) and strongly agree (49.2%) with this variable than the other population groups.

4.4.2 MISSION OF THE INSTITUTION: NURSING DEAN (ND) PERSPECTIVES

This section represents the analysis and interpretation of the mission of the institution from the perspective of nursing dean (n=12) participants.

Table 4.19: Mission of the institution: Nursing deans (n=12)

ITEM 1 (ND) How closely do the vision, goals, mission, and objectives of the nursing doctoral programme align with those of your institution?	NOT AT ALL CLOSELY		SOMEWHAT CLOSELY		QUITE CLOSELY		VERY CLOSELY	
	f	%	f	%	f	%	f	%
	1	8.3	4	33.3	2	16.7	5	41.7

4.4.2.1 ITEM 1 (ND)

On average, nursing dean participants stated that the vision, goals, mission, and objectives of the doctoral programme in nursing align quite closely (M 2.9) with those of

the institution. However, it should be noted that 41.6% of the nursing dean participants felt that it aligned only somewhat closely or not at all closely with that of the higher education institution. This is a significant finding, as the literature review (see Paragraph 2.5.1) indicates that the mission of the higher education institution largely dictates the quality and nature of doctoral education in the higher education institution. Thus, when the vision, goals, mission, and objectives of the doctoral programme in nursing do not align quite closely or very closely with those of the higher education institution in which the doctoral programme in nursing resides, it is a matter of concern. This is because it either indicates that the nursing school's/department's/division's doctoral programme is not on par with the rest of the doctoral programmes at the higher education institution, or that the nursing school/department/division disagrees with the vision, goals, mission and objectives of the higher education institution in which the doctoral programme in nursing resides.

PROBLEM IDENTIFIED:

- There are nursing schools/departments/divisions whose vision, goals, mission, and objectives do not align with those of the higher education institution.

With regard to the mission of the higher education institution in its entirety, academic personnel, doctoral graduate and doctoral student participants strongly agreed that research and doctoral education is valued by the higher education institution and the nursing school/department/division, although doctoral student participants tended to score this QCSI criterion more positively than the other populations groups. Academic personnel participants tended to score this QCSI criterion more negatively than the other population groups. Nursing dean participants felt that the vision, goals, mission, and objectives of the doctoral programme in nursing aligned quite closely with those of the higher education institution, although more than 40% of the nursing dean participants felt that it aligned only somewhat closely or not at all closely with those of the higher education institution.

4.5 QUALITY OF ACADEMIC PERSONNEL

In this section, the second QCSI criterion, namely the quality of academic personnel from the perspectives of the nursing dean (n=12), academic personnel (n=26), doctoral graduate (n=24) and doctoral student (n=63) participants, is analyzed and interpreted.

Table 4.20: Quality of the academic personnel: Academic personnel, doctoral graduate and doctoral student perspectives

ITEM NO.	QUALITY OF THE CURRICULUM: ACADEMIC PERSONNEL, DOCTORAL GRADUATES AND DOCTORAL STUDENTS	ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)		DOCTORAL STUDENTS (n=63)		PHI CO-EFFICIENT
		M	SD	M	SD	M	SD	p
24 (AP; DG; DS)	Academic personnel members meet the requirements of the institution for graduate research and doctoral education.	3.2	0.6	3.6 1	0.5	3.4 4	0.7	0.24
25 (AP; DG; DS)	Academic personnel members have expertise in the subject area appropriate for student learning.	3.3	0.6	3.5 1	0.5	3.3 5	0.7	0.18
26 (AP; DG; DS)	Academic personnel members have evidence of extramural support for their research and for their success in obtaining funding support for their students, such as fellowships or bursaries.	2.6	0.9	2.9 1	0.9	3.0 2	0.9	0.26
27 (AP; DG; DS)	Academic personnel members have sufficient evidence of scholarship, and have published in peer-reviewed journals.	2.9	0.7	3.3	0.8	3.3 3	0.7	0.26
28 (AP; DG; DS)	Academic personnel members have teaching experience in nursing education prior to working with doctoral students.	3.5	0.5	3.7	0.5	3.6 1	0.5	0.12
29 (AP; DG; DS)	Academic personnel members provide students with diverse and challenging learning experiences (e.g., social, ethical, cultural, economic, and political issues related to nursing, health care, and research).	2.8 1	0.9	3.0	0.8	3.1 1	0.8	0.24
30 (AP; DG; DS)	Academic personnel members have been certified in nursing specialties and hold membership in professional organizations/societies.	3.3	0.7	3.5	0.7	3.6	0.5	0.34

31 (AP; DG; DS)	Academic personnel members demonstrate fulfilment of diverse academic personnel responsibilities and roles, including teaching, research, service, and mentoring.	3.2 1	0.7	3.3	0.6	3.4	0.6	0.17
32 (AP; DG; DS)	Academic personnel members mentor and assist students to understand the value of programmes of research and scholarship.	3.1	0.7	3.1	0.8	3.2 1	0.8	0.17
33 (AP; DG; DS)	Academic personnel members utilize resources within the institution and broader community to support programme goals.	3.0	0.7	3.1	0.9	3.2 1	0.7	0.20
34 (AP; DG; DS)	Academic personnel members devote significant time to students' dissertation/thesis research.	3.2	0.8	3.1	0.8	3.2 2	0.7	0.14
35 (AP; DG; DS)	Academic personnel members give timely feedback on students' research.	3.1 1	0.8	3.3	0.8	3.1 2	0.7	0.24
37 (AP; DG; DS)	How would you rate the overall quality of teaching by academic personnel in your doctoral programme?	3.0 3	0.8	3.4	0.7	3.1 1	0.7	0.32

4.5.1 ITEM 24 (AP, DG, DS)

The data revealed that on average academic personnel (M 3.2) and doctoral student (M 3.4) participants agree that academic personnel members meet the requirements of the higher education institution for graduate research and doctoral education, while on average doctoral graduate participants (M 3.6) strongly agree with this variable. The phi co-efficient indicates a small effect ($p = 0.24$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.21.

Table 4.21: Analysis of item 24 (AP, DG, DS)

ITEM 24 (AP, DG, DS) Academic personnel members meet the requirements of the institution for graduate research and doctoral education.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	0	0	3	11.5	15	57.7	8	30.8
Doctoral graduates	0	0	0	0	10	43.5	13	56.5
Doctoral students	1	1.7	3	5.1	27	45.8	28	47.5

This table shows that academic personnel participants were more likely to disagree (11.5%) and agree (57.7%) with this variable than the other population groups; while doctoral graduate participants were more likely to strongly agree (56.5%) with this variable than the other population groups.

4.5.2 ITEM 25 (AP, DG, DS)

On average, academic personnel (M 3.3) and doctoral student (M 3.3) participants agree that academic personnel members have expertise in the subject area appropriate for student learning, while on average doctoral graduate (M 3.5) participants strongly agree with this variable. The phi co-efficient indicates that there is a small effect ($p = 0.18$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.22.

Table 4.22: Analysis of item 25 (AP, DG, DS)

ITEM 25 (AP, DG, DS) Academic personnel members have expertise in the subject area appropriate for student learning.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	0	0	1	3.9	15	57.7	10	38.5
Doctoral graduates	0	0	0	0	11	47.8	12	52.2
Doctoral students	2	3.5	1	1.7	30	51.7	25	43.1

This analysis reveals that academic personnel participants were more likely to disagree (3.9%) and agree (57.7%) with this variable than the other population groups, while

doctoral graduate participants were more likely to strongly agree (52.2%) with this variable than the other population groups.

4.5.3 ITEM 26 (AP, DG, DS)

According to the data, on average academic personnel (M 2.6), doctoral graduate (M 2.9) and doctoral student (M 3.0) participants agree that academic personnel members have evidence of extramural support for their research and for their success in obtaining funding support for their students, such as fellowships or bursaries. However, the phi co-efficient indicates a medium effect (p 0.26) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.23.

Table 4.23: Analysis of item 26 (AP, DG, DS)

ITEM 26 (AP, DG, DS) Academic personnel members have evidence of extramural support for their research and for their success in obtaining funding support for their students, such as fellowships or bursaries.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	2	7.7	11	42.3	9	34.6	4	15.4
Doctoral graduates	2	8.7	4	17.4	12	52.2	5	21.7
Doctoral students	3	4.9	14	23.0	24	39.3	20	32.8

This table reveals that academic personnel participants were more likely to disagree (42.3%) with this variable than other population groups, while doctoral graduate participants were more likely to strongly disagree (8.7%) and agree (52.2%) with this variable than the other population groups, and doctoral student participants were more likely to strongly agree (32.8%) with this variable.

That 50% of academic personnel participants disagreed and strongly disagreed with this variable, demonstrates that academic personnel recognize they are underperforming with regard to applying and receiving extramural support for their research, and obtaining funding support for their students. This perception is substantiated by the

finding that only eleven (44.0%) of academic personnel participants reported that they had received extramural funding from externally reviewed sources in the prior five years (see Table 4.24), the findings of which serve as evidence for the discussion in the literature review (see Paragraph 2.5.2).

Table 4.24: Extramural funding for research projects from externally reviewed sources, in the prior five years

EXTRAMURAL FUNDING FOR RESEARCH PROJECTS	ACADEMIC PERSONNEL (n=26)	
	f	%
None	14	56.0
NRF	5	20.0
International Organizations	6	24.0

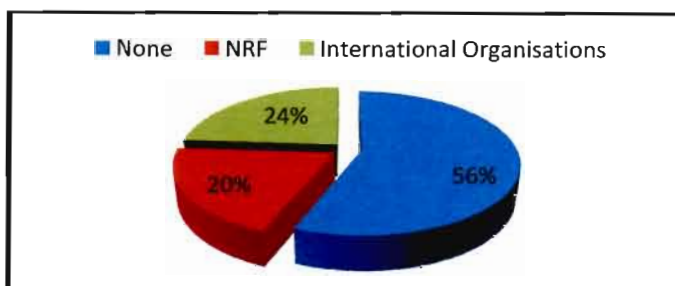
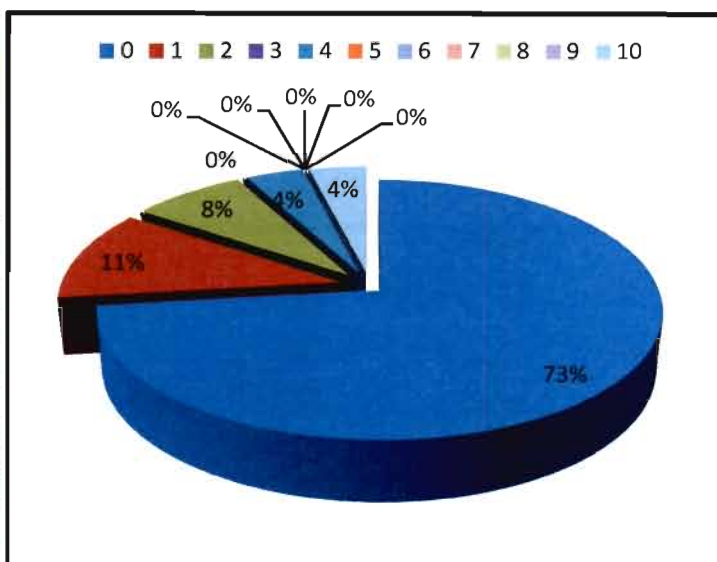


Table 4.24 indicates that of the eleven (44%) academic personnel participants who received extramural funding for research projects from externally reviewed sources in the prior five years, only five (20%) were from the NRF. The majority were from international organizations including: the International Confederation of Midwives (ICM), European Union Master of Bioethics programme, United Nations Children Fund (UNICEF), KfW Bankengruppe, European and Developing Countries Clinical Trials Partnership (EDCTP), Norwegian Programme for Development, Research and Education (NUFU), Agence Nationale de Recherche sur le Sida (ANRS) and Jhpiego. Furthermore, only 7 (26.9%) academic personnel participants reported that they had financially supported doctoral students from their research projects in the prior three years (see Table 4.25), with an average of 0.8 (SD 2.1) doctoral students, ranging from none to ten doctoral students. This provides evidence for the discussion of the findings (see Paragraph 4.3.4.1), with regard to the fact that the majority of academic personnel participants are newly doctorally qualified, which influences funding opportunities for students.

Table 4.25: Number of doctoral students financially supported from academic personnel (n=26) research projects

NUMBER OF DOCTORAL STUDENTS FINANCIALLY SUPPORTED	STUDENTS FUNDED BY ACADEMIC PERSONNEL (n=26)	
	f	%
0 Students	19	73.1
1 Students	3	11.5
2 Students	2	7.7
3 Students	0	0
4 Students	1	3.9
5 Students	0	0
6 Students	0	0
7 Students	0	0
8 Students	0	0
9 Students	0	0
10 Students	1	3.9
Total	21	100



This table reveals that only 21 (33.3%) of doctoral students have been financially supported from academic personnel participants' research projects in the prior three years, or an average of seven doctoral students per annum.

Taken as a whole, this discussion points to the fact that less than half (44.0%) of academic personnel participants have extramural funding from externally reviewed sources for research projects in the prior five years, and of this number, less than half (20%) access NRF funding. Furthermore of the 44% of the academic personnel participants that have extramural funding from externally reviewed sources for their research projects, only 26.9% have been able to financially support doctoral students from their research projects in the prior three years.

PROBLEMS IDENTIFIED:

- The majority of academic personnel have not accessed extramural funding from externally reviewed sources for their research projects.
- NRF was the least accessed source of extramural funding by academic personnel for research projects.
- The majority of academic personnel are unable to financially support doctoral students from their research projects.

4.5.4 ITEM 27 (AP, DG, DS)

On average, academic personnel (M 2.9), doctoral graduate (M 3.3) and doctoral student (M 3.3) participants agree that academic personnel members exhibit sufficient evidence of scholarship, and have published in peer-reviewed journals. The phi coefficient indicates that there is a medium effect ($p = 0.26$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.26.

Table 4.26: Analysis of item 27 (AP, DG, DS)

ITEM 27 (AP, DG, DS) Academic personnel members have sufficient evidence of scholarship, and have published in peer-reviewed journals.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	3.9	5	19.2	15	57.7	5	19.2
Doctoral graduates	0	0	4	16.7	8	33.3	12	50.0
Doctoral students	1	1.7	6	10.0	30	50.0	23	38.3

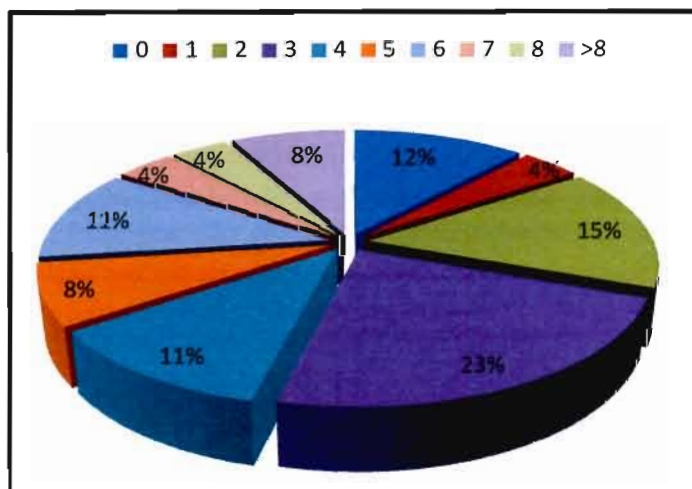
From this analysis it becomes clear that academic personnel participants were more likely to strongly disagree (3.9%), disagree (19.2%) and agree (57.7%) with this variable than the other population groups, while doctoral graduate participants were more likely to strongly agree (50.0%) with this variable than the other population groups.

Only 23.1% of academic personnel participants disagree or strongly disagree with the variable that academic personnel members show sufficient evidence of scholarship, and have published in peer-reviewed journals. However, reported research outputs for

academic personnel in peer-reviewed journals for the prior three years were a mean of 4.2 (SD 3.5) ranging from 0-15 papers, which means that on average academic personnel publish 1.4 papers in peer-reviewed journals per year. Most higher education institutions require academic personnel to publish at least one article equivalent per year, which would mean that being a sole author on a paper is equal to one article equivalent. However, in most cases, articles have more than one author, so a paper with two authors would equal 0.5 of an article equivalent, three authors would equal 0.33 of an article equivalent, and so forth. From this information one can surmise that each academic personnel member would therefore need to publish at least two or three papers per year, which means that the current average number of articles published by academic personnel per annum is insufficient, which is comparable with the findings discussed in the literature review (see Paragraph 2.5.2). Furthermore, an analysis of the distribution of papers published in peer reviewed journals shows another significant trend (see Table 4.27).

Table 4.27: Number of papers published in peer-reviewed journals in the prior three years

NUMBER OF PAPERS PUBLISHED (IN PRIOR THREE YEARS)	ACADEMIC PERSONNEL (n=26)	
	f	%
0	3	11.5
1	1	3.9
2	4	15.4
3	6	23.1
4	3	11.5
5	2	7.7
6	3	11.5
7	1	3.9
8	1	3.9
>8	2	7.7
Total	26	100



From this analysis it becomes clear that 53.9% of academic personnel publish less than the current average of 4.2 papers in three years, with 11.5% not publishing at all; while

73% of academic personnel publish less than the institutional requirement if one article equivalent (an average of two papers) per year.

Attending and presenting research at national and international conferences is also an element of scholarship (see definition of scholarship Paragraph 1.6.2.2). In the prior three years, academic personnel participants reported attending an average of 4.6 (SD 2.5) national conferences, ranging from none to 23 conferences, which means that on average academic personnel participants attend 1.5 national conferences per year; and further reported presenting research at 3.3 (SD 2.3) national conferences on average, ranging from none to nine conferences, which means that on average academic personnel participants present research at 1.1 national conferences per year. In the prior three years, academic personnel participants also reported attending an average of 2.7 (SD 2.5) international conferences, ranging from none to ten conferences, which means that on average academic personnel participants attend 0.9 international conferences per year; and further reported presenting research at 2.7 (SD 2.4) international conferences on average, ranging from none to fifteen conferences, which means that on average academic personnel present research at 0.9 international conferences per year. Most higher education institutions require that academic personnel participants attend at least one national and one international conference every two years, which means that the number of national and international conferences currently attended and presented at by academic personnel participants, is almost quadruple what is required by higher education institutions. Table 4.28 presents a distribution of national conference attendance and presentations, and Table 4.29 presents a distribution of international conference attendance and presentations.

Table 4.28: National conference attendance and presentations: AP (n=26)

NATIONAL CONFERENCES	ATTENDANCE		PRESENTATION	
	f	%	f	%
0	1	3.9	3	11.5
1	1	3.9	2	7.7
2	4	15.4	6	23.1
3	8	30.8	5	19.2
4	5	19.2	3	11.5
5	2	7.7	2	7.7
6	1	3.9	2	7.7
7	0	0	2	7.7
8	1	3.9	0	0
9	0	0	1	3.9
10	2	7.7	0	0
>10	1	3.9	0	0
Total	26	100	26	100

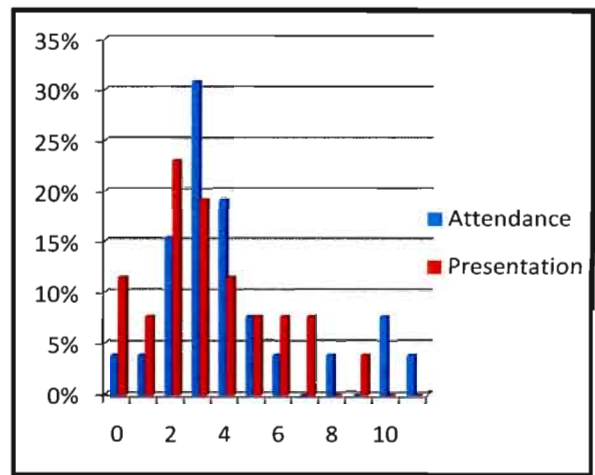
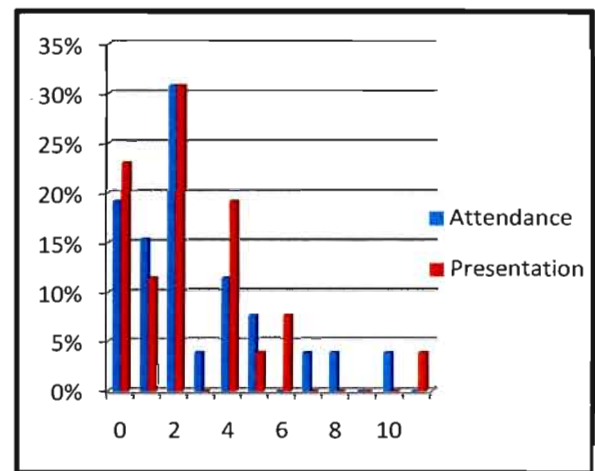


Table 4.29: International conference attendance and presentations: AP (n=26)

INTERNATIONAL CONFERENCES	ATTENDANCE		PRESENTATION	
	f	%	f	%
0	5	19.2	6	23.1
1	4	15.4	3	11.5
2	8	30.8	8	30.8
3	1	3.9	0	0
4	3	11.5	5	19.2
5	2	7.7	1	3.9
6	0	0	2	7.7
7	1	3.9	0	0
8	1	3.9	0	0
9	0	0	0	0
10	1	3.9	0	0
>10	0	0	1	3.9
Total	26	100	26	100



The above analysis reveals that 3.9% of academic personnel participants have never attended a national conference, and 11.5% of academic personnel participants have never presented at a national conference, while 19.2% of academic personnel participants have never attended an international conference and 23.1% of academic personnel participants have never presented at an international conference. This may be because financial support for conference attendance is linked to academic personnel's research outputs, as well as academic personnel's personal research funds that are accumulated through incentives received for research outputs (see Paragraph 2.5.5), which according to Table 4.27 is insufficient for the majority of academic

personnel. It is also important to highlight from the literature review (see Paragraph 2.5.5) that incentive rates differ greatly among different higher education institutions, which may result in academic personnel from some higher education institutions being more financially capable of attending conferences than others.

Also of note, is that 76.9% of academic personnel participants have attended national conferences one to five times, and 19.2% have attended more than five times, compared to 69.2% of academic personnel who have presented research at national conferences one to five times, and 19.2% who have presented research more than five times in the prior three years. Furthermore, 69.2% of academic personnel have attended international conferences one to five times, and 11.5% have attended more than five times, compared to 65.4% of academic personnel who have presented research at international conferences one to five times, and 11.5% who have presented research more than five times in the prior three years. The discussion above shows that there is a greater tendency for academic personnel to just attend national conferences, rather than to present research at such conferences.

PROBLEMS IDENTIFIED:

- The majority of academic personnel publish less than the higher education institution requirement of one article equivalent per year.
- There is no unified incentive system among higher education institutions for academic personnel research outputs.
- There are academic personnel who have not attended or presented research at national and international conferences in the prior three years.

4.5.5 ITEM 28 (AP, DG, DS)

According to the data, on average, academic personnel (M 3.5), doctoral graduate (M 3.7) and doctoral student (M 3.6) participants strongly agree that academic personnel members have teaching experience in nursing education prior to working with doctoral students. The phi co-efficient indicates there is a small effect ($p = 0.12$) in the relationship between the different population groups and the variable.

4.5.6 ITEM 29 (AP, DG, DS)

On average, academic personnel (M 2.8), doctoral graduate (M 3.0) and doctoral student (M 3.1) participants agree that academic personnel members provide students with diverse and challenging learning experiences. The phi co-efficient indicates that there is a small effect ($p = 0.24$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.30.

Table 4.30: Analysis of item 29 (AP, DG, DS)

ITEM 29 (AP, DG, DS) Academic personnel members provide students with diverse and challenging learning experiences (e.g., social, ethical, cultural, economic, and political issues related to nursing, health care, and research).	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.0	9	36.0	9	36.0	6	24.0
Doctoral graduates	0	0	7	29.2	10	41.7	7	29.2
Doctoral students	2	3.2	9	14.5	32	51.6	19	30.6

This analysis reveals that 40% of academic personnel participants were more likely to strongly disagree (4.0%) and disagree (36.0%) with this variable, while doctoral student participants were more likely to agree (51.6%) and strongly agree (30.6%) with this variable.

It is noteworthy that 40% of academic personnel participants strongly disagree and disagree that academic personnel members provide students with diverse and challenging learning experiences. This may be related to the discussion highlighted in Paragraph 4.3.4.6, in that the majority of academic personnel participants experience is in five primary fields of nursing science, while doctoral students and doctoral graduates are conducting research in more diverse fields. Also, not all nursing schools/departments/divisions present doctoral workshops as discussed in the literature review (see Paragraph 2.4.3.2) and identified as a problem in Paragraph 4.7.1.3.

4.5.7 ITEM 30 (AP, DG, DS)

According to the data, on average doctoral graduate (M 3.5) and doctoral student (M 3.6) participants strongly agree that academic personnel members have been certified in nursing specialties and hold membership in professional organizations/societies, while on average academic personnel (M 3.3) participants agree with this variable. The phi co-efficient indicates that there is a medium effect ($p = 0.34$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.31.

Table 4.31: Analysis of item 30 (AP, DG, DS)

ITEM 30 (AP, DG, DS) Academic personnel members have been certified in nursing specialties and hold membership in professional organizations/societies.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	3.9	0	0	14	53.9	11	42.3
Doctoral graduates	0	0	2	8.3	8	33.3	14	58.30
Doctoral students	0	0	0	0	27	42.9	36	57.1

From this analysis it becomes clear that academic personnel participants were more likely to agree (53.9%) with this variable, while doctoral graduate participants were more likely to disagree (8.3%) and strongly agree (58.3%) with this variable than the other population groups.

4.5.8 ITEM 31 (AP, DG, DS)

On average, academic personnel (M 3.2), doctoral graduate (M 3.3) and doctoral student (M 3.4) participants agree that academic personnel members demonstrate fulfilment of diverse academic personnel responsibilities and roles, including teaching, research, service, and mentoring. The phi co-efficient indicates that there is a small effect ($p = 0.17$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.32.

Table 4.32: Analysis of item 31 (AP, DG, DS)

ITEM 31 (AP, DG, DS) Academic personnel members demonstrate fulfillment of diverse academic personnel responsibilities and roles, including teaching, research, service, and mentoring.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.0	1	4.0	15	60.0	8	32.0
Doctoral graduates	0	0	1	4.2	15	62.5	8	33.3
Doctoral students	1	1.6	2	3.2	31	49.2	29	64.4

This analysis reveals that academic personnel (60.0%) and doctoral graduate participants (62.5%) were more likely to agree with this variable, while doctoral student participants were more likely to strongly agree (64.4%) with this variable.

4.5.9 ITEM 32 (AP, DG, DS)

According to the data, academic personnel (M 3.1), doctoral graduate (M 3.1), and doctoral student (M 3.2) participants agree that academic personnel members mentor and assist students to understand the value of programmes of research and scholarship. The phi co-efficient indicates that there is a small effect ($p = 0.17$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.33.

Table 4.33: Analysis of item 32 (AP, DG, DS)

ITEM 32 (AP, DG, DS) Academic personnel members mentor and assist students to understand the value of programmes of research and scholarship.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	3.9	3	11.5	15	57.7	7	26.9
Doctoral graduates	0	0	5	21.7	10	43.5	8	34.8
Doctoral students	2	3.2	8	12.9	28	45.2	24	38.7

This analysis shows that academic personnel participants were more likely to agree (57.7%) with this variable, while doctoral graduate participants were more likely to

disagree (21.7%) with this variable than the other population groups, and doctoral student participants were more likely to strongly agree (38.7%) with the variable.

However, 53 (84.1%) of the doctoral student participants and 22 (91.7%) of the doctoral graduate participants felt that they had one or more academic personnel members at the nursing school/department/division that they could consider mentor(s) (i.e., individuals from whom they would seek advice about their education, career development, and other matters of concern to them).

Table 4.34 indicates that academic personnel expect doctoral student and doctoral graduate participants to launch programmes of research and be scholars, and this is also evident in the views of doctoral graduate and doctoral student participants.

Table 4.34 Requirements after the completion of doctoral education

ITEM 19 (AP; DG; DS) What do you think should be required after the completion of a doctoral programme?	DOCTORAL STUDENTS (n=63)	DOCTORAL GRADUATES (n=24)	ACADEMIC PERSONNEL (n=26)	PHI CO-EFFICIENT
a. Post-doc	(38) 60.3%	(15) 62.5%	(16) 61.5%	0.02
b. Internship	(15) 23.8%	(13) 54.2%	(6) 23.1%	0.27
c. Publication	(60) 95.2%	(22) 91.7%	(26) 100%	0.14
e. Others	(5) 7.9%	(4) 16.7%	(2) 7.7%	0.12

The table shows that academic personnel, doctoral graduate and doctoral student participants agree that the most important thing after completion of the doctoral programme is to publish the results of the study, and secondly, to launch a programme of research by doing a post-doctoral fellowship. An internship was perceived as quite important by doctoral graduates (54.2%), while academic personnel (23.1%) and doctoral student participants, (23.8%) felt this was less important. Other requirements included by academic personnel participants were presentation of research results and accessing funding, while those included by doctoral graduate participants were education, research collaboration, and accessing funding, and those included by doctoral students included research collaboration, accessing funding, mentoring doctoral students, and presentation of research.

Of note, however, is that academic personnel are expected to mentor and assist students to understand the value of programmes of research and scholarship, although as discussed in Paragraph 4.3.4.1, most academic personnel participants are newly doctorally qualified academic personnel that are not adequately mentored or given the opportunity to launch their research programmes or careers. This is further evidenced by the fact that only nine (34.6%) of academic personnel participants reported having experienced training programmes for at least a year, of which five (19.2%) had experience as an exchange/visiting professor, three (11.5%) had experience of a post-doctoral fellowship, and two (7.7%) had experience of an international training programme.

PROBLEM IDENTIFIED:

- The majority of academic personnel are not provided with the opportunity to attend training programmes that will allow them to be mentored, and launch their research programmes or careers.

4.5.10 ITEM 33 (AP, DG, DS)

On average, academic personnel (M 3.1), doctoral graduate (M 3.1) and doctoral student (M 3.2) participants agree that academic personnel members utilize resources within the institution and broader community to support programme goals. The phi coefficient indicates that there is a small effect ($p < 0.20$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.35.

Table 4.35: Analysis of item 33 (AP, DG, DS)

ITEM 33 (AP, DG, DS) Academic personnel members utilize resources within the institution and broader community to support programme goals.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	3.85	4	15.4	16	61.5	5	19.2
Doctoral graduates	1	4.2	4	16.7	10	41.7	9	37.5
Doctoral students	2	3.2	5	8.1	33	53.2	22	35.5

This analysis makes it clear that academic personnel participants were more likely to agree (61.5%) with this variable than the other population groups, while doctoral graduate participants were more likely to strongly disagree (4.2%), disagree (16.7%), and strongly agree (37.5%) with this variable than the other population groups.

4.5.11 ITEM 34 (AP, DG, DS)

According to the data, on average, academic personnel (M 3.2), doctoral graduate (M 3.1) and doctoral student (M 3.2) participants agree that academic personnel members devote significant time to students' dissertation/thesis research, and the phi co-efficient indicates there is a small effect ($p = 0.14$) in the relationship between the different population groups and the variable.

4.5.12 ITEM 35 (AP, DG, DS)

On average, academic personnel (M 3.1), doctoral graduate (M 3.3) and doctoral student (M 3.1) participants agree that academic personnel members give timely feedback on students' research. The phi co-efficient indicates that there is a small effect ($p = 0.24$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.36.

Table 4.36: Analysis of item 35 (AP, DG, DS)

ITEM 35 (AP, DG, DS) Academic personnel members give timely feedback on students' research.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.0	3	12.0	14	56.0	7	28.0
Doctoral graduates	0	0	4	16.7	9	37.5	11	45.8
Doctoral students	0	0	9	14.8	34	55.7	18	29.5

The analysis indicates that academic personnel (56%) and doctoral student (55.7%) participants were more likely to agree with this variable, while doctoral graduate participants were more likely to disagree (16.7%) and strongly agree (45.8%) with this variable than the other population groups.

4.5.13 ITEM 37 (AP, DG, DS)

The data reveal that, on average, academic personnel (M 3.0), doctoral graduate (M 3.4) and doctoral student (M 3.1) participants feel that the overall quality of teaching by academic personnel in the doctoral programme is good. The phi co-efficient indicates that there is a medium effect ($p = 0.34$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.37.

Table 4.37: Analysis of item 37 (AP, DG, DS)

ITEM 37 (AP, DG, DS) How would you rate the overall quality of teaching by academic personnel in your doctoral programme?	POOR		FAIR		GOOD		EXCELLENT	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.4	4	17.4	13	56.5	5	21.7
Doctoral graduates	0	0	3	12.5	9	37.5	12	50.0
Doctoral students	1	1.6	11	17.7	31	50.0	19	30.7

From this analysis it becomes clear that academic personnel participants were more likely to rate the overall quality of teaching by academic personnel in their doctoral programme as poor (4.4%), fair (17.4%) and good (56.5%), while doctoral graduate participants were more likely to rate it as excellent (50.0%).

With regard to the QCSI criterion of the quality of academic personnel collectively; academic personnel, doctoral graduate and doctoral student participants agreed that academic personnel and their scholarship, including their qualifications, their research and publication record, their teaching, advising and mentoring of students, and their practice and service was of good quality, although doctoral graduate participants tended to score this QCSI criterion more positively than the other populations groups, and academic personnel participants tended to score this QCSI criterion more negatively than the other population groups. Furthermore, problems that were identified with regard to the quality of academic personnel were that the majority of academic personnel have not accessed extramural funding from

externally reviewed sources for their research projects. NRF was the least accessed source of extramural funding by academic personnel for research projects. The majority of academic personnel are unable to financially support doctoral students from their research projects. The majority of academic personnel publish less than the higher education institution requirement of one article equivalent per year. There is no unified incentive system among higher education institutions for academic personnel research outputs. There are academic personnel that have not attended or presented research at national and international conferences in the prior three years and the majority of academic personnel are not provided with the opportunity to attend training programmes that will allow them to be mentored, and launch their research programmes or careers.

4.6 QUALITY OF STUDENTS

This section is a report on the analysis and interpretation of the third QCSI criterion, namely the quality of students.

4.6.1 ENROLMENT AND GRADUATION NUMBERS

This section represents the analysis and interpretation of doctoral programmes in nursing enrolment and graduate output numbers.

Table 4.38: Doctoral programmes in nursing enrolment and graduate output numbers

ITEM 3 (ND)	NURSING DEANS (n=12)											
	2006				2007				2008			
	Total	M	SD	Range	Total	M	SD	Range	Total	M	SD	Range
a. Total number of students admitted to the doctoral programme	63	5.7	4.3	0-12	69	6.3	4.7	0-14	68	6.2	4.7	0-16
b. Total number of graduates of the doctoral programme	16	1.5	1.5	0-4	10	0.9	1.2	0-3	10	0.9	1.3	0-3

Table 3.8 presents a bleak picture. For three successive years, there were nursing school/departments/divisions that had admitted no students into the doctoral programme, and so also, we see that for three successive years there were nursing schools/departments/divisions that had no graduate outputs from the doctoral programme (this was also evident from the discussion in Paragraph 4.3.4.1).

Furthermore, enrolment numbers for the prior three years shows very little progression, with a 9.5% increase from the year 2006 to 2007, and a 1.5% decrease from the year 2007 to 2008, with an overall average of 6.1 doctoral students being admitted to doctoral programmes per annum. Graduation numbers, have in fact, decreased with 37.5% from the year 2006 to 2007, and remained unchanged in the year 2008, with an average of less than one (0.9) graduate output per annum. The pile up effect is also of great concern when you consider that there are, on average, a total of 67 doctoral students enrolling in doctoral programmes per annum, compared to an average total of twelve (17.9%) doctoral graduates completing their doctoral degrees per annum, with a pile up of approximately 55 (82.1%) historical doctoral students per annum. These findings compare negatively with results discussed in the literature review (see Paragraph 2.4.3.1), especially with regard to graduate output numbers and the pile up effect.

The reasons for these findings, especially the poor graduate outputs and pile-up effect are numerous, including factors already discussed in the findings such as gender (see Paragraph 4.3.1), age (see Paragraph 4.3.2) and employment (Paragraph 4.3.3), as doctoral students in nursing are predominantly older females with full-time employment and family responsibilities. Also, a shortage of academic personnel (see Paragraph 4.3.4.1), the fact that the majority of academic personnel are newly doctorally qualified and there is a dearth of senior nursing academe (see Paragraph 4.3.4.1), and funding for doctoral students is limited (see Paragraph 4.5.3). Furthermore, the problem may also lie with the selection of prospective doctoral students into the doctoral programme as pointed out by two nursing dean participants who stated: "What other eligibility criteria are there, that can inform faculty about students' potential to do doctorates and

to succeed?” and “There should be a strict screening process before admission to the (doctoral) programme.”

PROBLEM IDENTIFIED:

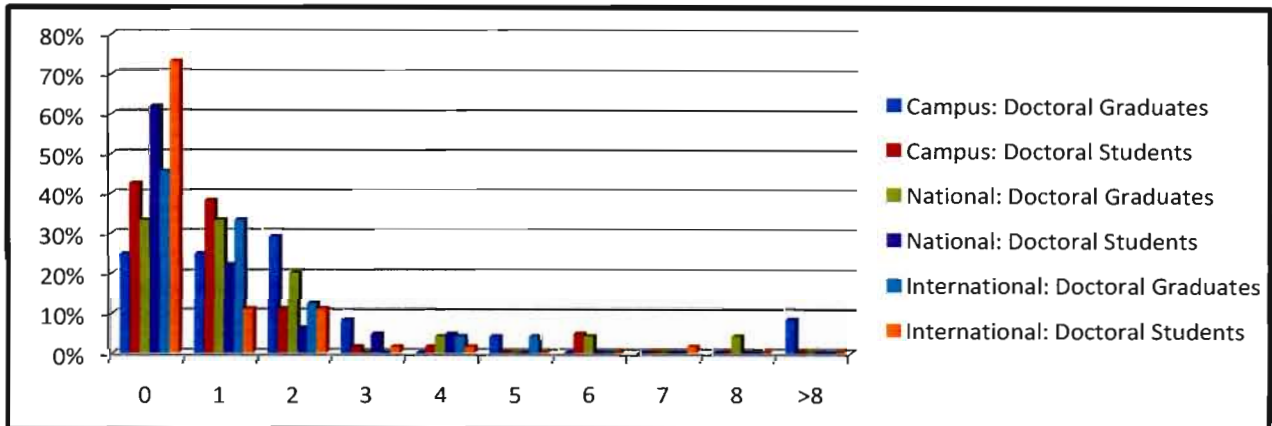
- There are nursing schools/departments/divisions that admitted no doctoral students into the doctoral programme in the years 2006-2008.
- The graduation rate for doctoral students is less than 20% per annum.
- There is a pile-up effect of over 80% of doctoral students per annum.
- There are no guidelines for eligibility criteria for the selection of prospective doctoral students into the doctoral programme.

4.6.2 PROGRESSION

Successful progression of a doctoral student is evidenced by establishing a pattern of productive scholarship, as evidenced by scientific production disseminated in scientific meetings and indexed scientific journals. Table 4.39 presents a distribution of presentations made at conferences, while Table 4.40 presents a distribution of authored and co-authored articles published and Table 4.41 presents a distribution of chapters, reviews, books and edited volumes published.

Table 4.39: Distribution of presentations made at conferences: DG (n=24), DS (n=63)

PRESENTATIONS	ON CAMPUS				NATIONAL				INTERNATIONAL			
	DOCTORAL GRADUATES		DOCTORAL STUDENTS		DOCTORAL GRADUATES		DOCTORAL STUDENTS		DOCTORAL GRADUATES		DOCTORAL STUDENTS	
	f	%	f	%	f	%	f	%	f	%	f	%
0	6	25.0	27	42.7	8	33.3	39	61.9	11	45.8	46	73.0
1	6	25.0	24	38.1	8	33.3	14	22.3	8	33.3	7	11.1
2	7	29.2	7	11.1	5	20.1	4	6.4	3	12.5	7	11.1
3	2	8.3	1	1.6	0	0	3	4.8	0	0	1	1.6
4	0	0	1	1.6	1	4.2	3	4.8	1	4.2	1	1.6
5	1	4.2	0	0	0	0	0	0	1	4.2	0	0
6	0	0	3	4.8	1	4.2	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	1	1.6
8	0	0	0	0	1	4.2	0	0	0	0	0	73.0
>8	2	8.4	0	0	0	0	0	0	0	0	0	11.1
Total	24	100	63	100	24	100	63	100	24	100	63	100

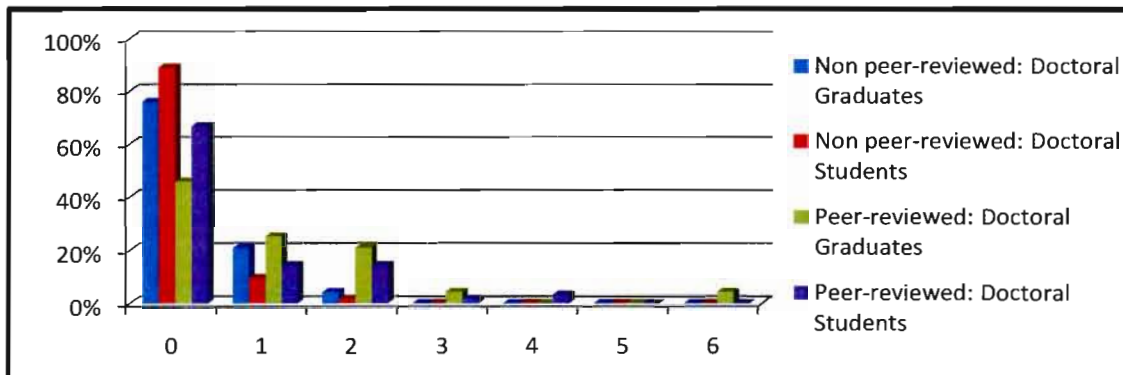


On average, 1.0 (SD 1.4) doctoral students presented their research on campus, ranging from none to six times, while on average 2.2 (SD 3.0) doctoral graduates presented their research on campus, ranging from none to twelve times. Approximately 0.7 (SD 1.1) doctoral students presented their research at national conferences, ranging from none to four times, while doctoral graduates presented their research 1.5 (2.0) times on average, ranging from none to eight times. Furthermore, on average 0.6 (SD 1.2) doctoral students presented their research at international conferences, ranging from none to seven times, while 1.0 (SD 1.3) doctoral graduates presented their research at international conferences ranging from none to five times. This table shows much improvement from the findings discussed in the literature review (see Paragraph 2.5.3), with over 50% of doctoral graduates and 25% of doctoral students having

presented their research at national and international conferences. However, it is noteworthy that as many as 25% of doctoral graduates and 42.7% of doctoral students have not presented their research on campus, 33.3% of doctoral graduates and 61.9% of doctoral students have never presented their research at national conferences, and 45.8% of doctoral graduates and 73% of doctoral students have never presented their research at international conferences. This discrepancy was also noted by one doctoral student who asked: "How does a doctoral student ensure that he/she gets an equal chance as other (doctoral) students at the institution to publish and present research?" These discrepancies with regard to the number of presentations at national and international conferences among doctoral student and doctoral graduates within higher education institutions, may be linked to the funding received by doctoral students through academic personnel research projects. Otherwise, to the fact that full-time academic personnel registered as doctoral students receive funding from their respective higher education institutions, as alluded to by one doctoral student who stated: "Support to present doctoral research internationally for non-academic personnel".

Table 4.40: Distribution of authored or co-authored articles published: DG (n=24), DS (n=63)

ARTICLES	NON PEER-REVIEWED				PEER-REVIEWED			
	DOCTORAL GRADUATES		DOCTORAL STUDENTS		DOCTORAL GRADUATES		DOCTORAL STUDENTS	
	f	%	f	%	f	%	f	%
0	18	75	56	88.9	11	45.8	42	66.7
1	5	20.8	6	9.5	6	25.0	9	14.3
2	1	4.2	1	1.6	5	20.8	9	14.3
3	0	0	0	0	1	4.2	1	1.6
4	0	0	0	0	0	0	2	3.2
5	0	0	0	0	0	0	0	0
6	0	0	0	0	1	4.2	0	0
Total	24	100	63	100	24	100	63	100

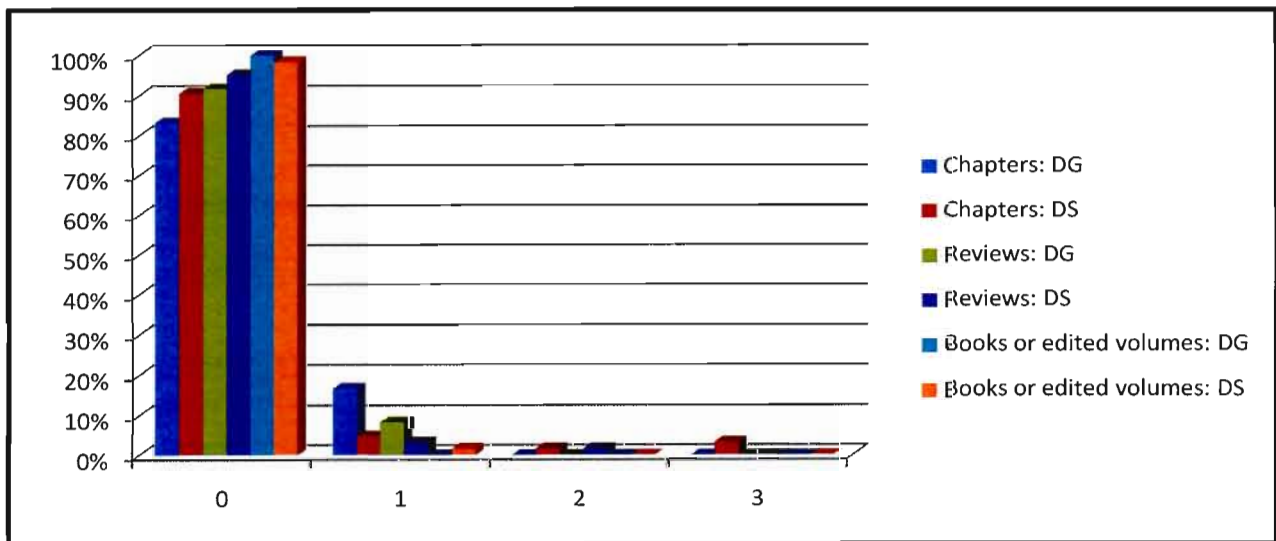


On average, 0.1 (SD 0.4) doctoral students authored or co-authored non peer-reviewed articles, ranging from none to two; while 0.3 (SD 0.6) doctoral graduates authored or co-authored non peer-reviewed articles, ranging from none to two. Approximately, 0.6 (SD 1.0) doctoral students authored or co-authored peer-reviewed articles, ranging from none to four, while 1.0 (SD 0.3) doctoral graduates authored or co-authored peer-reviewed articles, ranging from none to six. These findings also show an improvement with regard to the discussion in the literature review (see Paragraph 2.5.3), but the figures remain disheartening, when one considers that close to half (45.8%) of doctoral graduates and more than two-thirds (66.7%) of doctoral students have never published peer-reviewed articles. To further illustrate the dire situation, it must be stated that on average, three to four publications should result from the completion of a doctoral thesis, which means that only two (8.3%) doctoral graduates currently subscribe to this practice. The poor publication output trend further negatively impacts on the scholarship of academic personnel (see Paragraph 4.5.4), who invest a great deal of

time mentoring doctoral students to completion of their studies, from which no publications result; while lessening the time available for academic personnel’s personal research pursuits and publications.

Table 4.41: Distribution of chapters, reviews, books and edited volumes published: DG (n=24), DS (n=63)

BOOKS	CHAPTERS				REVIEWS				BOOKS OR EDITED VOLUMES			
	DOCTORAL GRADUATES		DOCTORAL STUDENTS		DOCTORAL GRADUATES		DOCTORAL STUDENTS		DOCTORAL GRADUATES		DOCTORAL STUDENTS	
	f	%	f	%	f	%	f	%	f	%	f	%
0	20	83.3	57	90.5	22	91.7	60	95.2	24	100	62	98.4
1	4	16.7	3	4.8	2	8.3	2	3.2	0	0	1	1.6
2	0	0	1	1.6	0	0	1	1.6	0	0	0	0
3	0	0	2	3.2	0	0	0	0	0	0	0	0
Total	24	100	63	100	24	100	63	100	24	100	63	100



Approximately, 0.2 (SD 0.6) doctoral students published book chapters, ranging from none to three times, while 0.2 (SD 0.4) doctoral graduates published book chapters, ranging from none to one time. On average, 0.1 (SD 0.3) doctoral students publish book reviews, ranging from none to two times, while 0.1 (SD 0.3) doctoral graduates published book reviews, ranging from none to one time. Furthermore, only one doctoral student published a book or edited volume.

PROBLEMS IDENTIFIED:

- There are doctoral students and doctoral graduates that are not provided with the opportunity to present their research at national and international conferences.
- There is no support for doctoral students who are not appointed in full-time academic personnel positions to present their research at national and international conferences.
- The majority of doctoral students and doctoral graduates have never published peer-reviewed articles.

With regard to the QCSI criterion of the quality of students on the whole, there is cause for much concern. Problems identified with regard to enrolment and graduation numbers include that there are nursing schools/departments/divisions that admitted no doctoral students into the doctoral programme in the years 2006-2008, the graduation rate for doctoral students is less than 20% per annum. Also, there is a pile-up effect of over 80% of doctoral students per annum and there are no guidelines for eligibility criteria for the selection of prospective doctoral students into the doctoral programme. Problems identified with regard to progression of doctoral students include that there are doctoral students and doctoral graduates that are not provided with the opportunity to present their research at national and international conferences; there is no support for doctoral students who are not appointed in full-time academic personnel positions to present their research at national and international conferences. Moreover, the majority of doctoral students and doctoral graduates have never published peer-reviewed articles.

4.7 QUALITY OF THE CURRICULUM

This section represents the analysis and interpretation of the fourth QCSI criterion, namely the quality of the curriculum with regard to the goal and content of the curriculum and supervision, from the perspectives of nursing deans (n=12), academic personnel (n=26), doctoral graduates (n=24) and doctoral students (n=63).

4.7.1 GOAL AND CONTENT OF THE CURRICULUM

This section represents the analysis and interpretation of the goal and content of the curriculum from the perspectives of nursing dean, academic personnel, doctoral graduate and doctoral student participants.

Table 4.42: Quality of the curriculum: Academic personnel, doctoral graduate and doctoral student perspectives

ITEM NO.	QUALITY OF THE CURRICULUM: ACADEMIC PERSONNEL, DOCTORAL GRADUATES AND DOCTORAL STUDENTS	ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)		DOCTORAL STUDENTS (n=63)		PHI CO-EFFICIENT
		M	SD	M	SD	M	SD	
5 (AP; DG; DS)	There is a clear emphasis on nursing science and research training in the programme content.	3.1 1	0.9	3.5 2	0.6	3.4 2	0.7	0.25
6 (AP; DG; DS)	Academic personnel research expertise areas (e.g., nursing ethics, women's health, biobehavioural science, genetic nursing etc.) are presented in the programme content.	2.9 2	0.8	3.1 1	1.0	2.9 1	0.8	0.30
7 (AP; DG; DS)	The programme content includes core information (e.g., theory development, research methodologies for qualitative and quantitative research, ethical considerations in research, dissertation/thesis seminars, etc.) and other relevant information (e.g., leadership, policy, etc.) appropriate for a doctoral degree in nursing.	3.0 2	0.9	3.3 1	0.9	3.4 1	0.7	0.25
8 (AP; DG; DS)	All students receive formal training in ethics and the protection of human/animal subjects in research.	2.9 1	0.8	2.9 2	1.0	2.8 2	0.7	0.29
9 (AP; DG; DS)	Programme descriptions are written and available to students and academic personnel in detail.	2.9 1	0.9	3.1 2	0.8	3.1 2	0.8	0.21
10 (AP; DG; DS)	The programme includes interdisciplinary dissertation/thesis research seminars and interdisciplinary courses in addition to seminars.	2.9 1	1.1	3.0 1	0.9	3.3	0.8	0.30
23 (AP; DG; DS)	How would you rate the programme content of your PhD/doctoral programme?	2.9 3	1.1	3.3 1	0.7	2.8 4	0.8	0.34

62 (AP); 54 (DG; DS)	How would you rate the intellectual liveliness of your programme?	2.9 1	0.9	3.3	0.6	3.0 1	0.7	0.27
63 (AP) 55 (DG; DS)	Considering the overall intellectual environment of your school/ department/ division and university, how much do you think you have benefited from it?	3.2 2	0.9	3.8	0.4	3.5	0.6	0.34

4.7.1.1 ITEM 5 (AP, DG, DS)

The table summarizing the data shows that on average academic personnel (M 3.1) and doctoral student (M 3.4) participants agree that there is a clear emphasis on nursing science and research training in the programme content, while doctoral graduate participants (M 3.5) strongly agree with this variable. The phi co-efficient indicates a medium effect (p 0.25) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.43.

Table 4.43: Analysis of item 5 (AP, DG, DS)

ITEM 5 (AP, DG, DS) There is a clear emphasis on nursing science and research training in the programme content.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.0	5	20.0	9	36.0	10	40.0
Doctoral graduates	0	0	1	4.6	10	45.5	11	50.0
Doctoral students	0	0	6	9.8	26	42.6	29	47.5

This table shows that academic personnel participants were more likely to strongly disagree (4.0%) and disagree (20.0%) with this variable than the other population groups; while doctoral graduate participants were more likely to agree (45.5%) and strongly agree (50.0%) with this variable than the other population groups.

4.7.1.2 ITEM 6 (AP, DG, DS)

On average, academic personnel (M 2.9), doctoral graduate (M 3.3), and doctoral student (M 2.9) participants agree that academic personnel research expertise areas are presented in the programme content. However, the phi co-efficient indicates that there is a medium effect (p 0.30) in the relationship between the different population

groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.44.

Table 4.44: Analysis of item 6 (AP, DG, DS)

ITEM 6 (AP, DG, DS) Academic personnel research expertise areas (e.g., nursing ethics, women's health, biobehavioural science, genetic nursing etc.) are presented in the programme content.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.2	6	25.0	12	50.0	5	20.8
Doctoral graduates	3	13.0	1	4.4	9	39.1	10	43.5
Doctoral students	3	4.8	16	25.8	30	48.4	13	21.0

This analysis makes it clear that academic personnel participants were more likely to disagree (25%) and agree (50%) with this variable than other population groups, while doctoral graduate participants were more likely to strongly disagree (13%) and strongly agree (43.5%) with this variable than the other population groups.

That at least 30% of academic personnel and doctoral graduate participants, and 20% of doctoral student participant strongly disagree and disagree with this variable may be related to the discussion in Paragraphs 4.3.4.6 and 4.5.6, in that the majority of academic personnel participants' experience is found in five primary fields of nursing science, while doctoral students and doctoral graduates are conducting research in more diverse fields. Also, that not all nursing schools/departments/divisions present doctoral workshops as discussed in the literature review (see Paragraph 2.4.3.2) and identified as a problem in Paragraph 4.7.1.3. Another issue as raised by one doctoral student was: *"Ability for doctoral students to influence topics that are taught at workshops"*. This may point to the fact that doctoral students' education needs are not fulfilled as they are not consulted or involved in the planning of the course content.

PROBLEM IDENTIFIED:

- Doctoral students' education needs are not fulfilled as they are not consulted or involved in the planning of the doctoral programme course content.

4.7.1.3 ITEM 7 (AP, DG, DS)

The data show that on average academic personnel (M 3.0), doctoral graduate (M 3.3) and doctoral student (M 3.4) participants agree that the programme content includes core information and other relevant information appropriate for a doctoral degree in nursing. The phi co-efficient indicates a medium effect ($p < 0.25$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.45.

Table 4.45: Analysis of item 7 (AP, DG, DS)

ITEM 7 (AP, DG, DS) The programme content includes core information (e.g., theory development, research methodologies for qualitative and quantitative research, ethical considerations in research, dissertation/thesis seminars, etc.) and other relevant information (e.g., leadership, policy, etc.) appropriate for a doctoral degree in nursing.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.2	6	25.0	9	37.5	8	33.3
Doctoral graduates	1	4.4	3	13.0	6	26.1	13	56.5
Doctoral students	1	1.6	5	8.1	22	35.5	34	54.8

This table indicates that academic personnel participants were more likely to disagree (25%) and agree (37.5%) with this variable than the other population groups; while doctoral graduate (56.4%) and doctoral student (54.8%) participants were more likely to strongly agree with this variable.

With regard to the programme content including core information and other relevant information appropriate for a doctoral degree in nursing, Table 4.46 presents the professional development training received by doctoral graduate and doctoral student participants in the doctoral programme. It also presents academic personnel participants' views of what training should be provided in the doctoral programme for professional development, in comparison to what training is currently provided in the doctoral programme for professional development in their respective nursing schools/departments/divisions.

Table 4.46: Professional development training

ITEM 18 (AP, DG, DS) Professional development	DOCTORAL STUDENTS		DOCTORAL GRADUATES		ACADEMIC PERSONNEL			
					Training that is required during doctoral programme for professional development		Training your school/ department/ division has offered for professional development	
	f	%	f	%	f	%	f	%
a. Presentation skills	18	28.6	6	25.0	16	64.0	11	44.0
b. Writing proposals for funding	26	41.3	4	16.7	16	64.0	8	32.0
c. Preparing manuscripts for publication	32	50.1	13	54.2	18	72.0	12	48.0
d. Working in collaborative groups	23	36.5	10	41.2	13	52.0	10	40.0
e. Conducting independent research/scholarship	39	61.9	17	70.8	19	76.0	9	36.0
f. Project management	12	19.1	9	37.5	13	52.0	6	24.0
g. Research ethics	44	71.0	21	87.5	16	64.0	17	68.0
h. Speaking to non-academic audiences	12	19.1	9	37.5	12	48.0	4	16.0
i. Lecturing in undergraduate or graduate courses	21	33.9	10	41.7	10	40.0	10	40.0
j. Leadership development (e.g., attending international conferences, leading discussion sections of undergraduate or graduate courses, etc.)	25	39.7	14	58.3	15	60.0	8	32.0
k. Others	6	9.5	3	12.5	3	12.0	3	12.0

Overall, doctoral graduate participants responded more positively than doctoral student participants to receiving professional development training in the following areas: preparing manuscripts for publication, working in collaborative groups, conducting independent research/scholarship, project management, research ethics, speaking to non-academic audiences, lecturing in graduate and undergraduate courses, and

leadership development. Doctoral student participants only responded more positively than doctoral graduate participants, to receiving professional development training in two areas, one being presentation skills, and the other being writing proposals for funding.

On the whole, academic personnel participants' views of what training should be provided in the doctoral programme for professional development, far surpassed what training is currently provided in the doctoral programme for professional development in their respective nursing schools/departments/divisions. The one exception was that research ethics was rated higher than what academic personnel felt should be provided in the doctoral programme for professional development training. Lecturing in undergraduate and graduate courses was rated equally in the two columns.

Furthermore, academic personnel participants' views of what training should be provided in the doctoral programme for professional development exceeded what doctoral student and doctoral graduate participants felt they had received. Here the exceptions were for the same two professional development training items, namely: research ethics, which far exceeded that which academic personnel felt should be provided in the doctoral programme for professional development. Lecturing in undergraduate and graduate courses was rated similarly to academic personnel by doctoral student and doctoral graduate participants. For the most part, academic personnel participants responded more negatively to the training currently provided in the doctoral programme for professional development, rating only one training item, presentation skills, higher than doctoral graduate and doctoral student participants.

Other professional development training that academic personnel participants indicated was presented in the doctoral programme was model and theory development. Doctoral graduates indicated that personal development such as time management, and communication skills, and presentation to diverse audiences was presented in the doctoral programme for professional development training. Doctoral student participants indicated that internet searches, pedagogic online supervision, personal development

such as time management and communication skills and use of computer data analysis programmes were presented.

That academic personnel indicated that they are presenting sub-optimal professional development training in the doctoral programme, is a problem that needs further exploration, but it may in fact be related to a deep-rooted problem that was raised by academic personnel, doctoral graduate and doctoral student participants:

“Research seminars should be compulsory for prospective doctoral students.” “Pre-doctoral courses to be attended before entering the doctoral programme.” “Re-exposure to methodologies upon entering the doctoral programme.” “Need training for PhD doctoral studies – different from master’s.” “The assumption is made that (doctoral) students entering into the doctoral programme do have sufficient knowledge and skill re nursing research, however they mostly only have the skills used during previous studies. A short work-book type programme where students need to complete a study/project using a variety of different research methodologies, might be very helpful. It should however rather be implemented at master’s level with a standardized assessment of skills used by all universities”, and “Better basis required in the master programme regarding critical thinking and writing.”

In the literature review (see Paragraph 2.4.3.2) it was highlighted that doctoral education in nursing in South Africa is research-focused, with no structured coursework. Therefore, the main difference between nursing schools/departments/divisions is their presentation of doctoral workshops. Most nursing schools/departments/divisions do not present workshops to prospective doctoral students, although some nursing schools/departments/divisions do present workshops to doctoral students when they commence their doctoral studies, although it is often not compulsory to attend. This problem was also identified in Paragraph 4.3.4.6 and Paragraph 4.5.6. The master’s programmes in nursing in South Africa follow this same trend. It can therefore be deduced, that there are doctoral students that enter the doctoral programme with little or no research training other than the master’s research project they completed, a finding which was also identified in the literature review (see Paragraph 2.5.4), and may largely be the reason why academic personnel feel they present sub-optimal professional development training.

With regard to the programme in its entirety, Table 4.47 summarizes nursing dean participants' views with regard to the doctoral programme meeting doctoral student needs.

Table 4.47 Nursing Deans (n=12): Quality of the curriculum

ITEM NO	NURSING DEANS: QUALITY OF THE CURRICLUM	VERY UNLIKELY		SOME-WHAT UNLIKELY		SOME-WHAT LIKELY		VERY LIKELY	
		f	%	f	%	f	%	f	%
	How likely will achievement of the doctoral programme objectives contribute to meeting student needs in the following areas?								
2 (ND)	a. Occupational/Career	0	0	2	16.7	5	41.7	5	41.7
	b. Intellectual	0	0	0	0	7	58.3	5	41.7
	c. Research skill	0	0	0	0	6	50.0	6	50.0
	d. Cultural	2	16.7	2	16.7	5	41.7	3	25.0

Nursing dean participants felt that with the achievement of the doctoral programme objectives it would somewhat likely meet doctoral students occupational/career needs (M 3.3; SD 0.8), it would somewhat likely meet doctoral students' intellectual needs (M 3.4; SD 0.5), it would very likely meet doctoral students' research skill needs (M 3.5; SD 0.5) and it would somewhat likely meet doctoral students' cultural needs (M 2.8; SD 1.1). It is noteworthy that 16.7% of nursing deans felt that the achievement of the doctoral programme objectives would somewhat unlikely meet doctoral students' occupational/career needs, and this may be related to the discussion highlighted in Paragraph 4.3.3 that there are no career paths for doctoral graduates outside of academe.

PROBLEM IDENTIFIED:

- Doctoral students enter the doctoral programme with little or no research training.
- Professional development training in the doctoral programme does not meet the standards envisioned by academic personnel.

4.7.1.4 ITEM 8 (AP, DG, DS)

On average, academic personnel (M 2.9), doctoral graduate (M 2.9) and doctoral student (M 2.8) participants agree that students receive formal training in ethics and the protection of human/animal subjects in research. The phi co-efficient indicates that there is a medium effect (p 0.29) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.48.

Table 4.48: Analysis of item 8 (AP, DG, DS)

ITEM 8 (AP, DG, DS) All students receive formal training in ethics and the protection of human/animal subjects in research.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.0	6	24.0	13	52.0	4	20.0
Doctoral graduates	3	13.6	3	13.6	9	40.9	7	31.8
Doctoral students	2	3.28	16	26.2	36	59.0	7	11.5

Analysis discloses that doctoral graduate participants were more likely to strongly disagree (13.6%) and strongly agree (31.8%) with this variable, while doctoral students were more likely to disagree (26.2%) and agree (59.0%) with this variable than the other population groups.

It should be noted that at least 25% of each population group disagree and strongly disagree with this variable, although reflecting back on the findings of the previous section (see Table 4.46), 71% of doctoral students and 87.5% of doctoral graduates indicated that they had received professional development training in research ethics, and 68.0% of academic personnel indicated that they presented professional development training in research ethics, which they also indicated was more than what they thought was necessary for the doctoral programme. Furthermore, nursing dean participants were asked whether students received formal training in research ethics and eight (66.7%) confirmed this variable, which is in accordance with the findings of the professional development training currently conducted in the doctoral programme.

4.7.1.5 ITEM 9 (AP, DG, DS)

According to the data, on average academic personnel (M 2.9), doctoral graduate (M 3.1) and doctoral student (M 3.1) participants agree that the programme descriptions are written and available to students and academic personnel in writing. The phi coefficient indicates that there is a medium effect ($p = 0.29$) in the relationship between the different population groups and the variable. Table 4.49 contains further analysis of the relationship between the different population groups and the variable.

Table 4.49: Analysis of item 9 (AP, DG, DS)

ITEM 9 (AP, DG, DS) Programme descriptions are written and available to students and academic personnel in detail.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.0	8	32.0	9	36.0	7	28.0
Doctoral graduates	1	4.6	3	13.6	11	50.0	7	31.8
Doctoral students	3	4.9	8	13.1	30	49.2	20	32.8

This table shows that academic personnel participants were more likely to disagree (32%) with this variable than the other population groups; while doctoral graduate participants were more likely to agree (50.0%) with this variable, and doctoral student participants were more likely to strongly agree (32.8%) with this variable than the other population groups.

Close to 40% of academic personnel participants and 20% of doctoral graduate and doctoral student participants strongly disagreed and disagreed that the programme descriptions are written and available to students and academic personnel in writing. This demonstrates that the written programme descriptions are not available to students and academic personnel in some schools/departments/divisions.

PROBLEM IDENTIFIED:

- There are nursing schools/departments/divisions where the written programme descriptions are not available to doctoral students and academic personnel.

4.7.1.6 ITEM 10 (AP, DG, DS)

The data indicate that on average academic personnel (M 2.9), doctoral graduate (M 3.1) and doctoral student (M 3.1) participants agree that the programme include interdisciplinary dissertation/thesis research seminars. The phi co-efficient indicates that there is a medium effect ($p < 0.30$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.50.

Table 4.50: Analysis of item 10 (AP, DG, DS)

ITEM 10 (AP, DG, DS) The programme includes interdisciplinary dissertation/thesis research seminars	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	3	12.0	7	28.0	5	20.0	10	40.0
Doctoral graduates	1	4.4	6	26.1	9	39.1	7	30.4
Doctoral students	3	4.8	6	9.5	26	41.3	28	44.4

This table shows that academic personnel participants were more likely to disagree (28%) and strongly disagree (12%) with this variable than the other population groups; while doctoral student participants were more likely to agree (41.3%) and strongly agree (44.4%) with this variable.

It should be noted that 40% of academic personnel and 30.5% of doctoral graduate participants strongly disagree or disagree that the programme includes interdisciplinary dissertation/thesis research seminars. A doctoral graduate participant mentioned that: *“Inter-school programmes are not fully organized for students to engage in scholarly debates.”* This finding is further confirmed by the fact that only 10% of nursing dean participants reported that there are courses or certificate programmes available in collaboration with graduate programmes in other disciplines and other schools/departments/divisions.

This tendency is further evidenced by the fact that only three (25%) nursing dean participants’ doctoral theses were interdisciplinary, inclusive of education, cognitive

psychology and social sciences. Only six (23%) of academic personnel participants' theses were interdisciplinary, inclusive of medicine, psychology, obstetrics, sociology, philosophy, education, anthropology and linguistics. A mere eight (33.3%) of doctoral graduate participants theses were interdisciplinary, inclusive of psychology, theology, medicine, occupational therapy, speech therapy, physiotherapy, sociology, linguistics and education. Only 21 (33.3%) of doctoral student participants research studies were interdisciplinary, inclusive of psychology, sociology, medicine, physiology, public health, education, theology, environmental sciences and allied health care professions. In this study, inter-disciplinary research in doctoral research in nursing includes research that integrates concepts across different disciplines resulting in a synthesised and co-ordinated coherent whole, and may include the expertise of other disciplines in the supervision and/or advisement of the research process or subject area with regard to their specific expertise areas.

The fact that less than a third of the nursing academe population conducted interdisciplinary research in their doctoral theses and doctoral studies is a matter of concern, as quality care for patients mandates the use of an interdisciplinary team. Therefore, interdisciplinary practice and research must become a part of the professional culture and research in nursing (Carroll-Johnson, 2009:377). The lack of inter-disciplinary research may be due to predominantly two reasons, one being that there is little or no inter-disciplinary collaboration among schools as discussed above, and secondly as discussed in Paragraph 4.3.4.7, the majority of theses and doctoral studies focus on nurses and nursing, and not patients or inter-disciplinary matters of concern.

PROBLEM IDENTIFIED:

- There is no inter-disciplinary and inter-school collaboration between nursing doctoral students and other doctoral students.
- The majority of doctoral students do not conduct inter-disciplinary research.

4.7.1.7 ITEM 23 (AP; DG; DS)

On average, academic personnel (M 2.9), doctoral graduate (M 3.3) and doctoral student (M 2.8) participants feel that the doctoral programme content is good. However, the phi co-efficient indicates that there is a medium effect (p 0.34) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is found in Table 4.51.

Table 4.51: Analysis of item 23 (AP, DG, DS)

ITEM 23 (AP, DG, DS) How would you rate the programme content of your PhD/doctoral programme?	POOR		FAIR		GOOD		EXCELLENT	
	f	%	f	%	f	%	f	%
Academic personnel	3	13.0	5	21.7	6	26.1	9	39.1
Doctoral graduates	0	0	3	13.0	10	43.5	10	43.5
Doctoral students	3	5.1	18	30.5	27	45.8	11	18.6

This table reveals that academic personnel participants were more likely to rate the variable as poor (13%), while doctoral graduate participants were more likely to rate the variable as excellent (43.5%), and doctoral student participants were more likely to rate the variable as fair (30.5%) or good (45.8%).

It is noteworthy that close to 35% of academic personnel and doctoral student participants feel that the doctoral programme content is poor or fair. This may be due to the following findings as previously discussed: the majority of academic personnel's experience is found in five primary fields of nursing science, while doctoral students and doctoral graduates are conducting research in more diverse fields (see Paragraphs 4.3.4.6 and 4.5.6). Further, that doctoral students are not consulted or involved with the development of the programme content (see Paragraph 4.7.1.2) and the fact that some schools/departments/divisions do not provide doctoral workshops (see Paragraph 4.7.1.3).

4.7.1.8 ITEM 62 (AP); 54 (DG; DS)

The data reveal that on average academic personnel (M 2.9), doctoral graduate (M 3.3) and doctoral student (M 3.0) participants feel that the intellectual liveliness of the doctoral programme is good. The phi co-efficient indicates that there is a medium effect (p 0.27) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is contained in Table 4.52.

Table 4.52: Analysis of item 62 (AP); 54 (DG, DS)

ITEM 62 (AP); 54 (DG, DS) How would you rate the intellectual liveliness of your programme?	POOR		FAIR		GOOD		EXCELLENT	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.0	8	32.0	9	36.0	7	28.0
Doctoral graduates	0	0	2	8.3	13	54.2	9	37.5
Doctoral students	1	1.6	13	21.0	35	56.5	13	21

The table shows that academic personnel participants were more likely to rate the variable as poor (4.0%) or fair (32.0%), while doctoral graduate participants were more likely to rate the variable as excellent (37.5%), and doctoral student participants were more likely to rate the variable as good (56.5%).

As many as 36% of academic personnel feel that the intellectual liveliness of the doctoral programme is poor or fair, which is related to the discussion of Paragraph 4.7.1.7.

4.7.1.9 ITEM 63 (AP) 55 (DG; DS)

On average, academic personnel (M 3.2) participants felt that they had gained some benefit from the overall intellectual environment of the school/department/division and higher education institution, while on average doctoral graduate (M 3.8) and doctoral student (M 3.5) participants felt they had benefitted a lot. The phi co-efficient indicates that there is a medium effect (p 0.34) in the relationship between the different population groups and the variable. Table 4.53 below contains further analysis of the relationship between the different population groups and the variable.

Table 4.53: Analysis of item 63 (AP) 55 (DG; DS)

ITEM 63 (AP) 55 (DG; DS) Considering the overall intellectual environment of your school/ department/ division and university, how much do you think you have benefited from it?	NOT AT ALL		A LITTLE		SOME		A LOT	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.2	4	16.7	8	33.3	11	45.8
Doctoral graduates	0	0	0	0	5	20.8	19	79.2
Doctoral students	0	0	4	6.4	24	38.1	35	55.6

This table shows that academic personnel participants were more likely to rate the variable as not at all (4.2%) or a little (16.7%), while doctoral graduate participants were more likely to rate the variable as a lot (79.2%), and doctoral student participants were more likely to rate the variable as some (38.1%).

4.7.2 QUALITY OF SUPERVISION

This section represents the analysis and interpretation of the quality of supervision from the perspectives of nursing deans (n=12), academic personnel (n=26), doctoral graduates (n=24) and doctoral students (n=63).

Table 4.54: Quality of supervision

ITEM NO.	SUPERVISION	NURSING DEANS (n=12)		ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)		DOCTORAL STUDENTS (n=63)		PHI CO-EFFICIENT
		Mn	SD	Mn	SD	Mn	SD	Mn	SD	
23 (ND); 77 (AP); 74 (DG); 71 (DS).	Does your institution have well-developed systems to foster quality research including consultation on grant proposal and analysis of data?	2.6	0.9	2.5 2	1.1	2.7	0.9	2.6 2	0.8	0.27
24 (ND); 78 (AP); 75 (DG); 72 (DS).	The emphasis of the supervision is consistent with the mission of the university and the discipline of nursing.	3.3	0.6	3.0 2	0.9	3.3 1	0.8	3.0 1	0.8	0.23
25 (ND); 79 (AP); 76 (DG); 73 (DS).	Emphasis is on nursing science and research training through supervision.	3.1	0.8	3.0 1	0.9	3.3 1	0.8	3.0	0.7	0.29

26 (ND); 80 (AP); 77 (DG); 74 (DS).	The supervision includes areas appropriate for a doctorate degree in nursing (e.g., theory development, research methodologies for quantitative and qualitative research, ethical consideration in research, dissertation/thesis seminars, etc.).	3.4	0.8	3.3 1	0.8	3.3 1	0.9	3.2	0.8	0.33
29 (ND); 82 (AP); 79 (DG); 76 (DS).	How would you rate the quality of supervision in your doctoral programme?	2.8	0.5	3.0 1	0.8	3.3	0.6	3.2	0.8	0.34

4.7.2.1 ITEM 23 (ND); 77 (AP); 74 (DG); 71 (DS)

The data reveal that on average nursing dean (M 2.6), academic personnel (M 2.5), doctoral graduate (M 2.7) and doctoral student (M 2.6) participants agree that the institution has a well-developed system to foster quality research including consultation on grant proposals and analysis of data. The phi co-efficient indicates that there is a medium effect (p 0.27) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is found in Table 4.55.

Table 4.55: Analysis of item 23 (ND); 77 (AP); 74 (DG); 71 (DS).

ITEM 23 (ND); 77 (AP); 74 (DG); 71 (DS) Does your institution have well-developed systems to foster quality research including consultation on grant proposal and analysis of data?	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Nursing deans	0	0	1	8.33	7	58.3	4	33.3
Academic personnel	6	25.0	5	20.8	8	33.3	5	20.8
Doctoral graduates	2	8.3	8	33.3	9	37.5	5	20.8
Doctoral students	5	8.2	22	36.1	25	41.0	9	14.8

One can deduce from this table that nursing dean participants were more likely to agree (58.3%) and strongly agree (33.3%) with this variable, while academic personnel

participants were more likely to strongly disagree (25%) with this variable and doctoral student participants were more likely to disagree (33.3%) with this variable than the other population groups.

It is noteworthy that over 40% of academic personnel, doctoral graduate and doctoral student participants strongly disagreed and disagreed that the institution has a well-developed system to foster quality research including consultation on grant proposals and analysis of data.

PROBLEM IDENTIFIED:

- There are higher education institutions that do not have a well-developed system to foster quality research, including consultation on grant proposals and analysis of data.

4.7.2.2 ITEM 24 (ND); 78 (AP); 75 (DG); 72 (DS)

On average, nursing dean (M 3.3), academic personnel (M 3.0), doctoral graduate (M 3.3) and doctoral student (M 3.0) participants agree that the emphasis of the supervision is consistent with the mission of the university and the discipline of nursing. However, the phi co-efficient indicates that there is a small effect ($p = 0.23$) in the relationship between the different population groups and the variable. A further analysis of the relationship between the different population groups and the variable is found in Table 4.56.

Table 4.56: Analysis of item 24 (ND); 78 (AP); 75 (DG); 72 (DS)

ITEM 24 (ND); 78 (AP); 75 (DG); 72 (DS) The emphasis of the supervision is consistent with the mission of the university and the discipline of nursing.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Nursing deans	0	0	1	8.3	7	58.3	4	33.3
Academic personnel	2	8.3	4	16.7	10	41.7	8	33.3
Doctoral graduates	1	4.4	2	8.7	9	39.1	11	47.8
Doctoral students	2	3.23	14	22.6	28	45.2	18	29.0

This table shows that nursing dean participants were more likely to agree (58.3%) with the variable, while academic personnel participants were more likely to strongly disagree (8.3%) with the variable than other population groups, and doctoral graduate participants were more likely to strongly agree (47.8%) with the variable, and doctoral student participants were more likely to disagree (22.6%) with the variable than the other population groups.

4.7.2.3 ITEM 25 (ND); 79 (AP); 76 (DG); 73 (DS)

The data reveal that on average nursing dean (M 3.1), academic personnel (M 3.0), doctoral graduate (M 3.3) and doctoral student (M 3.0) participants agree that the emphasis of the supervision is on nursing science and research training in supervision. The phi co-efficient indicates that there is a medium effect ($p = 0.29$) in the relationship between the different population groups and the variable. The relationship between the different population groups and the variable is further analyzed in Table 4.57.

Table 4.57: Analysis of item 25 (ND); 79 (AP); 76 (DG); 73 (DS)

ITEM 25 (ND); 79 (AP); 76 (DG); 73 (DS) Emphasis is on nursing science and research training through supervision.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Nursing deans	0	0	3	25.0	5	41.7	4	33.3
Academic personnel	1	4.0	7	28.0	8	32.0	9	36.0
Doctoral graduates	1	4.4	1	4.4	11	47.8	10	43.5
Doctoral students	2	3.2	11	17.5	36	57.1	14	22.2

This table shows that academic personnel participants were more likely to disagree (28%) with this variable than the other population groups, while doctoral graduate participants were more likely to strongly agree (43.5%) with this variable, and doctoral student participants were more likely to agree (57.1%) with this variable than the other population groups.

4.7.2.4 ITEM 26 (ND); 80 (AP); 77 (DG); 74 (DS)

On average, nursing dean (M 3.4), academic personnel (M 3.3), doctoral graduate (M 3.3) and doctoral student (M 3.2) participants agree that the supervision includes areas

appropriate for a doctoral degree in nursing. However, the phi co-efficient indicates that there is a medium effect ($p = 0.34$) in the relationship between the different population groups and the variable. A summary of the further analysis of the relationship between the different population groups and the variable is presented in Table 4.58.

Table 4.58: Analysis of item 26 (ND); 80 (AP); 77 (DG); 74 (DS)

26 (ND); 80 (AP); 77 (DG); 74 (DS) The supervision includes areas appropriate for a doctorate degree in nursing (e.g., theory development, research methodologies for quantitative and qualitative research, ethical consideration in research, dissertation/thesis seminars, etc.).	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Nursing deans	0	0	2	16.7	3	25.0	7	58.3
Academic personnel	0	0	5	20.0	8	32.0	12	48.0
Doctoral graduates	2	8.7	1	4.4	8	34.8	12	52.2
Doctoral students	0	0	13	20.6	25	39.7	25	39.7

This table indicates that nursing dean participants were more likely to strongly agree (58.3%) with this variable than other population groups, while doctoral graduates were more likely to strongly disagree (8.7%) with this variable, and doctoral students were more likely to disagree (20.6%) and agree (39.7%) with this variable than the other population groups.

4.7.2.5 ITEM 29 (ND); 82 (AP); 79 (DG); 76 (DS)

The data show that on average nursing dean ($M = 2.8$), academic personnel ($M = 3.0$), doctoral graduate ($M = 3.3$) and doctoral student ($M = 3.2$) participants agree that the quality of supervision in the doctoral programme is good. The phi co-efficient indicates that there is a medium effect ($p = 0.34$) in the relationship between the different population groups and the variable. The relationship between the different population groups and the variable is further analyzed in Table 4.59.

Table 4.59: Analysis of item 29 (ND); 82 (AP); 79 (DG); 76 (DS)

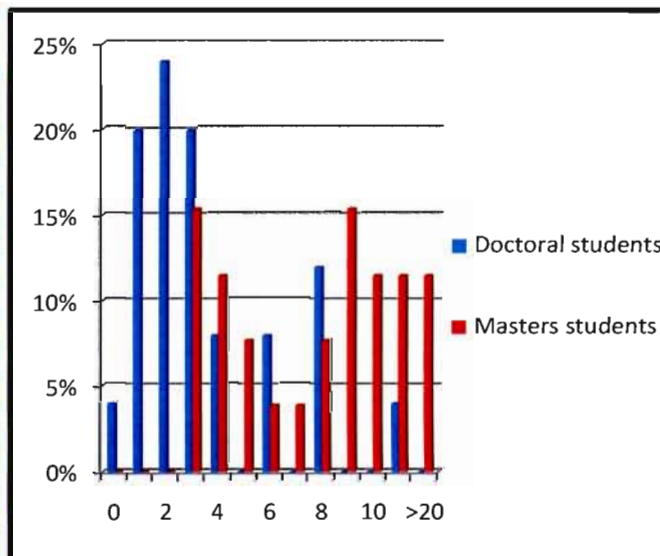
ITEM 29 (ND); 82 (AP); 79 (DG); 76 (DS) How would you rate the quality of supervision in your doctoral programme?	POOR		FAIR		GOOD		EXCELLENT	
	f	%	f	%	f	%	f	%
Nursing deans	0	0	3	25.0	9	75.0	0	0
Academic personnel	0	0	8	32.0	10	40.0	7	28.0
Doctoral graduates	0	0	2	8.3	12	50.0	10	41.7
Doctoral students	2	3.2	10	15.9	26	41.3	25	39.7

This table reveals a number of trends: nursing dean participants were more likely to rate the variable as good (75.0%), while academic personnel participants were more likely to rate the variable as fair (32.0%) than the other population groups. Also, doctoral graduate participants were more likely to rate the variable as excellent (41.7%) and doctoral students were more likely to rate the variable as poor (3.2%) than the other population groups.

Academic personnel reported that on average they were currently supervising 3.4 (SD 6.8) doctoral students, ranging from none to thirteen, and supervising 9.2 (SD 6.7) master's students, ranging from three to 28. The burden of supervision for academic personnel is of major concern, as it exceeds that of the national findings for the Faculty of Health Sciences, which is 2.8 students per academic personnel member at the doctoral level and 8.5 students per academic personnel member at the master's level, notably being the second highest burden of supervision rate across all faculties (CHE, 2009b:xx), (see Paragraph 2.4.3.1). Table 4.58 presents a distribution of doctoral and masters students currently supervised by academic personnel.

Table 4.60: Burden of supervision

SUPERVISION BY ACADEMIC PERSONNEL (n=26)	DOCTORAL STUDENTS		MASTER'S STUDENTS	
	f	%	f	%
0	1	4.0	0	0
1	5	20.0	0	0
2	6	24.0	0	0
3	5	20.0	4	15.4
4	2	8.0	3	11.5
5	0	0	2	7.7
6	2	8.0	1	3.9
7	0	0	1	3.9
8	3	12.0	2	7.7
9	0	0	4	15.4
10	0	0	3	11.5
11-20	1	4.0	3	11.5
>20	0	0	3	11.5
Total	26	100	26	100



In spite of the high burden of supervision, academic personnel reported that on average 2.7 (SD 1.1) they were spending sufficient time advising/mentoring doctoral students (40 AP), which further reinforces the finding of Item 34 (AP; DG; DS) (see Paragraph 4.5.11).

However, doctoral graduate and doctoral student participants unanimously raised three main issues with regard to their promoters. The first was a lack of structured time with promoters, as evidenced by the following variables:

“Supervisors have no time to even read submitted work with poor feedback”, “What are your rights when your supervisor never has time to make an appointment with you?”, “Student rights to report supervisor that does not perform according to standards”, “Would like to have more structured time with supervisor” and “I was fortunate to have access to an outstanding leader in nursing education and although she was extremely busy, she enabled immense growth within me”.

The second issue raised was that there is no guidance for doctoral students in dealing with incompatible promoter-student relationships, as evidenced by the following variables:

"My personal experience was very negative due to interpersonal relations. I believe that a doctoral programme needs to include options to deal with incompatible supervisor-student pairs, as well as unhappy students to address their problems", "Students rights to select new supervisor when current working relationship does not work", "What do you do when you don't get along with your supervisor?" "Is there a formal procedure for approval of a study leader?" and "It is extremely important that a student is able to choose her own promoter."

The third issue raised was that of supervisors being changed during the course of doctoral students' studies, as evidenced by the following variables:

"Did you complete your studies with the same promoter – continually changes", "Coping and support when supervisor is changed" and "Consultation process when supervisor is changed".

PROBLEM IDENTIFIED:

- Academic personnel have a high burden of supervision with 9.2 students per academic personnel member at the master's level, and 2.8 students per academic personnel member at the doctoral level.
- Doctoral students have a lack of structured time with promoters.
- Nursing schools/departments/divisions do not have guidelines available for doctoral students; in dealing with incompatible promoter-student relationships.
- Promoters are changed during the course of doctoral students' studies.

With regard to the QCSI criterion of the quality of the curriculum as a whole; academic personnel, doctoral graduate and doctoral student participants agreed that the goal and content of the curriculum was of good quality. Doctoral graduate participants tended to score this sub-section of goal and content of the curriculum more positively than the other populations groups, while academic personnel participants tended to score this sub-section of goal and content of the curriculum more negatively than the other population groups. Furthermore, problems that were identified with regard to the goal and content of the curriculum included: doctoral students' education needs are not fulfilled as they are not consulted or involved in the planning of the doctoral programme course content, doctoral students enter the doctoral programme with little or no

research training. Also, professional development training in the doctoral programme does not meet the standards envisioned by academic personnel, there are nursing schools/departments/divisions where the written programme descriptions are not available to doctoral students and academic personnel, there is no inter-disciplinary and inter-school collaboration between doctoral students in nursing and other doctoral students and the majority of doctoral students do not conduct inter-disciplinary research.

Furthermore, nursing dean, academic personnel, doctoral graduate and doctoral student participants agreed that the supervision was of good quality, although doctoral graduate participants tended to score this sub-section of supervision more positively than the other populations groups, while academic personnel participants tended to score this sub-section of supervision more negatively than the other population groups. Furthermore, problems that were identified with regard to supervision were: there are higher education institutions that do not have a well-developed system to foster quality research, including consultation on grant proposals and analysis of data. Also academic personnel have a high burden of supervision with 9.2 students per academic personnel member at the master's level, and 2.8 students per academic personnel member at the doctoral level. Moreover, doctoral students have a lack of structured time with promoters, nursing schools/departments/divisions do not have guidelines available for doctoral students in dealing with incompatible promoter-student relationships and promoters are changed during the course of doctoral students' studies.

4.8 QUALITY OF ADMINISTRATION AND INFRASTRUCTURE

This section represents the analysis and interpretation of the fifth QCSI criterion, namely the quality of administration and infrastructure from the perspectives of nursing deans (n=12), academic personnel (n=26), doctoral graduates (n=24) and doctoral students (n=63).

Table 4.61: Quality of administration and infrastructure: Academic personnel, doctoral graduate and doctoral student perspectives

ITEM NO.	ADMINISTRATION AND INFRASTRUCTURE	ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)		DOCTORAL STUDENTS (n=63)		PHI CO-EFFICIENT
		Mn	SD	Mn	SD	Mn	SD	p
2 (AP; DG; DS)	The institution values, supports, and provides rewards to students for their research and scholarly activity.	3.0 1	1.0	3.0 2	0.9	3.0 1	1.0	0.24
3 (AP; DG; DS)	The institution has a well-developed system to foster quality research and scholarly activities.	3.0 3	0.8	3.2 1	0.7	3.0 3	0.8	0.23
11 (AP; DG; DS)	The environment is supportive of students' learning.	3.0 2	1.0	3.2 1	0.6	3.0 2	1.0	0.24
12 (AP; DG; DS)	The programme has a process in place that fosters socialization of students to doctoral education, and facilitates interaction among students, and between academic personnel and students.	2.6 1	1.1	2.7 2	0.8	2.6 1	1.1	0.26
14 (AP; DG; DS)	There are administration systems in place to ensure that academic personnel carry out regular and appropriate supervision of students' progress.	2.8 1	0.8	2.8 1	0.7	2.8 1	0.8	0.14
15 (AP; DG; DS)	Sufficient materials and information are available for students (e.g., financial support, scholarships, grants, and resources).	2.7 1	1.1	3.0 1	0.9	2.7 1	1.1	0.16
16 (AP; DG; DS)	Sufficient information about careers is available.	2.6 1	1.0	2.4 2	0.8	2.6 1	1.0	0.34
17 (AP; DG; DS)	Academic personnel provide recommendation letters when needed and seek job opportunities for students.	2.8 1	0.9	2.9 2	0.8	2.8 1	0.9	0.30

4.8.1 ITEM 2 (AP, DG, DS)

The trends revealed by the data include the deductions that on average academic personnel (M 3.0), doctoral graduate (M 3.0) and doctoral student (M 3.3) participants agree that the institution values, supports, and provides rewards to students for their research and scholarly activity. The phi co-efficient indicates that there is a small effect

($p = 0.24$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.62.

Table 4.62: Analysis of item 2 (AP, DG, DS)

ITEM 2 (AP, DG, DS) The institution values, supports, and provides rewards to students for their research and scholarly activity.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	2	8.0	6	24.0	8	32.0	9	36.0
Doctoral graduates	1	4.6	5	22.7	8	36.4	8	36.4
Doctoral students	2	3.3	5	8.2	28	45.9	26	42.6

This table reveals that academic personnel participants were more likely to strongly disagree (8.0%) and disagree (24.0%) with this variable than the other population groups; while doctoral student participants were more likely to agree (45.9%) and strongly agree (42.6%) with this variable.

4.8.2 ITEM 3 (AP, DG, DS)

On average, academic personnel (M 3.0), doctoral graduate (M 3.2) and doctoral student (M 3.2) participants agree that the institution has a well-developed system to foster quality research and scholarly activities. The phi co-efficient indicates that there is a small effect ($p = 0.23$) in the relationship between the different population groups and the variable. A further analysis of the relationship between the different population groups and the variable is contained in Table 4.63.

Table 4.63: Analysis of item 3 (AP, DG, DS)

ITEM 3 (AP, DG, DS) The institution has a well-developed system to foster quality research and scholarly activities.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	0	0	7	30.4	9	39.1	7	30.4
Doctoral graduates	0	0	3	13.0	13	56.5	7	30.4
Doctoral students	1	1.6	11	18.0	22	36.1	27	44.3

This table indicates that academic personnel participants were more likely to disagree (30.4%) with this variable than the other population groups; while doctoral graduate participants were more likely to agree (56.5%) with this variable, and doctoral student participants were more likely to strongly agree (44.3%) with this variable than the other population groups.

A well-developed system to foster quality research and scholarly activities within the nursing school/department/division is also in place, as evidenced by the fact that eleven (91.7%) nursing dean participants indicated that there is a graduate committee within the nursing school/department/division that provides advice or recommendations to the person who leads or directs the graduate programme. Nursing dean participants indicated that on average this graduate committee consists of a minimum (including the chair) of five persons (SD 2.8). The number ranges from one to nine persons. On average 3.9 (SD 2.9) committee members, ranging from one to eight, should be from within the nursing school/department/division. Also, on average 1.8 (SD 0.8) committee members ranging from one to three should be from outside the nursing school/department/division, while three (25%) indicated that there was no limitation to the number of committee members. Furthermore, nursing dean participants indicated that eligibility criteria for serving on the graduate committee in the nursing school/department/division was a doctoral degree (80%), a nurse (40%) and a non-nurse (10%). Only one nursing dean (8.3%) indicated that graduate committee members receive a special honorarium for advising on dissertations and theses. Also of note, is that four (33.3%) nursing dean participants pointed out that the budget for the doctoral programme was separate from the budget of the undergraduate programme.

4.8.3 ITEM 11 (AP, DG, DS)

The data reveal that on average academic personnel (M 3.0), doctoral graduate (M 3.2) and doctoral student (M 3.2) participants agree that the environment is supportive of students' learning. The phi co-efficient indicates that there is a small effect ($p = 0.24$) in the relationship between the different population groups and the variable. A further

analysis of the relationship between the different population groups and the variable is presented in Table 4.64.

Table 4.64: Analysis of item 11 (AP, DG, DS)

ITEM 11 (AP, DG, DS) The environment is supportive of students' learning.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	3	12.5	3	12.5	9	37.5	9	37.5
Doctoral graduates	0	0	2	8.7	14	60.9	7	30.4
Doctoral students	2	3.2	6	9.5	33	52.4	22	34.9

This table shows that academic personnel participants were more likely to strongly disagree (12.5%), disagree (12.5%) and strongly agree (37.5%) with this variable than the other population groups; while doctoral graduate participants were more likely to agree (60.9%) with this variable.

4.8.4 ITEM 12 (AP, DG, DS)

On average academic personnel (M 2.6), doctoral graduate (M 2.7) and doctoral student (M 2.8) participants agree that the programme has a process in place that fosters socialization of students to doctoral education, and facilitates interaction among students, and between academic personnel and students. The phi co-efficient indicates that there is a medium effect ($p = 0.26$) in the relationship between the different population groups and the variable. The relationship between the different population groups and the variable is further analyzed by means of Table 4.65.

Table 4.65: Analysis of item 12 (AP, DG, DS)

ITEM 12 (AP, DG, DS) The programme has a process in place that fosters socialization of students to doctoral education, and facilitates interaction among students, and between academic personnel and students.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	4	16.0	10	40.0	4	16.0	7	28.0
Doctoral graduates	1	4.6	9	40.9	8	36.4	4	18.2
Doctoral students	4	6.6	19	31.2	26	42.6	12	19.7

This table reveals that academic personnel participants were more likely to strongly disagree (16.0%) and strongly agree (28.0%) with this variable than the other population groups; while doctoral graduate participants were more likely to disagree (40.9%) with the variable and doctoral students were more likely to agree (42.6%) with this variable than the other population groups.

It is noteworthy that over 40% of academic personnel, doctoral graduate and doctoral student participants strongly disagree and disagree that the programme has a process in place that fosters socialization of students to doctoral education, and facilitates interaction among students, and between academic personnel and students. The importance of such socialization was also discussed in the literature review (see Paragraph 2.5.5).

A unique issue raised in these surveys, when participants were asked to pose additional questions/comments about doctoral education in nursing, and related to this item, was the need for emotional support of doctoral students with comments including:

“We need emotional support”, “Counselling services for PhD students”, “I needed a support group with people that understood the demands of doctoral education” and “What about a national forum for PhD students?”

PROBLEMS IDENTIFIED:

- There are nursing schools/departments/divisions that do not have a programme in place to foster socialization of students to doctoral education, and facilitate interaction among students, and between academic personnel and students.
- There are nursing schools/departments/divisions that do not have services in place to provide emotional support to doctoral students.

4.8.5 ITEM 14 (AP, DG, DS)

The data show that on average academic personnel (M 2.8), doctoral graduate (M 2.8) and doctoral student (M 2.9) participants agree that there are administration systems in place to ensure that academic personnel carry out regular and appropriate supervision

of students' progress. The phi co-efficient indicates that there is a small effect (p 0.14) in the relationship between the different population groups and the variable. However, an analysis shows that as many as 40% of academic personnel participants and 30% of doctoral graduate and doctoral student participants strongly disagree and disagree with this variable as presented in Table 4.66.

Table 4.66: Analysis of item 14 (AP, DG, DS)

ITEM 12 (AP, DG, DS) There are administration systems in place to ensure that academic personnel carry out regular and appropriate supervision of students' progress.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.0	9	36.0	10	40.0	5	20.0
Doctoral graduates	1	4.4	6	26.1	13	56.5	3	13.0
Doctoral students	2	3.3	16	26.2	30	49.2	13	21.3

This finding signifies that there is an absence of a co-ordinated administration system at nursing schools/departments/divisions and is identified as a problem in Paragraph 4.8.6.

4.8.6 ITEM 15 (AP, DG, DS)

On average, academic personnel (M 2.7), doctoral graduate (M 3.0) and doctoral student (M 2.9) participants agree that there are sufficient materials and information available for students. The phi co-efficient indicates that there is a small effect (p 0.16) in the relationship between the different population groups and the variable. A further analysis of the relationship between the different population groups and the variable is presented in Table 4.67.

Table 4.67: Analysis of item 15 (AP, DG, DS)

ITEM 15 (AP, DG, DS) Sufficient materials and information are available for students (e.g., financial support, scholarships, grants, and resources).	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	4	16.0	6	24.0	8	32.0	7	28.0
Doctoral graduates	1	4.4	6	26.1	9	39.1	7	30.4
Doctoral students	6	9.7	11	17.7	26	41.9	19	30.7

This shows that academic personnel participants were more likely to strongly disagree (16.0%) with this variable than the other population groups; while doctoral graduate participants were more likely to disagree (26.1%) with the variable, and doctoral students were more likely agree (41.9%) and strongly agree (30.7%) with this variable.

It is important to note that 40% of academic personnel and over 25% of doctoral graduate and doctoral student participants strongly disagree and disagree that there are sufficient materials and information available for students. This is a similar finding to that in Paragraph 4.7.1.5 where it was found that 40% of academic personnel and 20% of doctoral graduates stated that the written programme descriptions are not available at nursing schools/departments/divisions. This may suggest the absence of a co-ordinated information distribution for doctoral students, which is similar to the problem identified in Paragraph 4.8.5.

However, with regard to the written rules and policies for students undertaking doctoral education in nursing, twelve (100%) nursing dean participants, 23 (92.0%) academic personnel participants, 20 (90.9%) doctoral graduate participants, and 58 (92.1%) doctoral student participants state that these are available to doctoral students, academic personnel and administrative personnel.

PROBLEM IDENTIFIED:

- There is an absence of a co-ordinated administrative system and an information distribution system.

4.8.7 ITEM 16 (AP, DG, DS)

The data reveal that on average academic personnel (M 2.6) and doctoral student (M 2.7) participants agree that there is sufficient information about careers available, while on average doctoral graduate (M 2.4) participants disagree with this variable. The phi co-efficient indicates that there is a medium effect ($p = 0.34$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is contained in Table 4.68.

Table 4.68: Analysis of item 16 (AP, DG, DS)

ITEM 16 (AP, DG, DS) Sufficient information about careers is available.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	3	12.0	11	44.0	4	16.0	7	28.0
Doctoral graduates	2	9.1	12	54.6	6	27.3	2	9.1
Doctoral students	5	8.3	17	28.3	29	48.3	9	15.0

The table presents that academic personnel participants were more likely to strongly disagree (12.0%) and strongly agree (28.0%) with this variable than the other population groups; while doctoral graduate participants were more likely to disagree (54.6%) with this variable, and doctoral student participants were more likely to agree (48.3%) with this variable.

Over 50% of academic personnel and over 60% of doctoral graduate participants strongly disagree and disagree with this variable. This may be due to primarily three reasons, one being a lack of co-ordinated information distribution system (see Paragraph 4.8.6), the other being that some nursing schools/departments/divisions do not keep in contact with doctoral graduate alumni (see Paragraph 3.4.1.5), and the third is the absence of career paths for doctoral graduates in South Africa outside of academe (see Paragraph 4.3.3).

PROBLEM IDENTIFIED:

- There are nursing schools/departments/divisions with insufficient information about careers available.
- There are nursing schools/departments/divisions that do not keep in contact with doctoral graduate alumni.

4.8.8 ITEM 17 (AP, DG, DS)

On average academic personnel (M 2.8), doctoral graduate (M 2.9) and doctoral student (M 2.7) participants agree that academic personnel provide recommendation letters when needed and seek job opportunities for students. The phi co-efficient indicates that there is a medium effect (p 0.30) in the relationship between the different population groups and the variable. The relationship between the different population groups and the variable is further analyzed in Table 4.69.

Table 4.69: Analysis of item 17 (AP, DG, DS)

ITEM 17 (AP, DG, DS) Academic personnel provide recommendation letters when needed and seek job opportunities for students.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	F	%	f	%	f	%
Academic personnel	2	8.0	7	28.0	9	36.0	7	28.0
Doctoral graduates	0	0	9	40.9	7	31.8	6	27.3
Doctoral students	6	10.2	13	22.0	32	54.2	8	13.6

This table reveals that academic personnel participants were more likely to strongly agree (28%) with this variable than the other population groups; while doctoral graduate participants were more likely to disagree (40.9%) with this variable and doctoral student participants were more likely to strongly disagree (10.2%) and agree (44.4%) with this variable than the other population groups.

It is noteworthy that over 35% of academic personnel and over 40% of doctoral graduate participants strongly disagree and disagree with this variable. This finding is related to the discussion in Paragraph 4.8.7.

PROBLEM IDENTIFIED:

- There are academic personnel that do not provide recommendation letters or seek job opportunities for doctoral graduates.

With regard to the QCSI criterion of the quality of administration and infrastructure as a whole, nursing dean, academic personnel, doctoral graduate and doctoral student participants agreed that the administration, infrastructure and learning environment was

of good quality. However, doctoral graduate participants tended to score this QCSI criterion more positively than the other populations groups, and academic personnel participants tended to score this QCSI criterion more negatively than the other population groups. Furthermore, problems that were identified with regard to the quality of administration and infrastructure were that there are nursing schools/departments/divisions that do not have a programme in place to foster socialization of students to doctoral education, and facilitate interaction among students, and between academic personnel and students. There are nursing schools/departments/divisions that do not have services in place to provide emotional support to doctoral students. There is an absence of a co-ordinated administrative systems and an information distribution system. There is insufficient information available about careers at some nursing schools/departments/divisions. There are nursing schools/departments/divisions that do not keep in contact with doctoral graduate alumni and there are academic personnel that do not provide recommendation letters or seek job opportunities for doctoral graduates.

4.9 QUALITY OF RESOURCES

This section represents the analysis and interpretation of the sixth QCSI criterion, namely the quality of the resources from the perspectives of nursing deans (n=12), academic personnel (n=26), doctoral graduates (n=24) and doctoral students (n=63).

Table 4.70: Quality of resources: Academic personnel, doctoral graduate and doctoral student participants

ITEM NO.	RESOURCES	ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)		DOCTORAL STUDENTS (n=63)		PHI CO-EFFICIENT
		Mn	SD	Mn	SD	Mn	SD	
13 (AP; DG; DS)	There are sufficient numbers of academic personnel to facilitate learning.	2.6 1	0.9	2.7 2	0.9	2.7 2	0.8	0.16
46 (AP); 38 (DG, DS)	Number of technical and support staff is sufficient to support doctoral students.	2.2 1	0.8	2.8 1	0.9	2.6 2	0.8	0.38
47 (AP); 39 (DG, DS)	Research infrastructure is appropriate for facilitating research and education.	2.6 1	0.9	3.0 1	1.0	2.9 4	0.8	0.23
48 (AP); 40 (DG, DS)	Advanced computing facilities with Internet access are in place.	3.3 1	0.7	3.1 1	1.0	3.3 1	0.7	0.23
49 (AP); 41 (DG, DS)	Advanced information technology is available for research and education at off-sites, if offered.	3.1 1	0.9	2.7 1	1.1	2.9 2	0.9	0.34
50 (AP); 42 (DG, DS)	Library has sufficient holdings, search engines, and databases.	3.6 1	0.7	3.5 2	0.8	3.3	0.7	0.19
51 (AP); 43 (DG, DS)	School/department/division building provides sufficient space for student activities (e.g., seminar, offices, student lounge).	2.5 1	1.0	2.7 1	1.0	2.8 1	0.8	0.27
52 (AP); 44 (DG, DS)	School/department/division is equipped with sufficient resources for teaching and research (e.g., computers, photocopiers, teleconference capability).	2.8 1	0.9	2.7 2	1.1	2.9	0.8	0.24
53(AP); 45 (DG, DS)	School/department/division has relevant and ancillary facilities for education, training and research (e.g., affiliated hospitals, community health agencies).	3.0 3	0.9	3.0 1	1.0	3.1 4	0.7	0.22
54(AP); 46 (DG, DS)	The school/department/division has various sources of funding for student research.	2.4 2	1.0	2.8	1.0	2.7 4	0.8	0.25

4.9.1 ITEM 13 (AP, DG, DS)

Analysis of the data summarized in the table shows that on average academic personnel (M 2.6), doctoral graduate (M 2.7), and doctoral student (M 2.7) participants agree that there are sufficient numbers of academic personnel to facilitate learning. The phi co-efficient indicates that there is a small effect (p 0.16) in the relationship between the different population groups and the variable. The relationship between the different population groups and the variable is further analyzed in Table 4.71.

Table 4.71: Analysis of item 13 (AP, DG, DS)

ITEM 13 (AP, DG, DS) There are sufficient numbers of academic personnel to facilitate learning.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	3	12.0	8	32.0	10	40.0	4	16.0
Doctoral graduates	2	9.1	8	36.4	7	31.8	5	22.7
Doctoral students	3	4.9	20	32.8	28	45.9	10	16.4

It can be deduced from the table that academic personnel participants were more likely to strongly disagree (12.0%) with this variable than the other population groups. Doctoral graduate participants were more likely to disagree (36.4%) and strongly agree (22.7%) with this variable, and doctoral student participants were more likely to agree (45.9%) with this variable.

Significantly, as much as 40% of all the population groups strongly disagree and disagree that there are sufficient numbers of academic personnel to facilitate learning. This finding provides evidence for the argument raised in Paragraph 4.3.4.1 that some nursing schools/departments/divisions have none to two doctorally qualified academic personnel.

PROBLEM IDENTIFIED:

- There are nursing schools/departments/divisions with a shortage of academic personnel to facilitate learning.

4.9.2 ITEM 46 (AP); 38 (DG, DS)

On average, doctoral graduate (M 2.8) and doctoral student (M 2.6) participants agree that the number of technical and support staff is sufficient to support doctoral students, while on average academic personnel (M 2.2) participants disagree with this variable. The phi co-efficient indicates that there is a large effect ($p = 0.38$) in the relationship between the different population groups and the variable. There is a further analysis of the relationship between the different population groups and the variable in Table 4.72.

Table 4.72: Analysis of item 46 (AP); 38 (DG, DS)

ITEM 46 (AP); 38 (DG, DS) Number of technical and support staff is sufficient to support doctoral students.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	5	20.0	11	44.0	8	32.0	1	4.0
Doctoral graduates	2	8.7	6	26.1	9	39.1	6	26.1
Doctoral students	4	6.6	20	32.8	31	50.8	6	9.8

This table indicates that academic personnel participants were more likely to strongly disagree (20%) and disagree (44%) with this variable than the other population groups; while doctoral graduate participants were more likely to strongly agree (26.1%) with this variable and doctoral student participants were more likely to agree (50.8%) with this variable than the other population groups.

The majority of academic personnel participants (64%) strongly disagree and disagree that the number of technical and support staff is sufficient to support doctoral students. More than 35% of doctoral graduate and doctoral student participants also strongly disagree and disagree with this variable.

PROBLEM IDENTIFIED:

- There are nursing schools/departments/divisions with a shortage of technical and support staff to support doctoral students.

4.9.3 ITEM 47 (AP); 39 (DG, DS)

According to the data, on average, academic personnel (M 2.6), doctoral graduate (M 3.0), and doctoral student (M 2.9) participants agree that the research infrastructure is appropriate for facilitating research and education. The phi co-efficient indicates that there is a small effect ($p = 0.23$) in the relationship between the different population groups and the variable. Table 4.73 presents a further analysis of the relationship between the different population groups and the variable.

Table 4.73: Analysis of item 47 (AP); 39 (DG, DS)

ITEM 47 (AP); 39 (DG, DS) Research infrastructure is appropriate for facilitating research and education.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	3	12.0	8	32.0	11	44.0	3	12.0
Doctoral graduates	2	8.7	5	21.7	8	34.8	8	34.8
Doctoral students	3	5.1	13	22.0	29	49.2	14	23.7

This table reveals that academic personnel participants were more likely to strongly disagree (12.0%) and disagree (32.0%) with this variable than the other population groups; while doctoral graduate participants were more likely to strongly agree (34.8%) with this variable, and doctoral student participants were more likely to agree (49.2%) with this variable.

Over 40% of academic personnel and 30% of doctoral graduate and doctoral student participants strongly disagree and disagree that the research infrastructure is appropriate for facilitating research and education. This finding may indicate that little or no academic personnel have programmes of research, as evidenced by the fact that the majority of academic personnel are newly doctorally qualified (see Paragraph 4.3.4.1) with little or no opportunities to do a post-doctoral course to launch their programmes of research (see Paragraph 4.5.9) and no access to extramural funding from externally reviewed sources (see Paragraph 4.5.3). One can therefore surmise that many nursing schools/departments/divisions do not have research infrastructure appropriate for facilitating research and education, as a result.

PROBLEM IDENTIFIED:

- There are nursing schools/departments/divisions with research infrastructure that does not facilitate research and education.

4.9.4 ITEM 48 (AP); 40 (DG, DS)

On average, academic personnel (M 3.3), doctoral graduate (M 3.1) and doctoral student (M 3.3) participants agree that advanced computing facilities with Internet access are in place. The phi co-efficient indicates that there is a small effect ($p = 0.23$) in the relationship between the different population groups and the variable. A further analysis of the relationship between the different population groups and the variable is presented in Table 4.74.

Table 4.74: Analysis of item 48 (AP); 40 (DG, DS)

ITEM 48 (AP); 40 (DG, DS) Advanced computing facilities with Internet access are in place.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	4.0	1	4.0	12	48.0	11	44.0
Doctoral graduates	3	13.0	1	4.4	9	39.1	10	43.5
Doctoral students	1	1.6	4	6.5	31	50.0	26	41.9

This table indicates that academic personnel participants were more likely to *strongly* agree (44.0%) with this variable than the other population groups; while doctoral graduate participants were more likely to *strongly* disagree (13.0%) with this variable and doctoral student participants were more likely to disagree (6.5%) and agree (50.0%) with this variable than the other population groups.

4.9.5 ITEM 49 (AP); 41 (DG, DS)

Analysis of the data shows that on average academic personnel (M 3.1), doctoral graduate (M 2.7), and doctoral student (M 2.9) participants agree that advanced information technology is available for research and education at off-sites, if offered. The phi co-efficient indicates that there is a medium effect ($p = 0.34$) in the relationship between the different population groups and the variable. Further analysis of the

relationship between the different population groups and the variable is possible through the information summarized in Table 4.75.

Table 4.75: Analysis of item 49 (AP); 41 (DG, DS)

ITEM 49 (AP); 41 (DG, DS) Advanced information technology is available for research and education at off-sites, if offered.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	0	0	8	32.0	6	24.0	11	44.0
Doctoral graduates	4	17.4	6	26.1	6	26.1	7	30.4
Doctoral students	5	8.2	12	19.7	30	49.2	14	23.0

This table shows that academic personnel participants were more likely to disagree (32.0%) and strongly agree (44.0%) with this variable than the other population groups; while doctoral graduate participants were more likely to strongly disagree (17.4%) with this variable, and doctoral student participants were more likely to agree (49.2%) with this variable.

From this analysis it becomes clear that as many 40% of doctoral graduate and 30% of academic personnel and doctoral students strongly disagree and disagree that advanced information technology is available for research and education at off-sites, if offered.

PROBLEM IDENTIFIED:

- There are nursing schools/departments/divisions that do not offer advanced information technology for research and education at off sites, if offered.

4.9.6 ITEM 50 (AP); 42 (DG, DS)

On average, academic personnel (M 3.6), doctoral graduate (M 3.5) and doctoral student (M 3.3) participants agree that the library has sufficient holdings, search engines, and databases. The phi co-efficient indicates that there is a small effect (p 0.19) in the relationship between the different population groups and the variable.

Further analysis of the relationship between the different population groups and the variable is possible through the information summarized in Table 4.76.

Table 4.76: Analysis of item 50 (AP); 42 (DG, DS)

ITEM 50 (AP); 42 (DG, DS) Library has sufficient holdings, search engines, and databases.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	0	0	2	8.0	7	28.0	16	64.0
Doctoral graduates	1	4.6	1	4.6	7	31.8	13	59.1
Doctoral students	2	3.2	4	6.4	28	44.4	29	46.0

This table indicates that academic personnel participants were more likely to disagree (8.0%) and strongly agree (64.0%) with this variable than the other population groups; while doctoral student participants were more likely to agree (44.4%) with this variable than the other population groups.

4.9.7 ITEM 51 (AP); 43 (DG, DS)

Analysis of the data reveals that on average academic personnel (M 2.5), doctoral graduate (M 2.7) and doctoral student (M 2.8) participants agree that the nursing school/department/division building provides sufficient space for student activities. The phi co-efficient indicates that there is a medium effect ($p = 0.27$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.77.

Table 4.77: Analysis of item 51 (AP); 43 (DG, DS)

ITEM 51 (AP); 43 (DG, DS) School/department/division building provides sufficient space for student activities (e.g., seminar, offices, student lounge).	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	4	16.0	10	40.0	6	24.0	5	20.0
Doctoral graduates	3	13.0	6	26.1	8	34.8	6	26.1
Doctoral students	6	9.7	13	21.0	33	53.2	10	16.1

This table demonstrates that academic personnel participants were more likely to strongly disagree (16.0%) and disagree (40.0%) with this variable than the other population groups; while doctoral graduate participants were more likely to strongly agree (26.1%) with this variable, and doctoral student participants were more likely to agree (53.2%) with this variable.

The majority of academic personnel (56%) participants and approximately one third (30%) of doctoral graduate and doctoral student participants strongly disagree and disagree that the nursing school/department/division building provides sufficient space for student activities. This finding is further evidenced by a variable made by a doctoral student: *"No place for (doctoral) students to work at department"*.

PROBLEM IDENTIFIED:

- There are nursing school/department/division buildings that do not provide sufficient space for doctoral student activities.

4.9.8 ITEM 52 (AP); 44 (DG, DS)

On average, the academic personnel (M 2.8), doctoral graduate (M 2.7) and doctoral student (M 2.9) participants agree that the school/department/division is equipped with sufficient resources for teaching and research (e.g., computers, photocopiers, teleconference capability). The phi co-efficient indicates that there is a medium effect ($p = 0.24$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is done through scrutinizing the information presented in Table 4.78.

Table 4.78: Analysis of item 52 (AP); 44 (DG, DS)

ITEM 52 (AP); 44 (DG, DS) School/department/division is equipped with sufficient resources for teaching and research (e.g., computers, photocopiers, teleconference capability).	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	2	8.0	7	28.0	9	36.0	7	28.0
Doctoral graduates	4	18.2	5	22.7	7	31.8	6	27.3
Doctoral students	4	6.4	11	17.5	34	54.0	14	22.2

This table reveals that academic personnel participants were more likely to disagree (28%) with this variable than the other population groups; while doctoral graduate participants were more likely to strongly disagree (18.2%) and strongly agree (27.3%) with this variable and doctoral student participants were more likely to agree (54.0%) with this variable than the other population groups.

Over 40% of doctoral graduate participants and 30% of academic personnel strongly disagree and disagree that the school/department/division is equipped with sufficient resources for teaching and research (e.g., computers, photocopiers, teleconference capability). The item may be related to Paragraph 4.9.7 in that there is no dedicated space in the nursing school/department/division building for doctoral student activities, and so also, to house resources (e.g., computers, photocopiers, teleconference capability) for doctoral education teaching and research.

PROBLEM IDENTIFIED:

- There are nursing school/department/division buildings that do not provide sufficient resources (e.g., computers, photocopiers, teleconference capability) for doctoral student activities.

4.9.9 ITEM 53 (AP); 45 (DG, DS)

The data reveals that on average academic personnel (M 3.0), doctoral graduate (M 3.0), and doctoral student (M 3.1) participants agree that the school/department/division has relevant and ancillary facilities for education, training and research. The phi co-

efficient indicates that there is a small effect ($p = 0.22$) in the relationship between the different population groups and the variable. The relationship between the different population groups and the variable is analyzed in greater detail by closer inspection of the information in Table 4.79.

Table 4.79: Analysis of item 53 (AP); 45 (DG, DS)

ITEM 53 (AP); 45 (DG, DS) School/department/division has relevant and ancillary facilities for education, training and research (e.g., affiliated hospitals, community health agencies).	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	2	8.7	3	13.0	10	43.5	8	34.8
Doctoral graduates	2	8.7	4	17.4	9	39.1	8	34.8
Doctoral students	1	1.7	9	15.3	34	57.6	15	25.4

This table shows that academic personnel and doctoral graduate participants were more likely to strongly disagree (8.7%) and strongly agree (34.8%) with this variable than the doctoral student participants. Doctoral graduate participants were also more likely to disagree (17.4%) with this variable than the other population groups, and doctoral student participants were more likely to agree (57.6%) with this variable.

4.9.10 ITEM 54 (AP); 46 (DG, DS)

On average, doctoral graduate (M 2.8) and doctoral student (M 2.7) participants agree that the nursing school/department/division has various sources of funding for student research, while academic personnel (M 2.4) disagree with this variable. The phi coefficient indicates that there is a medium effect ($p = 0.25$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.80.

Table 4.80: Analysis of item 54 (AP); 46 (DG, DS)

ITEM 54 (AP); 46 (DG, DS) The school/department/division has various sources of funding for student research.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	5	20.8	9	37.5	6	25.0	4	16.7
Doctoral graduates	2	8.3	7	29.2	9	37.5	6	25.0
Doctoral students	6	10.2	16	27.1	29	49.2	8	13.6

This table reveals that academic personnel participants were more likely to strongly agree (20.8%) and disagree (37.5%) with this variable than the other population groups; while doctoral graduate participants were more likely to strongly agree (25.0%) with this variable, and doctoral student participants were more likely to agree (49.2%) with this variable than the other population groups.

Close to 60% of academic personnel and 40% of doctoral graduate and doctoral student participants strongly disagreed and disagreed that the nursing school/department/division has various sources of funding for student research. This was also discussed with regard to the quality of academic personnel (see Paragraph 4.5.3) and is further evidenced by Table 4.81 which presents the number of doctoral graduate and doctoral students that received full or partial tuition remission, for their doctoral studies.

Table 4.81: Number of doctoral graduate and doctoral students that received full or partial tuition remission for their doctoral studies

Item	RESOURCES Did you receive full or partial tuition remission (waiver) for your doctoral studies?	DOCTORAL STUDENTS (n=63)		DOCTORAL GRADUATES N=24)	
		f	%	f	%
67 (DG, DS)	a. I did not receive any tuition remission	12	19.4%	5	21.7%
	b. Less than 1/3 of tuition	5	8.1%	7	30.4%
	c. Between 1/3 and 2/3 of tuition	9	14.5%	3	13.0%
	d. More than 2/3 of tuition but less than full	10	16.1%	3	13.0%
	e. Full tuition remission	26	41.9%	5	21.7%

As many as 52.1% of doctoral graduate participants received less than a third of tuition remission or no tuition remission, while only 21.7% of doctoral graduate participants received full tuition remission. In comparison, the picture for doctoral student participants has markedly improved with only 27.5% of doctoral student participants receiving less than a third of tuition remission or no tuition remission, with 41.9% of doctoral student participants receiving full tuition remission.

It is noteworthy that doctoral graduates and doctoral students incur further costs than just tuition fees, such as research expenses (e.g., travel costs, telephone, photocopies), dissertation costs (e.g., language and technical editing, photocopies, binding) and book costs. Table 4.82 shows how much money doctoral graduates owed and doctoral students will owe directly related to doctoral education.

Table 4.82: Money doctoral graduates owed and doctoral students will owe directly related to doctoral education

ITEM	RESOURCES	DOCTORAL STUDENTS (n=63)		DOCTORAL GRADUATES (n=24)	
		f	%	f	%
69 (DG, DS)	When you receive/received your doctoral degree, how much money will/did you owe that is/was directly related to doctoral graduate education, including tuition, dissertation costs, research expenses, and book costs?				
	a. Nothing	26	41.9%	17	73.9%
	b. Less than R5 000	5	8.1%	1	4.4%
	c. R5 000 – R9 999	5	8.1%	0	0
	d. R10 000 – R14 999	1	1.6%	0	0
	e. R15 000 – R19 999	5	8.1%	0	0
	f. R20 000 – R24 999	4	6.5%	1	4.4%
	g. R25 000 or greater	16	25.8%	4	17.4%

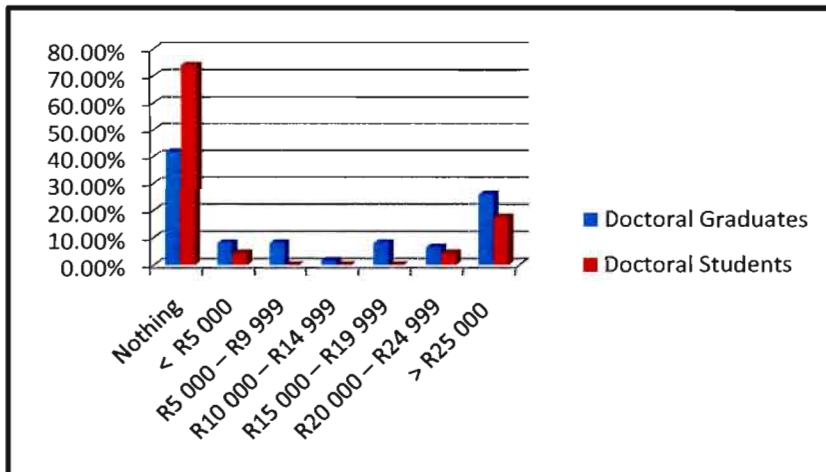


Table 4.81 indicates that 17.4% of doctoral graduate participants will owe R25 000 or more as a direct result of doctoral education, while almost three quarters (73.9%) will owe nothing, compared to a disconcerting finding that

as many as 25.8% of doctoral student participants will owe R25 000 or more as a direct result of doctoral education, while less than half (41.9%) will owe nothing. This is a worrisome finding when one considers that a higher percentage of doctoral student participants received full tuition remission than the doctoral graduate population (see Table 4.81). This may indicate that research expenses, dissertation and book costs are increasing. Table 4.83 presents data on sources of financial support for doctoral graduates and doctoral students during the doctoral programme.

Table 4.83: Sources of financial support for doctoral graduates and doctoral students during the doctoral programme

ITEM	RESOURCES	DOCTORAL STUDENTS (n=63)		DOCTORAL GRADUATES (n=24)		PHI CO-EFFICIENT
		f	%	f	%	
68 (DG, DS)	Sources of financial support during your doctoral programme.					
	a. Fellowship, scholarship	10	15.9%	7	29.2%	0.15
	b. Grant, bursary	32	50.8%	8	33.3%	0.16
	c. Teaching/research assistantship	5	7.9%	3	12.5%	0.07
	d. Traineeship	1	1.6%	0		0.06
	e. Loans (from any source)	4	6.4%	3	12.5%	0.10
	f. Personal savings	25	39.7%	15	62.5%	0.21
	g. Personal earnings during graduate school/department (other than sources listed above)	10	15.9%	4	16.7%	0.01
	h. Spouse's, partner's, or family earnings or savings	13	20.6%	7	29.2%	0.09
	i. Employer reimbursement/assistance	19	30.2%	10	41.7%	0.11
	j. Other	2	3.2%	3	12.5%	0.18

From this analysis it becomes clear that the main sources of financial support for doctoral student participants during the doctoral programme are grants/bursaries (50.8%), personal savings (39.7%), and employment reimbursement/assistance (30.2%), spouse's, partner's or family earnings or savings (20.6%) and personal earnings during graduate school (15.9%). Doctoral graduate participants reported that personal savings (62.5%), employer reimbursements/assistance (41.7%), grants/bursaries (33.3%), spouse's, partner's, or family earnings or savings (29.2%) and fellowships/scholarships (29.2%) were their main sources of financial support during the doctoral programme. Nursing dean participants reported that the financial support offered to doctoral students at their respective higher education institutions include: full tuition waver (36.4%), partial tuition waver (18.2%), grants and bursaries (81.8%), special programme/conference support (36.4%) and research support (90.9%), which compares favourably with the reports of doctoral graduate and doctoral student participants as above. However, as many as 100% of doctoral graduates and 76.2% of doctoral students rely on their own finances in the form of personal savings, personal

earnings and spouse's, partner's or family earnings or savings as a means of financial support in the doctoral programme.

PROBLEM IDENTIFIED:

- There are insufficient sources of funding for doctoral students.

With regard to the QCSI criterion of the quality of resources in its entirety, nursing dean, academic personnel, doctoral graduate and doctoral student participants agreed that there was a sufficient variety of resources, both human resources, and material and technical resources. However doctoral graduate and doctoral student participants tended to score this QCSI criterion equally, more positively, while academic personnel participants tended to score this QCSI criterion more negatively. Furthermore, problems that were identified with regard to the quality of resources were: there are nursing schools/departments/divisions with a shortage of academic personnel to facilitate learning. There are nursing schools/departments/divisions with a shortage of technical and support staff to support doctoral students. There are nursing schools/departments/divisions with research infrastructure that does not facilitate research and education. There are nursing schools/departments/divisions that do not offer advanced information technology for research and education at off sites, if offered. There are nursing school/department/division buildings do not provide sufficient space for doctoral student activities. There are nursing school/department/division buildings that do not provide sufficient resources (e.g., computers, photocopiers, teleconference capability) for doctoral student activities and there are insufficient sources of funding for doctoral students.

4.10 QUALITY OF EVALUATION

This section represents the analysis and interpretation of the last QCSI criterion, namely the quality of evaluation from the perspectives of nursing deans (n=12), academic personnel (n=26), doctoral graduates (n=24) and doctoral students (n=63).

A significant finding revealed with regard to this criterion, is that only fifteen (62.5%) academic personnel, twelve (52.2%) doctoral graduate and 36 (61.0%) doctoral students indicated that their respective nursing schools/departments/divisions evaluated the doctoral programme on a regular basis. Thus between 39% and 42% of the data are missing with regard to the evaluation of this criterion in Table 4.84, which is identified as a problem in Paragraph 4.10.3. Table 4.84 presents the quality of evaluation from the perspectives of academic personnel, doctoral graduates and doctoral students who indicated that their respective nursing schools/departments/division evaluated the doctoral programme on a regular basis.

Table 4.84: Quality of evaluation: Academic personnel, doctoral graduate and doctoral student perspectives

ITEM NO.	EVALUATION	ACADEMIC PERSONNEL (n=26)		DOCTORAL GRADUATES (n=24)		DOCTORAL STUDENTS (n=63)		PHI CO-EFFICIENT
		Mn	SD	Mn	SD	Mn	SD	p
56 (AP); 48 (DG; DS)	Programme evaluation systems adhere to ethical and procedural standards for formal programme evaluation (e.g., confidentiality).	3.3 10	0.6	3.5 12	0.5	3.4 22	0.6	0.25
57 (AP); 49 (DG; DS)	Students and graduates have been involved in programme evaluation activities.	2.9 10	0.9	2.8 12	1.1	2.7 23	0.9	0.21
58 (AP); 50 (DG; DS)	Programme evaluation is systematic, ongoing, and comprehensive and focuses on the institutions' and programme's specific mission.	2.9 10	1.0	3.3 12	0.6	3.0 26	0.9	0.26
59 (AP); 51 (DG; DS)	School/department/division provides comprehensive data in order to determine patterns and trends of nursing doctoral education and recommend future directions at regular intervals.	2.6 10	0.9	2.9 12	0.9	2.8 25	0.8	0.17
60 (AP); 52 (DG; DS)	Regular feedback is provided to programme academic personnel, administrators, and external constituents.	2.9 10	1.1	2.8 12	0.8	2.9 26	0.8	0.34

4.10.1 ITEM 56 (AP); 48 (DG; DS)

On average, academic personnel (M 3.3), doctoral graduate (M 3.5) and doctoral student (M 3.4) participants agree that the programme evaluation systems adhere to ethical and procedural standards for formal programme evaluation (e.g., confidentiality). The phi co-efficient indicates that there is a medium effect ($p < 0.25$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is made possible by referring to the data presented in Table 4.85.

Table 4.85: Analysis of item 56 (AP); 48 (DG; DS)

ITEM 56 (AP); 48 (DG, DS) Programme evaluation systems adhere to ethical and procedural standards for formal programme evaluation (e.g., confidentiality).	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	0	0	1	6.3	9	56.3	6	37.5
Doctoral graduates	0	0	0	0	6	50.0	6	50.0
Doctoral students	1	2.4	0	0	22	53.7	18	43.9

With 39% of the data missing, this table shows that academic personnel participants were more likely to agree (56.3%) with this variable than the other population groups; while doctoral graduate participants were more likely to strongly agree (50%) with this variable than the other population groups.

4.10.2 ITEM 57 (AP); 49 (DG; DS)

The data reveal that on average academic personnel (M 2.9), doctoral graduate (M 2.8) and doctoral student (M 2.7) participants agree that students and graduates have been involved in programme evaluation activities. The phi co-efficient indicates that there is a small effect ($p < 0.21$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is presented in Table 4.86.

Table 4.86: Analysis of item 57 (AP); 49 (DG; DS)

ITEM 57 (AP); 49 (DG, DS) Students and graduates have been involved in programme evaluation activities.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	1	6.3	4	25.0	6	37.5	5	31.3
Doctoral graduates	2	16.7	2	16.7	4	33.3	4	33.3
Doctoral students	4	10.0	14	35.0	14	35.0	8	20.0

With 40% of the data missing, this table indicates that academic personnel participants were more likely to agree (37.5%) with this variable than the other population groups. Doctoral graduate participants were more likely to strongly disagree (16.7%) and strongly agree (33.3%) with this variable. Doctoral student participants were more likely to disagree (35.0%) and agree (35.0%) with this variable.

Over 30% of all the population groups strongly disagree and disagree that doctoral student and doctoral graduates have been involved in programme evaluation activities.

PROBLEM IDENTIFIED:

- There are nursing schools/departments/divisions that evaluate the doctoral programme on a regular basis, but do not involve doctoral graduates and doctoral students in the programme evaluation activities.

4.10.3 ITEM 58 (AP); 50 (DG; DS)

On average, academic personnel (M 2.9), doctoral graduate (M 3.3) and doctoral student (M 3.0) participants agree that the programme evaluation is systematic, ongoing, and comprehensive and focuses on the institution's and programme's specific mission. The phi co-efficient indicates that there is a medium effect (p 0.26) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable can be undertaken by referring to the data presented in Table 4.87.

Table 4.87: Analysis of item 58 (AP); 50 (DG; DS)

ITEM 58 (AP); 50 (DG, DS) Programme evaluation is systematic, ongoing, and comprehensive and focuses on the institutions' and programme's specific mission.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	F	%	F	%	f	%
Academic personnel	1	6.3	5	31.3	4	25.0	6	37.5
Doctoral graduates	0	0	1	8.3	7	58.3	4	33.3
Doctoral students	2	5.4	8	21.6	15	40.5	12	32.4

With 42% of the data missing, this table reveals that academic personnel participants were more likely to strongly disagree (6.3%), disagree (31.3%) and strongly agree (37.5%) with this variable than the other population groups; while doctoral graduate participants were more likely to agree (58.3%) with this variable than the other population groups.

Close to 40% of academic personnel and 30% of doctoral student participants strongly disagree and disagree that the programme evaluation is systematic, ongoing, and comprehensive and focuses on the university's and programme's specific mission. This finding is also supported by the fact that close to 40% of all population groups indicated that their respective nursing schools/departments/divisions do not evaluate the doctoral programme on a regular basis (see Paragraph 4.10 Quality of Evaluation).

As discussed in the literature review (see Paragraph 2.5.7) this is a matter of concern as evaluation processes allow nursing schools/departments/divisions to collect evidence of their performance allowing areas of strength and excellence to be identified and marketed, as well as areas in need of development to be recognized and goals for improvement to be set. It also allows the adequacy of resources to be determined, demonstrates accountability in the use of public resources, evaluates the responsiveness of the doctoral programme to internal and external interventions and changes over time, enables benchmarking with national and international doctoral programmes in nursing and ensures that the programme is on par with international trends.

PROBLEM IDENTIFIED:

- There are nursing schools/departments/division that do not evaluate the doctoral programme on a regular basis.

4.10.4 ITEM 59 (AP); 51 (DG; DS)

The data reveal that on average academic personnel (M 2.6), doctoral graduate (M 2.9) and doctoral student (M 2.8) participants agree that the school/department/division provides comprehensive data in order to determine patterns and trends of doctoral education in nursing and recommend future directions at regular intervals. The phi coefficient indicates that there is a small effect ($p = 0.17$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is undertaken by referring to the data in Table 4.88.

Table 4.88: Analysis of item 59 (AP); 51 (DG; DS)

ITEM 59 (AP); 51 (DG, DS) School/department/division provides comprehensive data in order to determine patterns and trends of nursing doctoral education and recommend future directions at regular intervals.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	2	12.5	5	31.3	7	43.8	2	12.5
Doctoral graduates	1	8.3	2	16.7	6	50.0	3	25.0
Doctoral students	3	7.9	8	21.1	20	52.6	7	18.4

With 42% of the data missing, this table indicates that academic personnel participants were more likely to strongly disagree (12.5%) and disagree (31.3%) with this variable than the other population groups; while doctoral graduate participants were more likely to strongly agree (25.0%) with this variable, and doctoral student participants were more likely to agree (52.6%) with this variable. Over 40% of academic personnel and 30% of doctoral students strongly disagree and disagree with this variable. This item is related to the discussion of Paragraph 4.10.3.

4.10.5 ITEM 60 (AP); 52 (DG; DS)

On average, academic personnel (M 2.9), doctoral graduate (M 2.8) and doctoral student (M 2.9) participants agree that regular feedback is provided to programme academic personnel, administrators, and external constituents. The phi co-efficient indicates that there is a medium effect (p 0.34) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is undertaken by referring to the data presented in Table 4.89.

Table 4.89: Analysis of item 60 (AP); 52 (DG; DS)

ITEM 60 (AP); 52 (DG, DS) Regular feedback is provided to programme academic personnel, administrators, and external constituents.	STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE	
	f	%	f	%	f	%	f	%
Academic personnel	2	12.5	4	25.0	4	25.0	6	37.5
Doctoral graduates	0	0	5	41.7	5	41.7	2	16.7
Doctoral students	2	5.4	8	21.6	20	54.1	7	18.9

With 42% of the data missing, this table demonstrates that academic personnel participants were more likely to strongly disagree (12.5%) and strongly agree (37.5%) with this variable than the other population groups. Doctoral graduate participants were more likely to disagree (41.7%) and agree (41.7%) with this variable than the other population groups. Altogether 40% of academic personnel and doctoral graduate participants, and 30% of doctoral student participants strongly disagree and disagree that regular feedback is provided to programme academic personnel, administrators, and external constituents.

PROBLEM IDENTIFIED:

- There are nursing schools/departments/divisions that evaluate the doctoral programme on a regular basis, but do not provide regular feedback to academic personnel, administrators and external constituents.

With regard to the QCSI criterion of the quality of evaluation as a whole, there is much concern as close to 40% of nursing schools/departments/division do not evaluate the doctoral programme regularly. Nursing dean, academic personnel, doctoral graduate and doctoral student participants of the nursing schools/departments/divisions that evaluated the doctoral programme on a regular basis, indicated that the quality of such evaluation was good. Doctoral graduate participants tended to score this QCSI criterion more positively, while academic personnel participants tended to score this QCSI criterion more negatively than the other population groups. Furthermore, problems that were identified with regard to the quality of evaluation were that: there are nursing schools/departments/divisions that evaluate the doctoral programme on a regular basis, but do not involve doctoral graduates and doctoral students in the programme evaluation activities, and do not provide regular feedback to programme academic personnel, administrators and external constituents.

4.11 OVERALL QUALITY OF DOCTORAL PROGRAMME

When academic personnel, doctoral graduate and doctoral student participants were asked to rate the overall quality of the doctoral programme, on average academic personnel (M 3.0), doctoral graduate (M 3.2) and doctoral student (M 3.0) participants agreed that the overall quality of the doctoral programme was good. The phi co-efficient indicates that there is a small effect ($p = 0.24$) in the relationship between the different population groups and the variable. Further analysis of the relationship between the different population groups and the variable is undertaken on the grounds of the data presented in Table 4.90.

Table 4.90: Overall quality of the doctoral programme

Overall quality of the doctoral programme	POOR		FAIR		GOOD		EXCELLENT	
	f	%	f	%	f	%	f	%
Academic personnel	2	12.5	4	25.0	4	25.0	6	37.5
Doctoral graduates	0	0	5	41.7	5	41.7	2	16.7
Doctoral students	2	3.1	8	21.6	20	54.1	7	18.9

This table shows that academic personnel participants were more likely to rate the overall quality of the doctoral programme as poor (12.5%) and excellent (37.5%) than the other population groups; while doctoral graduate participants were more likely to rate it as fair (41.7%) and doctoral student participants were more likely to rate it as good (54.1%).

It is noteworthy that when evaluating the overall quality of the doctoral programme, 37.5% of academic personnel, 41.7% of doctoral graduate and 24.7% of doctoral student participants rated the doctoral programme as poor or fair. This was further evidenced by a concluding remark made by an academic personnel member: *“There is a lot of improvement to be done in terms of teaching, supervision, student support and curriculum issues to be attended to in order to improve nursing doctoral education in South Africa.”*

4.12 INTEGRATED DISCUSSION OF THE QUALITY OF DOCTORAL EDUCATION IN NURSING IN SOUTH AFRICA

From the analysis and interpretation of the data it becomes clear that all the QCSI criteria are interrelated and interdependent on each other, and a problem in one QCSI criterion directly affects all the other QCSI criteria. This has a spiralling effect on the quality of doctoral education in nursing. In view of this, an integrated discussion of the quality of doctoral education in nursing in South Africa is necessary.

The major problem identified around the globe and in South Africa is that there is a shortage of doctorally qualified academic personnel, which shows no inclination of improving when one considers that 70% of nursing deans and 72% of doctorally qualified academic personnel are older than 50 years of age. Of these people, 70% will retire in the next nine to fourteen years. Furthermore, the future of nursing academe, doctoral graduates and doctoral students, are also an aging population, with the average age of doctoral graduates being 51.3 years and the average age of doctoral students 46.3 years. Also of note, is that 75% of doctoral graduate and 55.6% of the

doctoral student population is already absorbed in academe which means that there is a very limited pool from which retiring academic personnel can be replaced. Further contributing to this problem is that there are nursing schools/departments/division that have admitted no doctoral students into the doctoral programme in the last three years, and in turn graduated no doctoral students in the last three years. Moreover, the national graduate rates for doctoral graduates in nursing is less than 20% per annum, which is causing a pile-up effect of over 80% of doctoral students per annum.

The graduation rate and pile-up effect is due to numerous reasons, among them a shortage of academic personnel which results in academic personnel having a high burden of supervision with 9.2 students per academic personnel member at the master's level, and 2.8 students per academic personnel member at the doctoral level, on average. Also, because doctoral students enter the doctoral programme with little or no research training, and 87.3% of doctoral students are part-time students, who have to balance full-time employment with doctoral studies. Furthermore, as uncovered in this research, 54.6% of nursing deans and 68% of academic personnel are newly doctorally qualified. Regardless of the fact that these academic personnel are newly doctorally qualified, they are pushed into leadership and management positions with little or no mentoring due to a dearth of senior academic personnel and a shortage of academic personnel.

This trend directly impacts on the research programme and career of academic personnel, as over 65% of academic personnel are not provided with the opportunity to attend training programmes that will allow them to be mentored and launch their research programmes or careers. That academic personnel are not provided with mentorship to launch their research programmes and careers directly impacts on the scholarship of academic personnel and of the nursing discipline at large, as only eight academic personnel are NRF-rated scientists. Also, 73% of academic personnel publish less than the institutional requirement of one article equivalent a year, 66% of academic personnel have not accessed extramural funding from externally reviewed

sources and there are academic personnel that have not attended or presented research at national and international conferences in the prior three years.

This problem further escalates to doctoral students, as doctoral students are supervised by newly doctorally qualified academic personnel who are often inexperienced. Furthermore, there is a lack of funding sources available to doctoral students with the result that they largely depend on their own personal savings and earnings to pay for doctoral education. Thus over 25% of doctoral graduates and 50% of doctoral students have never presented their research at national and international conferences. At this same trend almost half (45.8%) of doctoral graduates and more than two-thirds (66.7%) of doctoral students have never published peer-reviewed articles.

The higher education institution also plays a major role in the quality of doctoral education in nursing. In this regard, the lack of unified salary structures and incentive distribution system amongst higher education institutions result in some higher education institutions having none to two doctorally qualified academic personnel in the nursing school/department/division. This also affects the retention of senior academic personnel and the publishing tendencies of academic personnel. So also, the infrastructure, resources, support structures and organization within the nursing school/department/division plays a major role in the quality of doctoral education in nursing, because without a customer focus, prospective doctoral students will not be drawn to the programme, will not progress satisfactorily and may not succeed at doctoral education. All of which further impact on the shortage of academic personnel.

Of further note is that less than 40% of nursing schools/departments/divisions evaluate the nursing doctoral programme on a regular basis, thus nursing schools/departments/divisions have no baseline data to identify threats to quality or even to strategize to minimize these threats.

4.13 SUMMARY

In this chapter, the perspectives of nursing deans, academic personnel, doctoral graduates and doctoral students with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme were analyzed and interpreted. The biographic data, and evaluation of all seven QCSI criteria were reported and problems impacting on the quality of doctoral education in nursing in South Africa highlighted. Overall, doctoral graduate participants tended to score the QCSI criteria more positively than the other population groups. Academic personnel participants tended to score the QCSI criteria more negatively than the other population groups. With regard to the overall quality of the doctoral programme, the population groups rated it as good, but felt there was definite room for improvement. An integrated discussion of the quality of doctoral education in nursing in South Africa concluded the chapter.

Chapter Five

Strategy to improve the quality of doctoral education in nursing in South Africa



It has always seemed strange to me that in our endless discussions about education so little stress is laid on the pleasure of becoming an educated person, the enormous interest it adds to life. To be able to be caught up into the world of thought -- that is to be educated.

~ Edith Hamilton ~

<http://www.onlineuniversities-weblog.com/50226711/36108499.jpg>

CHAPTER FIVE

STRATEGY TO IMPROVE THE QUALITY OF DOCTORAL EDUCATION IN NURSING IN SOUTH AFRICA

5.1 OVERVIEW OF THE CHAPTER

The purpose of this chapter is to portray the development of a strategy to improve the quality of doctoral education in nursing in South Africa. The chapter commences with an introduction to strategies and the strategic process, and reviews the basis for strategy development in this study. Thereafter the strategy to improve the quality of doctoral education in nursing in South Africa is discussed with regard to the vision, mission, values, principles, assumptions, strategy objectives and functional tactics. The chapter concludes with a discussion of the implementation of the strategy to improve the quality of doctoral education in nursing in South Africa.

5.2 INTRODUCTION

The word strategy is defined as the “art of planning and directing larger movements and operations” or a “plan of action” (OED, 1986:552). Literature refers to strategies as large-scale, future-oriented plans or efforts or deliberate actions that are implemented proactively and reactively, to outperform other organizations or to interact with the competitive environment, to achieve the organization’s purpose or objectives, and to ensure customer satisfaction (Pearce & Robinson, 2000:4; Ehlers & Lazenby, 2010:3; Thompson & Strickland, 2001:10-11). Strategies are an organization’s “game plan”, which provides a framework for managerial decisions, and reflects the organization’s awareness of how, when and where it should compete; against whom and for what purposes it should compete (Pearce & Robinson, 2000:3). In this study organizations refer to nursing schools/departments/divisions.

The strategic process is described as a methodical, dynamic, entrepreneurial, structured process whereby an organization defines its identity and purpose over time, and develops a vision and mission, states its values and principles, identifies its direction and develops a unified approach to its strategies. Moreover, the strategic process enables the organization to prioritize long- and short-term objectives, decide on actions to achieve these objectives, assign accountability and allocate financial resources, all of which are aligned to the environment to gain a competitive advantage that is customer- and market-driven (Ehlers & Lazenby, 2010:3; Thompson & Strickland, 2000:13; Thompson, 2001:9).

The strategic process has changed dramatically in the last few decades as modern technology and management processes have resulted in organizations continually having to assess their environments and persistently needing to change, improve and renew their organization strategies in order to remain competitive in a rapidly evolving society (Ehlers & Lazenby, 2010:3; Leatt & Barnsley, 1994:763). The new emerging view of strategy contrasts dramatically with the traditional view and is illustrated in Table 5.1.

Table 5.1: Traditional and emerging view of strategy

	TRADITIONAL VIEW	EMERGING VIEW
View	Strategy as fitted to resource	Strategy as stretch and leverage
Industry space	Strategy as positioning in existing industry space	Strategy as creating new industry space
Responsibility	Strategy as a top management activity	Strategy as a total and continuous organizational process
Exercise	Strategy as an analytical exercise	Strategy as an analytical and organizational exercise
Direction	Strategy as extrapolating from the past	Strategy as creating the future

Source: Ehlers & Lazenby (2010:4)

This table reveals that the emerging view of strategy as stretch and leverage, creating new industry space and creating the future supports the overarching objective of TQM, that of continuous improvement (see Paragraph 2.6.2). While the views of strategy as being a total and continual organizational process and an analytical and organizational process encompasses the TQM principles of process improvement and total involvement (see Paragraph 2.6.2.1). The overall purpose of strategies, as discussed, is to gain a competitive advantage through adding value for customers which links to the TQM principle of customer focus (see Paragraph 2.6.2.1).

In this study, the strategic process was used to develop a vision and mission, to identify values, principles and assumptions, and to formulate strategy objectives and functional tactics to improve the quality of doctoral education in nursing in South Africa, based on TQM philosophy.

5.3 BASIS FOR STRATEGY DEVELOPMENT

Sixty-two (62) problems were identified from the empirical research (see Chapter 4) and the literature review which formed the evidence base for the development of a strategy to improve the quality of doctoral education in nursing in South Africa (Refer to Paragraph 3.5.1 for a discussion of the research method applied to development of the strategy). Table 5.2 presents the list of conclusion statements which are reported as problems identified with regard to the quality of doctoral education in nursing in South Africa.

Table 5.2: List of problems identified with regard to the quality of doctoral education in nursing in South Africa

CRITERIA	SUB-CRITERIA	PROBLEM IDENTIFIED
MISSION	Quality and nature of doctoral education	1. There are nursing schools/departments/divisions whose vision, goals, mission, and objectives do not align with those of the higher education institution. (see Paragraph 4.4.2.1).
	Qualification	2. The majority of academic personnel are not appointed in senior positions (see Paragraph 4.3.3).
ACADEMIC PERSONNEL	Research	3. The majority of academic personnel have not accessed extramural funding from externally reviewed sources for their research projects (see Paragraph 4.5.3).
		4. NRF was the least accessed source of extramural funding by academic personnel for research projects (see Paragraph 4.5.3).
		5. The majority of academic personnel are not NRF rated scientists (see Paragraph 4.3.4.6).
		6. The majority of academic personnel are unable to financially support doctoral students from their research projects (see Paragraph 4.5.3).
		7. The majority of academic personnel publish less than the higher education institution requirement of one article equivalent per year (see Paragraph 4.5.4).
		8. There is no unified incentive system amongst higher education institutions for academic personnel research outputs (see Paragraph 4.5.4).
		9. There are academic personnel that have not attended or presented research at national and

		international conferences in the prior three years. (see Paragraph 4.5.4).
	Teaching, advisement and mentoring	10. The majority of academic personnel are not provided with the opportunity to attend training programmes that will allow them to be mentored, and launch their research programmes or careers (see Paragraph 4.5.9).
STUDENTS	Admission	11. There are nursing schools/departments/divisions that admitted no doctoral students into the doctoral programme in the years 2006-2008 (see Paragraph 4.6.1). 12. There are no guidelines for eligibility criteria for the selection of prospective doctoral students into the doctoral programme (see Paragraph 4.6.1).
	Progression	13. The majority of doctoral students are unable to pursue full-time studies (see Paragraph 4.3.3). 14. The majority of doctoral students are employed as full-time academic personnel (see Paragraph 4.3.3). 15. Doctoral students appointed in full-time academic personnel positions find it difficult to balance their workload with doctoral studies (see Paragraph 4.3.3). 16. No research is conducted in biological nursing science and nursing informatics (see Paragraph 4.3.4.6). 17. The majority of doctoral students conduct research on nurses and nursing, rather than on patients and patient care (see Paragraph 4.3.4.7). 18. The majority of doctoral students do not conduct clinical studies (see Paragraph 4.3.4.7).

CURRICULUM		<p>19. The majority of doctoral students do not consider the national DoH research priorities as topics for research (see Paragraph 4.3.4.7).</p> <p>20. There are doctoral students and doctoral graduates that are not provided with the opportunity to present their research at national and international conferences (see Paragraph 4.6.2).</p> <p>21. There is no support for doctoral students who are not appointed in full-time academic personnel positions to present their research at national and international conferences (see Paragraph 4.6.2).</p> <p>22. The majority of doctoral students and doctoral graduates have never published peer reviewed articles (see Paragraph 4.6.2).</p>
	Graduation	<p>23. There are no career paths for doctoral graduates in South Africa outside of academe (see Paragraph 4.3.3).</p> <p>24. There are nursing schools/departments/divisions that had no doctoral graduate outputs for the years 2006-2008 (see Paragraph 4.3.4.1).</p> <p>25. The graduation rate for doctoral students is less than 20% per annum (see Paragraph 4.6.1).</p> <p>26. There is a pile-up effect of over 80% of doctoral students per annum (see Paragraph 4.6.1).</p>
	Goal and content	<p>27. Doctoral students' education needs are not fulfilled as they are not consulted or involved in the planning of the doctoral programme course content (see Paragraph 4.7.1.2).</p> <p>28. Professional development training in the doctoral programme does not meet the standards envisioned by academic personnel (see Paragraph 4.7.1.3).</p>

		<p>29. Doctoral students enter the doctoral programme with little or no research training (see Paragraph 4.7.1.3).</p> <p>30. There are nursing schools/departments/divisions where the written programme descriptions are not available to doctoral students and academic personnel (see Paragraph 4.7.1.5).</p> <p>31. Nursing schools/departments/divisions do not make use of international doctoral education exchange programmes, co-operation and collaboration (see Paragraph 4.3.4.3).</p> <p>32. There is no inter-disciplinary and inter-school collaboration between nursing doctoral students and other doctoral students (see Paragraph 4.7.1.6).</p> <p>33. The majority of doctoral students do not conduct inter-disciplinary research (see Paragraph 4.7.1.6).</p>
	<p>Supervision</p>	<p>34. Academic personnel are required to supervise doctoral students outside of their research expertise area (see Paragraph 4.3.4.6).</p> <p>35. There are higher education institutions that do not have a well-developed system to foster quality research, including consultation on grant proposals and analysis of data (see Paragraph 4.7.2.1).</p> <p>36. Academic personnel have a high burden of supervision with 9.2 students per academic personnel member at the master's level, and 2.8 students per academic personnel member at the doctoral level (see Paragraph 4.7.2.5).</p> <p>37. Doctoral students have a lack of structured time with promoters (see Paragraph 4.7.2.5).</p> <p>38. Nursing schools/departments/divisions do not have</p>

		<p>guidelines in dealing with incompatible promoter-student relationships available for doctoral students (see Paragraph 4.7.2.5).</p> <p>39. Promoters are changed during the course of doctoral students' studies (see Paragraph 4.7.2.5).</p>
ADMINISTRATION AND INFRASTRUCTURE	Learning environment	<p>40. There are nursing schools/departments/divisions that do not have a programme in place to foster socialization of students to doctoral education, and facilitate interaction among students, and between academic personnel and students (see Paragraph 4.8.4).</p> <p>41. There are nursing schools/departments/divisions that do not have services in place to provide emotional support to doctoral students (see Paragraph 4.8.4).</p>
	Administration	<p>42. There is an absence of a co-ordinated administrative system and an information distribution system (see Paragraph 4.8.6).</p> <p>43. There are nursing schools/departments/divisions with insufficient information about careers available (see Paragraph 4.8.7).</p> <p>44. There are nursing schools/departments/divisions that do not keep in contact with doctoral graduate alumni (see Paragraph 4.8.7).</p> <p>45. There are academic personnel that do not provide recommendation letters or seek job opportunities for doctoral graduates (see Paragraph 4.8.8).</p>

Human Resources

46. Nursing deans and doctorally qualified academic personnel are an aging population (see Paragraph 4.3.2).
47. The majority of nursing dean and doctorally qualified academic personnel will retire in the next nine to fourteen years (see Paragraph 4.3.2).
48. Doctoral graduate and doctoral students, the future of nursing academe, are an aging population (see Paragraph 4.3.2).
49. Nursing schools/departments/divisions do not implement the practice of “growing their own timber” (see Paragraph 4.3.4.3).
50. There are nursing schools/departments/divisions with a shortage of academic personnel to facilitate learning (see Paragraph 4.9.1).
51. There are nursing schools/departments/divisions with no doctorally qualified academic personnel (see Paragraph 4.3.4.1).
52. The majority of nursing deans and academic personnel are newly doctorally qualified (see Paragraph 4.3.4.1).
53. There are nursing schools/departments/divisions with a shortage of technical and support staff to support doctoral students (see Paragraph 4.9.2).
54. There is a discrepancy between salaries among different higher education institutions (see Paragraph 4.3.4.1).

Material and technical resources

55. There are nursing schools/departments/divisions with research infrastructure that does not facilitate research and education (see Paragraph 4.9.3).
56. There are nursing schools/departments/divisions

		<p>that do not offer advanced information technology for research and education at off sites, if offered (see Paragraph 4.9.5).</p> <p>57. There are nursing school/department/division buildings do not provide sufficient space for doctoral student activities (see Paragraph 4.9.7).</p> <p>58. There are nursing school/department/division buildings that do not provide sufficient resources (e.g., computers, photocopiers, teleconference capability) for doctoral student activities (see Paragraph 4.9.8).</p> <p>59. There are insufficient sources of funding for doctoral students (see Paragraph 4.9.10).</p>
EVALUATION	Programme Evaluation	<p>60. There are nursing schools/departments/division that do not evaluate the doctoral programme on a regular basis (see Paragraph 4.10).</p> <p>61. There are nursing schools/departments/divisions that evaluate the doctoral programme on a regular basis, but do not involve doctoral graduates and doctoral students in the programme evaluation activities (see Paragraph 4.10.2).</p> <p>62. There are nursing schools/departments/divisions that evaluate the doctoral programme on a regular basis, but do not provide regular feedback to academic personnel, administrators and external constituents (see Paragraph 4.10.5).</p>

5.4 STRATEGY TO IMPROVE THE QUALITY OF DOCTORAL EDUCATION IN NURSING IN SOUTH AFRICA

The strategy to improve the quality of doctoral education in nursing in South Africa was developed using a strategic process (as indicated in Paragraph 5.2) to develop a vision and mission, identify values, principles and assumptions, and formulate strategy objectives and functional tactics, based on TQM philosophy. Each step of the strategic process that was followed in the development of the strategy to improve the quality of doctoral education in nursing in South Africa is discussed in this section.

5.4.1 VISION

Developing a strategic vision is the first step in the strategic process as it provides the framework for strategic planning. The vision statement answers the questions: “What do we want to become?” or “Where do we want to go?” and focuses on what the organization’s long-term direction should be, the technology-product-customer focus it intends to pursue, and its future scope. The vision of the organization denotes the direction or purpose or dream and hopes of the organization and shapes the organization’s identity. The vision of the company serves as a “road map” or inspiration of the organization’s desired future and is often referred to as being an “enduring promise” (Ehlers & Lazenby, 2010:68; Thompson & Strickland, 2001:6).

To develop a vision and mission for doctoral education in nursing in South Africa, the researcher reviewed the visions of the four main stakeholders of doctoral education in nursing in South Africa, namely the DoE, CHE, NRF and FUNDISA.

The vision of the DoE is: “Our vision is of a South Africa in which all our people have access to **lifelong education and training opportunities**, which will in turn contribute towards **improving the quality of life** and building a peaceful, prosperous and democratic society” (DoE, 2010).

The vision of the CHE is: “The CHE as an independent statutory body strives to be an organization **nationally and internationally recognized for the quality of its intellectual contribution to and its impact on the South African higher education system**, its principled positions, its work ethic and its transparent governance processes in the discharge of its core functions of advising the Minister of Education, monitoring the higher education system, assuring and promoting the quality of higher education and contributing to the development of higher education” (CHE, 2009c:7).

The NRF does not have a vision, but according to Section three of the NRF Act (Act 23 of 1998), the object of the NRF is “To support and promote research through funding, *human resource* development and the provision of the necessary research facilities in order to facilitate the **creation of knowledge, innovation and development in all fields of science** and technology, including indigenous knowledge and thereby **contribute to the improvement of the quality of life of all the people of the Republic**” (NRF, 2009c:14).

The vision of FUNDISA is: “...to be a unified platform to **pursue excellence in nursing scholarship** at Universities in South Africa” (FUNDISA, 2009d:1).

The vision for doctoral education in nursing in South Africa was developed from elements of each of these stakeholder visions, and is stated as: **The vision for doctoral education in nursing in South Africa is to offer nationally and internationally recognized high quality doctoral education and excellence in scholarship.**

5.4.2 MISSION

The mission statement is an enduring statement of the unique purpose of the organization that distinguishes an organization from other similar ones. It identifies the present scope of the organization’s operations in terms of its present capabilities, customer focus, activities, makeup, product, market, and technology. It provides answers to the questions: “Who are we?” and “What do we do?” A mission statement

embodies the philosophy, values, identity, character and priorities of an organization, and also reflects the image the organization wants to project. A mission statement is not about measurable targets, but is rather a statement of intent, attitude, outlook and orientation (Ehlers & Lazenby, 2010:71; Thompson & Strickland, 2001:7; Thompson, 2001:9; Pearce & Robinson, 2000:12).

The mission for doctoral education in nursing in South Africa was developed from elements of the stakeholder visions (see Paragraph 5.4.1), and is stated as: **The mission of doctoral education in nursing is to improve the health and health care for all people in South Africa through excellence in education, research and service and to advance nursing science through dynamic, quality-driven doctoral education and scholarship in nursing that is nationally and internationally recognized for its leadership and innovation; and provides benefits to all stakeholders and customers, both internal and external.**

5.4.3 VALUES

Values are freely chosen, enduring beliefs or an attitude towards a person, object, idea or action, and represent a way of life, give direction to life, and form the basis of behaviour – especially behaviour that is based on decisions or choices (Kozier, Erb, Berman & Burke, 2000:71; Morton, 1996:165-166). In an organization, values dictate the way that decisions are made and embodies what the organization stands for. Values influence the policies, the type of competitive advantage sought, the organization structure, systems of management, the strategies and the functional tactics of the organization (Thompson, 2001:53).

In order to fulfil the vision and mission of doctoral education in nursing the following values are central to the strategy to improve the quality of doctoral education in nursing in South Africa:

Collaboration – Collaboration is derived from the Late Latin word “collaborare”, meaning “to work”. Collaboration is a voluntary and willing association and interaction

between individuals and organizations with a common destiny, especially in a joint intellectual effort, that bring diverse skills and perspectives to a task and accomplish agreed upon objectives (OED, 1986:101; Dictionary.com, 2004; FUNDISA, 2008c:4).

Diversity – Diversity is derived from the Old French word “diversite”, meaning the quality of being diverse. Diversity is the acceptance and appreciation of a point or respect in which things differ, whether culture, thought and experience, and the integration of these in a task (OED, 1986:188; Dictionary.com, 2004).

Excellence – Excellence is a state or condition of highest or finest quality or merit. It is a condition of demonstrated superiority (OED, 1986:160; Dictionary.com, 2004).

Innovation – Innovation is the generation, discovery and integration of new ideas and methods through creative inquiry and brings changes in anything established (OED, 1986:279; Dictionary.com, 2004).

Integrity – Integrity is derived from the Latin adjective “integer” meaning whole or complete. It refers to unconditional and steady commitment to moral values and ethical principles, and meaningful, mature and coherent wholeness between the person’s espoused moral values and actions. Integrity is the quality of a person who can be counted on to give precedence and adhere to moral values and ethical principles, even when there is strong inducement to pursue self-interest or personal desires (Honderich, 1995: 410; Dictionary.com, 2004; FUNDISA 2008c:1).

Respect – Respect is derived from the Latin word “respicere” meaning to look back at or to look again. Respect is the acknowledgment, esteem, consideration and regard for the ideas and unique contributions of others (OED, 1986:282; Dictionary.com, 2004; FUNDISA, 2008c:2).

These values were subscribed to in the development of the vision, mission, strategy objectives and the functional tactics of the strategy to improve the quality of nursing doctoral education in South Africa.

5.4.4 PRINCIPLES

Principles refer to an accepted or fundamental basis of conduct, action or management for application in action (OED, 1986:427; Dictionary.com, 2004).

In order to ensure that the principles of the strategy to improve the quality of doctoral education in nursing in South Africa is common and applicable to all nursing schools/departments/divisions in South Africa, the researcher applied the principles of the DoE. These are highlighted in the *Education White Paper 3: A programme for the Transformation of Higher Education* (Department of Education, 1997a:11) (see also Paragraph 2.4.1.2). Table 5.3 presents the principles of the DoE and its application to the strategy to improve the quality of doctoral education in nursing in South Africa

Table 5.3: Application of the principles of the DoE to the strategy to improve the quality of doctoral education in nursing in South Africa

DoE VALUES	APPLICATION OF VALUES
Equity and redress	<p>Nursing schools/departments/divisions must provide equal opportunities for individuals to enter and succeed in doctoral education in nursing.</p> <p>Nursing schools/departments/divisions must employ measures of empowerment, such as financial support, to bring about equal opportunities for individuals.</p>
Democratization	<p>Decisions made at the nursing school/departmental/division level should be transparent, representative and participatory.</p> <p>Nursing schools/departments/divisions must ensure that structures and procedures are in place so that individuals, who are affected by decisions, can participate and have a say in decision making; and have a platform to complain about decisions.</p>
Development	<p>Nursing schools/departments/divisions must create conditions where knowledge can be produced, acquired and applied, and human capacity can be developed.</p>

Quality	<p>Nursing schools/departments/divisions must maintain and apply academic and educational standards with regard to specific expectations and requirements, while continually aiming for excellence.</p> <p>Nursing schools/departments/divisions must evaluate services and products against set standards, with a view to improvement, renewal or progress.</p>
Effectiveness and efficiency	<p>Nursing schools/departments/divisions must function in such a way that it leads to desired outcomes or achieves desired objectives, while making optimal use of available resources.</p>
Academic freedom	<p>Nursing schools/departments/divisions must ensure the absence of outside interference, censure or obstacles in the pursuit and practice of academic work.</p>
Institutional autonomy	<p>Nursing schools/departments/divisions can apply a high degree of self-regulation and administrative independence with respect to student admissions, curriculum, methods of teaching and assessment, research, establishment of academic regulations and the internal management of resources generated from private and public sources.</p>
Public accountability	<p>Nursing schools/departments/divisions are accountable for their actions and decisions not only to their own governing bodies and their respective higher education institutions, but also to their stakeholders, and customers, internal and external.</p>

5.4.5 ASSUMPTIONS

The strategy to improve the quality of doctoral education in nursing in South Africa is influenced by several assumptions. The explicit statement of these assumptions is

important as it provides a point of departure for the interpretation of the strategy to improve the quality of doctoral education in nursing in South Africa and ensures clear communication between the researcher and the reader.

The strategy to improve the quality of doctoral education in nursing in South Africa is influenced by the following assumptions:

- 1) The strategy is developed for use within the higher education context of South Africa.
- 2) In order to improve the quality of doctoral education in nursing in South Africa the strategy must be interpreted in terms of the philosophy of TQM, which is centred on the theoretical foundations of systems theory, variation (statistical theory), theory of knowledge and theory of psychology, although these theories are not pertinently subscribed to in this strategy. In this study, TQM is based on three fundamental principles that encompass its overall concept and, if they are efficiently administered, will promote the continuous improvement of the nursing school/department/division. The three fundamental principles of TQM are: focus on the customers, internal and external; process improvement and total involvement with six supporting elements – leadership, education and training, supportive structure, communications, reward and recognition, and measurement.
- 3) In this strategy the customer focus is applied to internal customers which are doctoral students, and external customers which are doctoral graduates, health care practice and society-at-large.
- 4) The strategy is viewed as “living” because doctoral education in nursing is dynamic and rapidly evolving, which influences, and to some degree constrains, the quality of doctoral education in nursing in South Africa. As a result, nursing schools/departments/divisions must continually assess the quality of doctoral education in nursing using QCSI criteria with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme, in order to change, revise and renew the strategy

objectives and functional tactics to continuously improve the quality of doctoral education in nursing in South Africa.

- 5) The vision of the strategy gives rise to the mission, and both of these are driven by the values, principles and assumptions of the strategy and based on the philosophy of TQM. Therefore to change, revise or renew the strategy objectives and functional tactics of the strategy all these fundamentals must be considered and subscribed to.

5.4.6 STRATEGY OBJECTIVES

In the strategic process, strategy objectives are the long-term goals that are determined in line with the organization's vision and reflect the organization's direction on a high level (Ehlers & Lazenby, 2010:175). Long-term goals are the statements that are made to indicate the results that an organization seeks to achieve over a period of time (Pearce & Robinson, 2000:241)

In this study the aim of the development of a strategy was to improve the quality of doctoral education in nursing in South Africa. The strategy objectives were determined in line with the vision, mission, values, principles and assumptions of the strategy to improve quality of doctoral education in nursing in South Africa and based on the sixty-two (62) problems identified from the comprehensive literature review and empirical research (see Paragraph 5.3). The sixty-two (62) problems identified were clustered together to develop seven strategy objectives through deductive logic, to improve the quality of doctoral education in nursing in South Africa. The strategy objectives were also based on TQM philosophy (see Paragraph 2.6) with the goal of continuous improvement of the quality of doctoral education in nursing in South Africa and a focus on total involvement, process improvement and customer focus.

The seven strategy objectives to improve the quality of doctoral education in nursing in South Africa are presented in Table 5.4. Each strategy objective is stated with the problems identified (see Table 5.3) from the comprehensive literature review and empirical research serving as the evidence base.

Table 5.4: Strategy objectives to improve the quality of doctoral education in nursing in South Africa.

STRATEGY OBJECTIVE	PROBLEM IDENTIFIED
<p>1. To negotiate a common platform with regard to doctoral education at the nursing school/department/division and the respective higher education institution.</p>	<p>1</p>
<p>2. To improve the age profile and increase the human resources base of doctoral education in nursing.</p>	<p>2, 11, 24, 25, 26, 36; 46; 47; 48; 49; 50; 51, 54</p>
<p>3. To expand scholarship, development and innovation capacity in doctoral education in nursing.</p>	<p>3; 4; 5; 6; 7; 8; 9; 10; 12; 16; 17; 18; 19; 20; 21; 22; 23, 24; 25; 26; 34, 37, 39, 52</p>
<p>4. To optimize the administration information system co-ordination in nursing schools/departments/divisions.</p>	<p>30; 42; 43; 44, 45</p>
<p>5. To pursue multi-lateral co-operation and collaboration in doctoral education in nursing.</p>	<p>31; 32; 33</p>
<p>6. To establish an enabling learning experience that focuses on the needs of doctoral students.</p>	<p>12; 13; 14; 15; 24, 25, 26, 27; 28; 29; 35; 37; 38; 39; 40; 41; 53; 55; 56; 57; 58; 59</p>
<p>7. To monitor and evaluate the quality of doctoral education in nursing on a regular basis, and perform national and international benchmarking.</p>	<p>60; 61; 62</p>

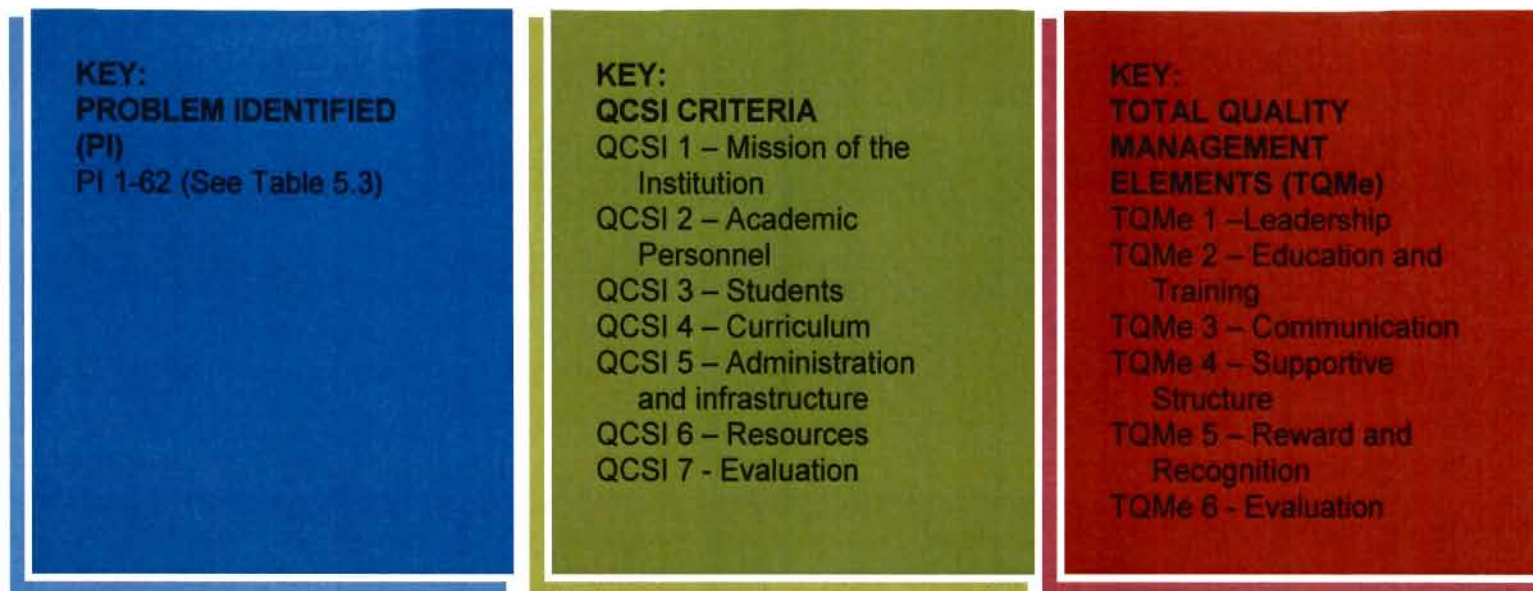
5.4.7 FUNCTIONAL TACTICS

The strategy objectives serve as the basis for more specific functional tactics or short-term goals, which are formulated at an operational level and can be monitored and evaluated (Ehlers & Lazenby, 2010:175; Pearce & Robinson, 2000:360).

In this study, functional tactics were developed from the strategy objectives (see Paragraph 5.4.6), which were based on the sixty-two (62) problems identified (see Paragraph 5.3) from the comprehensive literature review and the empirical research (see Paragraph 5.3) in order to enable operationalization and implementation of the strategy objectives. The functional tactics were further applied to the seven (7) QCSI criteria (see Paragraph 2.5) i.e. mission of the institution, academic personnel, students, curriculum, administration and infrastructure, resources and evaluation, to allow monitoring and evaluation of the strategy objectives. The functional tactics were also based on TQM philosophy (see Paragraph 2.6) through the application of the six (6) elements of TQM i.e. leadership, education and training, communication, supportive structure, reward and recognition and measurement, to ensure that the principles of total involvement, process improvement and customer focus and the overall objective of continuous improvement is achieved.

Table 5.5 presents the functional tactics to improve the quality of doctoral education in nursing in South Africa, which are derived from the strategic objectives and based on the problems identified from the comprehensive literature review and the empirical research, the QCSI criteria and the TQM elements. The problems identified are presented in the blue key and applied to the functional tactics using the code Problem Identified (PI) numbered 1-62 in blue coloured text. The QCSI criteria are presented in the green key and applied to the functional tactics using the code Quality Criteria, Standards and Indicators (QCSI) criteria numbered 1-7 in green coloured text. The TQM elements are presented in the red key and applied to the functional tactics using the code Total Quality Management elements (TQMe) numbered 1-6 in red coloured text.

Table 5.5: Functional tactics to improve the quality of doctoral education in nursing in South Africa



STRATEGY OBJECTIVE	FUNCTIONAL TACTICS
<p>1. To negotiate a common platform with regard to doctoral education at the nursing school/department/division and the respective higher education institution.</p>	<p>1.1 The nursing school’s/department’s/division’s vision, mission, goals; and objectives for doctoral education in nursing must be aligned with and contribute to the goals and strategic directions of doctoral education at the higher education institution (PI 1; QCSI 1; TQMe 1, 3).</p> <p>1.2 The nursing school/department/division must build on the</p>

	<p>strengths and resources of doctoral education at the higher education institution in order to maximize its full potential (PI 1; QCSI 1; TQMe 1, 3, 4).</p> <p>1.3 The nursing school/department/division should independently develop strategies and standards for doctoral education based on the research strategy of the higher education institution (PI 1; QCSI 1; TQMe 1, 3).</p>
<p>2. To improve the age profile and increase the human resources base of doctoral education in nursing.</p>	<p>2.1 Increase government and public awareness of the academic personnel shortage in nursing schools/departments/divisions in South Africa (PI 46, 47, 48, 49, 50, 51; QCSI 2, 6; TQMe 1, 3, 6).</p> <p>2.1.1 Conduct national research to determine the current status of nursing education at higher education institutions (for instance number of academic personnel, number of vacancies, expected retirements) so that threats to the quality of nursing education can be identified and strategies to improve the quality of nursing education can be developed (PI 46, 47, 48, 50, 51; QCSI 2, 6; TQMe 1, 3, 6).</p> <p>2.1.2 Advocate for the development and implementation of workforce planning for academic personnel at nursing schools/departments/divisions that consider both the current need and future demand for academic personnel in South Africa (PI 46, 47, 48, 50, 51; QCSI 2, 6; TQMe 1, 3).</p>

2.1.3 Develop position statements to highlight the academic personnel shortage issue, factors contributing to the shortage, and strategies to expand the current and future pool of nurse educators (PI 46, 47, 48, 49, 50, 51; QCSI 2, 6; TQMe 1, 3).

2.1.4 Develop and implement best practices for expanding the current and future pool of nurse educators (PI 46, 47, 48, 49, 50, 51; QCSI 6; TQMe 1, 3).

2.2 Increase the pool of potential academic personnel at nursing schools/departments/divisions (PI 11, 24, 25, 26, 36, 46, 47, 48, 49, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 2, 3, 4, 5).

2.2.1 Market nursing as a preferred career choice and highlight the attractiveness of a career in academe and research, to recruit more nurses to academe (PI 11, 24, 25, 36, 46, 47, 48, 49, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 3).

2.2.2 Identify the research potential of young and talented baccalaureate students in nursing in the nursing school/department/division and highlight the attractiveness of a career in academe and research in order to recruit more young nurses to academe (PI 11, 24, 25, 36, 46, 47, 48, 49, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 3, 5).

2.2.3 Expose baccalaureate students in nursing to academe and

research, by enabling them to work clinical practical hours as teacher and research assistants to stimulate an interest in academe as a career choice (PI 11, 24, 25, 36, 46, 47, 48, 49, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 2, 3, 4).

2.2.4 Enhance the attractiveness of a career in academe, by allowing baccalaureate students in nursing to meet and discuss a career in academe and research with passionate academic personnel (PI 11, 24, 25, 36, 46, 47, 48, 49, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 3).

2.2.5 Recognize and reward baccalaureate students in nursing who perform the best academically by sponsoring them to a national or international research conference in nursing (PI 11, 46, 47, 48, 49, 50, 51; QCSI 2, 3, 6; TQMe 1, 2, 3, 4, 5).

2.2.6 Fast-track post-graduate education by building bridges between master's, doctoral and post-doctoral level education in nursing (PI 24, 25, 26, 36, 46, 47, 48, 49, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 2, 3, 4).

2.2.7 Create academic personnel scholarships for baccalaureate students in nursing who would like to pursue a career in academe, so that they can pursue full-time study (PI 11, 24, 25, 26, 36, 46, 47, 48, 49, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 2, 3, 4).

2.2.8 Build capacity in nursing schools/departments/divisions with no

doctoral student intakes or graduate outputs through promoting and supporting co-operation and collaboration with other nursing schools/departments/divisions/colleges at national and international level (also 5.1) (PI 11, 24, 25, 26, 36, 46, 47, 48, 49, 50, 51; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).

2.3 Create positive work environments for academic personnel at nursing schools/departments/divisions (PI 2, 11, 24, 25, 26, 36, 46, 47, 48, 50, 51, 54; QCSI 2, 3, 4, 6; TQMe 1, 2, 3, 4, 5, 6).

2.3.1 Advocate for increased salaries for academic personnel in nursing schools/departments/divisions based on the Occupational Specific Dispensation applied to nurses in clinical practice (PI 46, 47, 48, 50, 51, 54; QCSI 2, 6; TQMe 1, 3, 4, 5).

2.3.2 Advocate for academic personnel in nursing schools/departments/divisions to be flagged as a scarce skill at higher education institutions and in effect for salaries to be increased (PI 46, 47, 48, 50, 51, 54; QCSI 2, 6; TQMe 1, 3, 4, 5).

2.3.3 Advocate for a unified salary structure among higher education institutions for academic personnel in nursing schools/departments/divisions to encourage an equal distribution of doctorally qualified academic personnel amongst higher education institutions and prevent doctorally qualified personnel from moving

between higher education institutions because of discrepancies in salary (PI 46, 47, 48, 50, 51, 54; QCSI 2, 6; TQMe 1, 3, 4, 5).

- 2.3.4 Negotiate and establish joint appointments of academic personnel between nursing schools/departments/divisions and clinical practice to increase the number of academic personnel and clinical expertise in the doctoral programme (PI 11, 24, 25, 26, 36, 46, 47, 48, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 3, 4).
- 2.3.5 Actively recruit academic personnel and improve opportunities for professional advancement in academe (PI 2, 11, 24, 25, 26, 36, 46, 47, 48, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 3, 4).
- 2.3.6 Recruit international senior academic personnel to South African nursing schools/departments/divisions, as there is a dearth of senior academic personnel in South Africa (PI 11, 24, 25, 26, 36, 46, 47, 48, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 3, 4).
- 2.3.7 Create work environments that cater for the needs of different generations, with a focus on the millennial workforce who prefer an independent and technology-driven environment (PI 11, 24, 25, 26, 36, 46, 47, 48, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 3, 4).
- 2.3.8 Establish platforms for the use of technological advances – haptics, phonecasting, webcasts, screencasts, webinars, podcasts and others – to enhance the capacity of a reduced workforce (PI 11, 24, 25, 26, 36, 46, 47, 48, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 3, 4).

- 2.3.9 Initiate an employee recognition and incentive awards programme to ensure that academic personnel who deliver scientific production and successfully supervise students to completion of their master's and doctoral studies are recognized and rewarded for their efforts (PI 11, 24, 25, 26, 36, 46, 47, 48, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 3, 4, 5).
- 2.3.10 Implement retention strategies to allow experienced and retired academic personnel to remain active in academe and mentor newly doctorally qualified academic personnel (PI 2, 11, 24, 25, 26, 36, 46, 47, 48, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 3, 4).
- 2.3.11 Advocate for the retirement age of academic personnel to be extended to at least 65 years of age at all higher education institutions (PI 2, 11, 24, 25, 26, 36, 46, 47, 48, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 3, 4).
- 2.3.12 Ensure that there is an academic personnel orientation programme in place to help new academic personnel transition into the nursing school/department/division (PI 11, 24, 25, 26, 36, 46, 47, 48, 50, 51; QCSI 2, 3, 4, 6; TQMe 1, 3, 4).
- 2.3.13 Evaluate the job satisfaction of academic personnel and develop strategies to improve the work environment (PI 11, 24, 25, 26, 36, 46, 47, 48, 50, 51; QCSI 3, 4, 6; TQMe 1, 3, 4, 6).

<p>3. To expand scholarship, development and innovation capacity in doctoral education in nursing.</p>	<p>3.1 Encourage and support NRF rating among academic personnel at nursing schools/departments/divisions (PI 3, 4, 5, 6, 34; QCSI 2, 6; TQMe 1, 2, 3, 4).</p> <p>3.1.1 Arrange for the respective higher education institution and the NRF to provide training and consultation on the NRF rating and evaluation system to support academic personnel to obtain NRF rating (PI 3, 4, 5, 6, 34; QCSI 2, 6; TQMe 1, 2, 3, 4).</p> <p>3.1.2 Arrange workshops and in-service training (brown bag sessions) on the NRF rating and evaluation system to encourage and support academic personnel to obtain NRF rating (PI 3, 4, 5, 6, 34; QCSI 2, 6; TQMe 1, 2, 3, 4).</p> <p>3.1.3 Develop best practices with regard to applying for NRF rating and evaluation (PI 3, 4, 5, 6, 34; QCSI 2, 6; TQMe 1, 2, 3, 4).</p> <p>3.1.4 Develop and focus the nursing school's/department's/division's research strength and priority (also functional tactic 3.6), so that academic personnel can develop a research focus that will enable successful NRF rating (PI 3, 4, 5, 6, 34; QCSI 2, 6; TQMe 1, 2, 3, 4).</p> <p>3.2 Encourage academic personnel to actively pursue extramural funding from externally reviewed sources for research projects (PI 3, 4, 5, 6, 7, 19, 20; QCSI 2, 3, 6; TQMe 1, 2, 3, 4, 5).</p>
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- 3.2.1 Develop a database of extramural funding available from externally reviewed sources for research projects (PI 3, 4, 5, 6, 7, 19, 20; QCSI 2, 3, 6; TQMe 1, 3, 4).
- 3.2.2 Arrange for the respective higher education institution or funding agency to provide grant application training and consultation to support academic personnel to obtain extramural funding (PI 3, 4, 5, 6, 7, 19, 20; QCSI 2, 3, 6; TQMe 1, 2, 3, 4).
- 3.2.3 Arrange workshops and in-service training (brown bag sessions) on successfully accessing extramural funding from externally reviewed sources for research projects to encourage and support academic personnel to obtain extramural funding (PI 3, 4, 5, 6, 7, 19, 20; QCSI 2, 3, 6; TQMe 1, 2, 3, 4).
- 3.2.4 Develop best practices with regard to successfully accessing extramural funding from externally reviewed sources for research projects (PI 3, 4, 5, 6, 7, 19, 20; QCSI 2, 3, 6; TQMe 1, 2, 3, 4).
- 3.2.5 Initiate a visiting scientist programme to provide research and grant development consultation (PI 3, 4, 5, 6, 7, 19, 20; QCSI 2, 3, 6; TQMe 1, 2, 3, 4).
- 3.2.6 Enhance scientific, administrative and financial assistance to academic personnel (e.g. research assistants, seed funding, student assistants, field workers, language editing, seed funding) (PI 3, 4, 5, 6, 7, 19, 20; QCSI 2, 3, 6; TQMe 1, 2, 3, 4).

3.2.7 Encourage and support NRF rating among academic personnel at nursing schools/departments/divisions to increase NRF funding opportunities (also 3.1) (PI 3, 4, 5, 6, 7, 19, 20; QCSI 2, 3, 6; TQMe 1, 2, 3, 4).

3.3 Improve scientific production disseminated in scientific meetings and indexed scientific journals (PI 7, 8, 9, 21, 22; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4).

3.3.1 Arrange for the respective higher education institution to provide article writing and research presentation training and consultation to develop capacity for scientific production (PI 7, 9, 22; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4).

3.3.2 Arrange workshops and in-service training (brown bag sessions) on article writing and research presentation to encourage and develop capacity for scientific production (PI 7, 9, 22; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4).

3.3.3 Develop best practices with regard to article writing and research presentation that can be used as a benchmark and for capacity building among young academics (PI 7, 9, 22; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4).

3.3.4 Encourage article writing groups within the nursing school/department/division to increase peer group support and

capacity development for scientific production (PI 7, 9, 22; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4).

3.3.5 Advocate for a unified incentive system amongst higher education institutions for academic personnel research outputs, in order to increase scientific production, increase successful supervision of post-graduate students and prevent doctorally qualified personnel from moving between higher education institutions because of large discrepancies between higher education institution incentive systems (PI 7, 8, 9, 21, 22; QCSI 2, 3, 5, 6; TQMe 1, 3, 4, 5).

3.3.6 Encourage academic personnel to actively pursue extramural funding from externally reviewed sources for research projects (also functional tactic 3.2) to increase the number of funded research projects and so increase scientific production (PI 7, 9, 21; 22; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4).

3.3.7 Enhance scientific, administrative and financial assistance to academic personnel (e.g. research assistants, seed funding, student assistants, field workers, language editing, seed funding) to increase scientific production (PI 7, 9, 22; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4).

3.3.8 Provide academic personnel with study leave and/or sabbatical leave for research and article writing (PI 7, 9, 22; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4).

3.3.9 Encourage the PhD article format model for theses at nursing

schools/departments/divisions to increase scientific production amongst doctoral students and academic personnel (PI 7, 22; QCSI 2, 3, 5; TQMe 1, 2, 3, 4).

3.3.10 Advocate for the development and implementation of higher education institutional policy that requires doctoral students to disseminate their research to at least one national or international scientific meeting and to publish at least one article in an indexed scientific journal prior to graduation, as this will instil a spirit of scholarship in doctoral students (PI 7, 9, 21; 22; QCSI 2, 3, 5; TQMe 1, 2, 3, 4).

3.3.11 Institute a reward and recognition system where doctoral students who publish an article in an indexed scientific journal are sponsored to present their doctoral research at a national or international conference (PI 7, 9, 21; 22; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4, 5).

3.3.12 Develop and launch annual awards that recognize the best research article amongst academic personnel, the best research article amongst doctoral students, the best research presentation amongst academic personnel and the best research presentation amongst doctoral students (PI 7, 9, 21; 22; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4, 5).

3.4 Provide academic personnel with the opportunity to attend training programmes that will allow them to be mentored and launch their programme of research or research career (PI 3, 4, 5, 6, 10, 34, 52; QCSI 2, 4, 6; TQMe 1, 2, 3, 4).

3.4.1 Academic personnel should develop a five-year programme of research or career plan, and set annual objectives in co-ordination with the nursing dean to enable fulfilment thereof (PI 3, 4, 5, 6, 10, 34, 52; QCSI 2, 4, 6; TQMe 1, 2, 3, 4).

3.4.2 Provide academic personnel who have completed their doctoral studies in the most recent five years, the opportunity to attend a post-doctoral fellowship, within the nursing school/department/division or nationally or internationally to launch their programmes of research or research careers (PI 3, 4, 5, 6, 10, 34, 52; QCSI 2, 4, 6; TQMe 1, 2, 3, 4).

3.4.3 Provide academic personnel with opportunities to attend internships or partake in visiting professorships based on their available study leave (PI 3, 4, 5, 6, 10, 34, 52; QCSI 2, 4, 6; TQMe 1, 2, 3, 4).

3.5 Develop supervision and mentorship capacity amongst academic personnel in the nursing school/department/division (PI 24, 25, 26, 36, 37, 39, 52; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).

	<p>3.5.1 Arrange for the respective higher education institution to provide doctoral education supervision and mentorship training and consultation to develop capacity for supervision and mentorship amongst academic personnel (PI 24, 25, 26, 36, 37, 39; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).</p> <p>3.5.2 Arrange workshops and in-service training (brown bag sessions) on effective doctoral education supervision and mentorship to encourage and develop capacity for supervision and mentorship amongst academic personnel (PI 24, 25, 26, 36, 37, 39; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).</p> <p>3.5.3 Develop best practices with regard to effective doctoral education supervision and mentorship (PI 24, 25, 26, 36, 37, 39; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).</p> <p>3.5.4 Develop guidelines and best practices with regard to eligibility criteria for the selection of prospective doctoral students into the doctoral programme (PI 12, 24, 25, 26; QCSI 3, 6; TQMe 1, 2, 3, 4).</p> <p>3.5.5 Provide academic personnel with development resources to help develop capacity for doctoral education supervision and mentorship (PI 24, 25, 26, 37, 39, 52; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).</p> <p>3.5.6 Develop and implement a mentoring system where newly doctorally qualified academic personnel are partnered with senior academic personnel and act as co-supervisors of doctoral students (PI 24, 25,</p>
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26, 37, 39, 52; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).

3.5.7 Investigate and establish retention strategies to allow experienced academic personnel to remain active in academe and mentor newly doctorally qualified academic personnel (also functional tactic 2.3.9) (PI 24, 25, 26, 37, 39, 52; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).

3.5.8 Conduct research to determine the most appropriate supervision ratio of supervisor to students (PI 24, 25, 26, 36, 37, 39, 52; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).

3.6 Develop and focus the nursing school's/department's/division's research strength and priority (PI 3, 4, 5, 6, 7, 11, 24, 25, 26, 34, 59; QCSI 2, 4, 6; TQMe 1, 2, 3, 4).

3.6.1 The nursing school/department/division to identify core research areas of research strength and priority based on academic personnel expertise to ensure that the nursing school/department/division has expertise in the identified research focus area (PI 3, 4, 5, 6, 7, 34; QCSI 2, 4, 6; TQMe 1, 2, 3, 4).

3.6.2 Increasingly focus doctoral student research in the identified areas of the nursing school's/department's/division's research strength and priority by admitting students whose research interests overlap and can be adequately supported by academic personnel expertise

- 3.6.3 Develop and establish nursing research niche areas, units and centres of excellence (PI 3, 4, 5, 6, 7, 34; QCSI 2, 4, 6; TQMe 1, 2, 3, 4).
- 3.6.4 Apply for endowed professorships and chairs nationally and internationally in the key areas of research strength and priority, to increase the expertise and capacity of academic personnel, increase funding, increase admission of post-graduate students and increase scientific production within the key areas of research strength and priority (PI 3, 4, 5, 6, 7, 11, 24, 25, 26, 34; QCSI 2, 4, 6; TQMe 1, 2, 3, 4).
- 3.6.5 Apply for funding in the identified areas of the nursing school's/department's/division's research strength and priority and increasingly admit students to funded research projects (PI 3, 4, 5, 6, 7, 34; 59; QCSI 2, 4; TQMe 1, 2, 3, 4).
- 3.7 Advance leading edge research in doctoral education in nursing schools/departments/divisions (PI 16; QCSI 3, 6; TQMe 1, 2, 3).**
- 3.7.1 Expand new directions in nursing science in South Africa that are of particular future importance, such as information technology and biological nursing science (PI 16; QCSI 3, 6; TQMe 1, 2, 3).
- 3.7.2 Recruit and hire academic personnel, nationally and internationally, with expertise in areas of particular future importance, such as

information technology and biological nursing science (PI 16; QCSI 3; TQMe 1, 2, 3).

3.7.3 Arrange workshops and training with experts on areas of particular future importance, such as information technology and biological nursing science (PI 16; QCSI 3, 6; TQMe 1, 2, 3).

3.8 Improve the impact and reach of doctoral education in nursing and research in South Africa (PI 17, 18, 19, 23; QCSI 3; TQMe 1, 2, 3, 4, 5).

3.8.1 Advocate for the influence of DoH research priorities by nurses (PI 17, 18, 19, 23; QCSI 3; TQMe 1, 3, 4, 5).

3.8.2 Advocate for the appointment of a Chief Nursing Officer in South Africa to present and advocate for nursing in the government, national organizations and stakeholder groups (PI 17, 19, 23; QCSI 3; TQMe 1, 3, 4, 5).

3.8.3 Advocate for the development and implementation of a career path in clinical practice to enable doctorally qualified nurses to be recognized in clinical practice and have an advanced scope of practice (PI 17, 18, 23; QCSI 3; TQMe 1, 2, 3, 4, 5).

3.8.4 Place greater emphasis on clinical studies by advocating for joint appointments of academic personnel between nursing schools/departments/divisions and clinical practice, and promoting

	<p>research links between nursing schools/departments/divisions and clinical practice (PI 17, 18, 23; QCSI 3; TQMe 1, 2, 3, 4, 5).</p> <p>3.8.5 Promote relationships with clinical practice for clinical and translational research (PI 17, 18, 23; QCSI 3; TQMe 1, 2, 3, 4).</p>
<p>4. To optimize the administration information system co-ordination in nursing schools/departments/divisions.</p>	<p>4.1 Create an administrative doctoral programme co-ordinator post to maintain a complete record keeping system of doctoral graduates and doctoral students to enable appropriate, regular and co-ordinated communication (also 6.3.1) (PI 30, 42, 43, 44, 45; QCSI 4, 5; TQMe 3, 4).</p> <p>4.2 Develop a website for the doctoral programme in nursing at the nursing school/department/division to enable appropriate, regular and co-ordinated communication (PI 30, 42, 43, 44; QCSI 4, 5, 6; TQMe 1, 2, 3, 4, 6).</p> <p>4.2.1 Publish the higher education institution's policies and documentation relevant to research and doctoral education so that expectations and requirements of the higher education institution are clear and explicit (PI 30, 42; QCSI 4, 5, 6; TQMe 3, 4).</p> <p>4.2.2 Publish the nursing school's/department's/division's policies and documentation relevant to research and doctoral education in nursing (PI 30, 42; QCSI 4, 5, 6; TQMe 3, 4).</p>

- 4.2.3 Publish workshop information (e.g. written programme descriptions, recommended reading, workbook, reading materials) (PI 30, 42; QCSI 4, 5, 6; TQMe 2, 3, 4).
- 4.2.4 Publish news and events related to research (e.g. conferences; funding opportunities, scholarship and internship opportunities) and doctoral education (for example doctoral programme workshop dates; doctoral thesis defence dates; informal discussions about scientific subjects – Cafe scientifiques topics and dates) (PI 30, 42, 43; QCSI 4, 5, 6; TQMe 2, 3, 4).
- 4.2.5 Publish links relevant to research and doctoral education (e.g. DoH, DoE, NRF, MRC, CHE, FUNDISA) (PI 42, 43; QCSI 4, 5, 6; TQMe 1, 2, 3, 4).
- 4.2.6 Publish career opportunities in the private sector, government sector, clinical practice and academe (PI 42, 43, 44, 45; QCSI 4, 5, 6; TQMe 3, 4).
- 4.2.7 Create a monthly opinion poll related to the doctoral education in nursing (PI 42, 44; QCSI 4, 5, 6; TQMe 1, 2, 3, 4, 6).
- 4.2.8 Create a blog for nursing doctoral students and doctoral graduates to discuss issues with regard to doctoral education in nursing, nursing and research (PI 42, 44; QCSI 4, 5, 6; TQMe 1, 2, 3, 4, 6).

	<p>4.3 Develop a quarterly electronic mail newsletter for doctoral graduates and doctoral students with information about the doctoral programme in nursing (e.g. important dates, funding opportunities, scholarship and internship opportunities, career opportunities) (PI 42, 44; QCSI 4, 5, 6; TQMe 3, 4).</p> <p>4.4 Dedicate a notice board in the nursing school/department/division for information with regard to the doctoral programme in nursing (e.g. important dates, funding opportunities, scholarship and internship opportunities, career opportunities) (PI 30, 42, 43, 44; QCSI 4, 5, 6; TQMe 1, 2, 3, 4).</p>
<p>5. To pursue multi-lateral co-operation and collaboration in doctoral education in nursing.</p>	<p>5.1 Promote and support co-operation and collaboration with other nursing schools/departments/divisions/colleges at national and international level (also functional tactic 2.2.8) (PI 31, 32; QCSI 4, 6; TQMe 1,2, 3, 4, 5).</p> <p>5.1.1 Establish and support joint or sandwich doctoral programmes with other nursing schools/departments/divisions/colleges at international level to attract students that want to gain international learning experiences and to increase nursing doctoral graduate outputs by relying on resources outside of South Africa (PI 31, 32; QCSI 4, 6; TQMe 1, 2, 3, 4).</p>

	<p>5.1.2 Establish and support doctoral student and academic personnel exchange programmes with other nursing schools/departments/divisions/colleges at international level to provide international learning experiences and enable doctoral students and academic personnel to gain further expertise in the nursing school's/department's/division's research strength and priority (PI 31, 32; QCSI 4, 6; TQMe 1, 2, 3, 4).</p> <p>5.1.3 Develop co-operation and collaboration among nursing schools/departments/divisions at national level, through sharing best practices, sharing information in relation to doctoral education and research, and providing workshops and training in areas of research priority and expertise (PI 31, 32; QCSI 4, 6; TQMe 1, 2, 3, 4).</p> <p>5.1.4 Establish joint research action between other nursing schools/departments/divisions/colleges at national and international level (PI 31, 32; QCSI 4, 6; TQMe 1, 2, 3, 4).</p> <p>5.1.5 Provide incentives for cooperation and collaboration in research and doctoral education between nursing schools/departments/divisions/colleges at national and international level (PI 31, 32; QCSI 4, 6; TQMe 1, 3, 4, 5).</p>
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5.2 Promote and support trans-disciplinary co-operation and collaboration within the respective higher education institution, as well as nationally and internationally (PI 32, 33; QCSI 4, 6; TQMe 1, 2, 3, 4, 5).

5.2.1 Partner with other schools/departments/divisions and faculties within the respective higher education institutions to identify or develop trans-disciplinary doctoral programme courses and research projects (PI 32, 33; QCSI 4, 6; TQMe 1, 2, 3, 4).

5.2.2 Establish joint research action between disciplines within the respective higher education institutions, as well as nationally and internationally (PI 32, 33; QCSI 4, 6; TQMe 1, 2, 3, 4).

5.2.3 Provide incentives for co-operation and collaboration in research and doctoral education between disciplines within the respective higher education institutions, as well as nationally and internationally (PI 32, 33; QCSI 4, 6; TQMe 1, 3, 4, 5).

5.3 Establish and support programmes that create networks and networking among doctoral students and academic personnel in different disciplines, and institutions within the respective higher education institutions, as well as nationally and internationally (PI 31, 32, 33; QCSI 4; TQMe 1, 2, 3, 4).

6. To establish an enabling learning experience that focuses on the needs of doctoral students.

6.1 To increase the participation and success rates of doctoral students in nursing schools/departments/divisions (PI 13, 14, 15, 24, 25, 26, 27, 28, 29, 34, 37, 37, 38, 39; QCSI 2, 3, 4, 5, 6, 7; TQMe 1, 2, 3, 4).

6.1.1 Develop supervision and mentorship capacity amongst academic personnel (also functional tactic 3.4) (PI 24, 25, 26, 37, 39; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).

6.1.2 Develop and put into practice a written retention plan for doctoral students that includes remediation, time management, language and writing skill improvement (PI 24, 25, 26, 37, 39; QCSI 3, 4; TQMe 1, 2, 3, 4).

6.1.3 Ensure a clear and transparent decision process that involves the potential student in the allocation of a promoter (PI 24, 25, 26, 37, 38, 39; QCSI 3, 4, 5, 6; TQMe 1, 2, 3, 4).

6.1.4 Ensure that the promoter and doctoral student sign a learning contract that stipulates the rights, duties and expectation of the promoter and doctoral student, and that the terms are clearly negotiated (PI 24, 25, 26, 37, 39; QCSI 2, 3, 4, 5; TQMe 1, 2, 3, 4).

6.1.5 Ensure that the promoter and doctoral student develop a process flow chart of the doctoral education process that can serve as the plan of action and timeline for the doctoral study (PI 24, 25, 26, 37, 39; QCSI 2, 3, 4, 5, 6; TQMe 1, 2, 3, 4).

	<p>6.1.6 Develop and implement a process where the promoter and or doctoral student can file a complaint in instances of non-compliance with the learning contract (PI 24, 25, 26, 37, 39; QCSI 3, 4, 5, 7; TQMe 1, 2, 3, 4).</p> <p>6.1.7 Provide formal pre-doctoral workshops and professional development training for doctoral students as an orientation to research and doctoral education (PI 24, 25, 26, 28, 29; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).</p> <p>6.1.8 Develop ongoing research training (just in time training) for doctoral students that coincides with each phase of their doctoral studies – for instance proposal development, data collection, data analysis (PI 24, 25, 26, 28, 29; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).</p> <p>6.1.9 Involve second- and third-year doctoral students in the development and presentation of doctoral workshops and professional development training, and research training (PI 24, 25, 26, 27, 28, 29; QCSI 3, 4, 6; TQMe 1, 2, 3, 4).</p> <p>6.1.10 Co-ordinate activity interviews with doctoral students timed to each phase of their doctoral studies so that students and the graduate committee members can engage in open discussions regarding the efficiency and effectiveness of the doctoral programme (PI 24, 25, 26, 27, 28, 29, 37, 38, 39; QCSI 3, 4, 5, 7; TQMe 1, 2, 3, 4).</p>
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6.1.11 Provide financial support for doctoral students by informing them of funded projects in the nursing school/department/division and within the higher education institutions, as well as national and international funding opportunities (PI 3, 4, 5, 6, 7, 34; 59; QCSI 2, 3, 4, 5, 6; TQMe 1, 2, 3, 4).

6.1.12 Enable doctoral students to pursue full-time study by providing part-time research and teacher assistant positions (PI 13, 24, 25, 26; QCSI 2, 3, 6; TQMe 1, 2, 3, 4).

6.1.13 Advocate for the development and implementation of higher education institutional policy with regard to study leave and support of full-time academic personnel registered for doctoral studies (PI 14, 15, 24, 25, 26; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4).

6.1.14 Expand opportunities for doctoral students to study abroad (also 5.1) (PI 24, 25, 26; QCSI 3, 6; TQMe 1, 2, 3, 4).

6.2 Develop and support the psychosocial development of doctoral students in nursing schools/departments/divisions (PI 40, 41; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4, 5).

6.2.1 Encourage and support interaction among doctoral students through workshops, doctoral proposal defences, and fora (PI 40, 41; QCSI 3, 5, 6; TQMe 1, 2, 3, 4).

6.2.2 Organize events where academic personnel, doctoral graduates and doctoral students can interact with one another, such as Cafe scientifiques (informal discussions about scientific topics), debates or in-service training (brown bag sessions) (PI 40; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4).

6.2.3 Develop and implement a mentoring system where academic personnel, doctoral graduates and (second and third-year) doctoral students serve as mentors to doctoral students (PI 40, 41; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4).

6.2.4 Reward and recognize academic personnel, doctoral graduates and (second and third-year) doctoral students for serving as mentors (PI 40, 41; QCSI 2, 3, 5, 6; TQMe 1, 2, 3, 4, 5).

6.3 Provide support structures for doctoral student learning in nursing schools/departments/divisions (PI 35, 53, 55, 56, 57, 58; QCSI 2, 3, 4, 5, 6; TQMe 1, 2, 3, 4).

6.3.1 Create an administrative doctoral programme co-ordinator post to ensure that all administrative processes with regard to the doctoral student (e.g. yearly registration, bi-annually progress reports, title registration) are conducted and appropriate and regular communication is provided to the promoter and doctoral student in this regard (also functional tactic 4.1) (PI 35, 53, 55, 57, 58; QCSI 2,

	<p>3, 5, 6; TQMe 1, 2, 3, 4).</p> <p>6.3.2 Orientate doctoral students to the support structures of the higher education institution – library, statistical consultation services – so that they can make full use of all the institutional resources and maximize their learning experience (PI 35, 53, 55, 57, 58; QCSI 3, 5, 6; TQMe 1, 2, 3, 4).</p> <p>6.3.3 Initiate a visiting scientist programme to provide research and grant development consultation (also functional tactic 3.2.5) (PI 55, 57, 58; QCSI 2, 3, 4, 5, 6; TQMe 1, 2, 3, 4).</p> <p>6.3.4 Provide a well-resourced office space dedicated to doctoral students to work, study and engage in discussions (PI 55, 56, 57, 58; QCSI 3, 5, 6; TQMe 1, 2, 3, 4).</p> <p>6.3.5 Explore and integrate new technologies and modalities – for instance haptics, phonecasting, webcasts, screencasts, webinars, podcasts – which can make doctoral education available to doctoral students entirely independent of location (PI 56; QCSI 2, 3, 4, 5, 6; TQMe 1, 2, 3, 4).</p>
<p>7. To monitor and evaluate the quality of doctoral education in nursing on a regular basis, and perform national and</p>	<p>7.1 Implement a continuous quality improvement approach that provides for regular ongoing comprehensive evaluation of the doctoral programme in nursing using the quality criteria, standards and indicators (PI 60, 61; QCSI 7; TQMe 1, 2, 3, 4, 6).</p>

international benchmarking.

- 7.1.1 Doctoral academic personnel to set metrics or expected outputs for all the quality criteria, standards and indicators of the doctoral programme in nursing and evaluate the programme according to these metrics or expected outputs quarterly (PI 60; QCSI 7; TQMe 1, 2, 3, 4, 6).
- 7.1.2 Implement an annual on-campus doctoral academic personnel retreat for evaluation of the doctoral programme in nursing using the quality criteria, standards and indicators (PI 60; QCSI 7; TQMe 1, 2, 3, 4, 6).
- 7.1.3 Implement external peer review evaluation of the doctoral programme in nursing every five years (PI 60; QCSI 7; TQMe 1, 2, 3, 4, 6).
- 7.1.4 Benchmark the doctoral programme in nursing within the university, and nationally and internationally with other nursing schools/departments/divisions/colleges (PI 60; QCSI 7; TQMe 1, 2, 3, 4, 6).
- 7.1.5 Evaluate the relevance of the doctoral programme in nursing with regard to career preparation and what doctoral graduates have contributed to nursing scholarship and society-at-large, five years post-graduation (PI 60, 61; QCSI 7; TQMe 1, 2, 3, 4, 6).

7.1.6 Evaluate the relevance of the doctoral programme in nursing with regard to employer satisfaction with doctoral graduates; five years post-graduation (PI 60, 61; QCSI 7; TQMe 1, 2, 3, 4, 6).

7.2 Implement a customer focus approach by evaluating customer satisfaction with the doctoral programme in nursing (PI 60, 61; QCSI 7; TQMe 1, 2, 3, 4, 6).

7.2.1 Co-ordinate activity interviews with doctoral students timed to each phase of their doctoral studies so that students and the graduate committee members can engage in open discussions regarding the efficiency and effectiveness of the doctoral programme(also functional tactic 6.1.10) (PI 60, 61; QCSI 7; TQMe 1, 2, 3, 4, 6).

7.2.2 Perform an annual evaluation of the doctoral programme in nursing by doctoral students using the quality criteria, standards and indicators

7.2.3 Conduct entry and exit interviews with all students – those who graduate, as well as those who do not complete (PI 60, 61; QCSI 7; TQMe 1, 2, 3, 4, 6).

7.3 Provide feedback about the doctoral programme in nursing evaluation to academic personnel, administrators and customers, internal and external (PI 60, 62; QCSI 7; TQMe 1, 2, 3, 4, 6).

	<p>7.3.1 Ensure that set metrics and expected outcomes for the quality criteria, standards and indicators of the doctoral programme in nursing and the evaluation thereof are provided to doctoral academic personnel in written form – minutes of the meeting or a summary report (PI 60, 62; QCSI 7; TQMe 1, 2, 3, 4, 6).</p> <p>7.3.2 Publish articles and present the results of the evaluation and trends over time at scientific meetings (PI 60, 62; QCSI 7; TQMe 1, 2, 3, 4, 6).</p> <p>7.3.3 Publish an annual report for distribution to academic personnel, administrators and customers, internal and external, to detail the evaluation of the doctoral programme in nursing using the quality criteria, standards and indicators (PI 60, 62; QCSI 7; TQMe 1, 2, 3, 4, 6).</p> <p>7.3.4 Host a luncheon for academic personnel, administrators and customers, internal and external to present the results of the evaluation and trends of the quality of doctoral education at the nursing school/department/division (PI 60, 62; QCSI 7; TQMe 1, 2, 3, 4, 6).</p>
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5.4.8 IMPLEMENTATION OF THE STRATEGY TO IMPROVE THE QUALITY OF DOCTORAL EDUCATION IN NURSING IN SOUTH AFRICA

The strategy to improve the quality of doctoral education in nursing in South Africa is graphically presented in Figure 5.1.

The implementation of the strategy to improve the quality of doctoral education in nursing can be described as:

The vision of doctoral education in nursing in South Africa, which is “to offer nationally and internationally recognized high quality doctoral education and excellence in scholarship”, gives rise to the mission of doctoral education in nursing.

The mission of doctoral education is to “improve the health and health care for all people in South Africa through excellence in education, research and service and to advance nursing science through dynamic, quality-driven doctoral education and scholarship in nursing that is nationally and internationally recognized for its leadership and innovation; and provides benefits to all stakeholders and customers, both internal and external.” The vision and mission are driven by the values of collaboration, diversity, excellence, innovation, integrity and respect; and the principles of equity and redress, democratization, development, quality, effectiveness and efficiency, academic freedom, institutional autonomy and public accountability.

The strategy to improve the quality of doctoral education in nursing in South Africa is based on TQM philosophy. TQM is based on three fundamental principles that encompass its overall concept and, if they are efficiently administered, will promote the continuous improvement of an organization. The three fundamental principles of TQM are: focus on the customers, internal and external; process improvement and total involvement along with six supporting elements – leadership, education and training, supportive structure, communication, reward and recognition, and measurement.

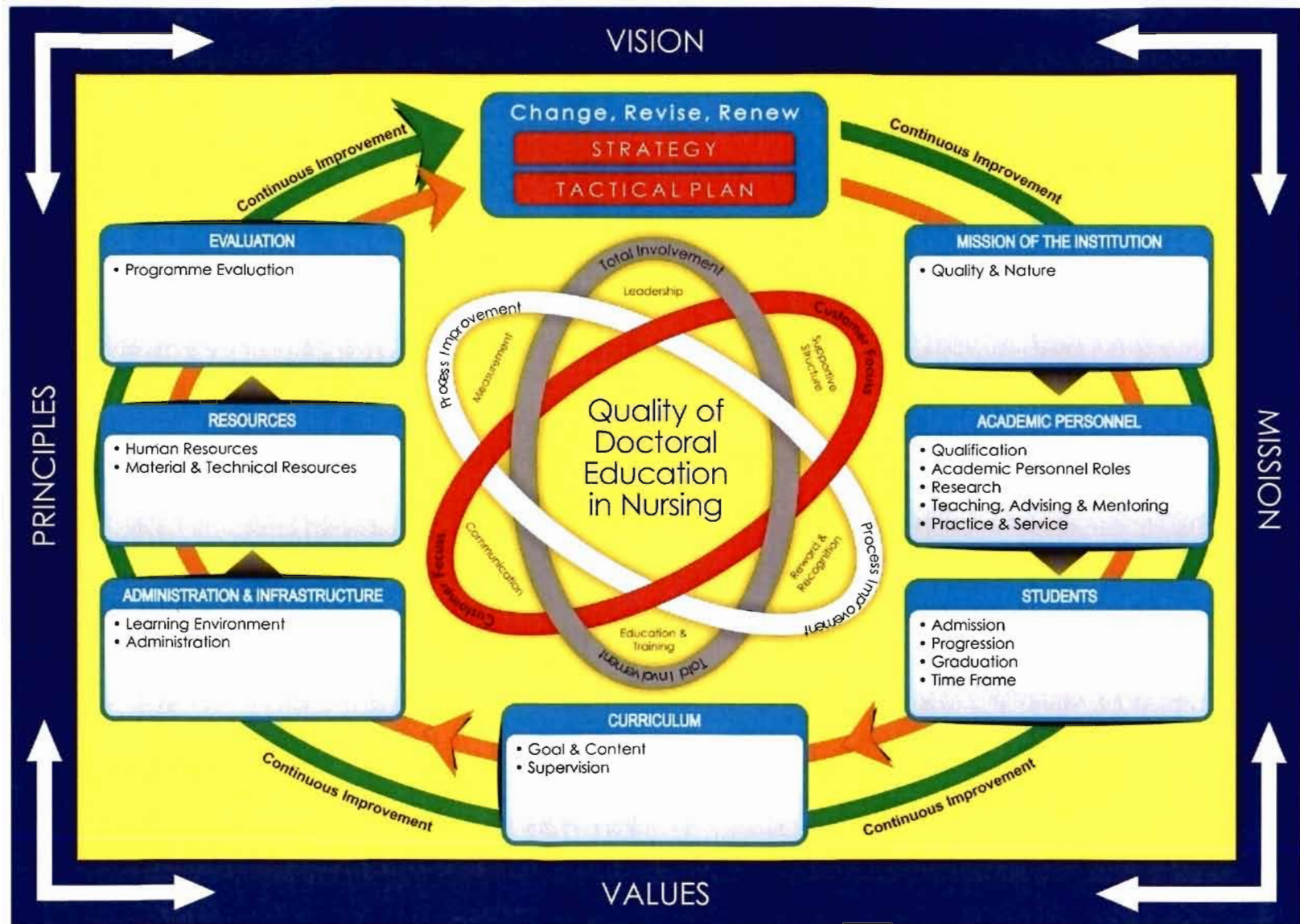


Figure 5.1 Strategy to improve the quality of doctoral education in nursing in South Africa

The strategy objectives are determined in line with the vision, mission, values, principles and assumptions of the strategy and the philosophy of TQM, and from the problems identified that threaten the quality of doctoral education in nursing. These problems are identified by assessing the quality of doctoral education in nursing using the QCSI criteria with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme in order to identify problems with regard to the doctoral programme in nursing. The functional tactics are developed from the strategy objectives in order to enable operationalization and implementation of the strategy objectives, as well as to ensure that strategy objectives can be measured and evaluated.

5.5 SUMMARY

In this chapter, the strategy to improve the quality of doctoral education in nursing in South Africa was discussed in accordance to the strategic process. The strategic process was discussed with regard to the vision, mission, values, principles, assumptions, strategy objectives and functional tactics of the strategy to improve the quality of doctoral education in nursing in South Africa, which were based on problems identified from the comprehensive literature review and the empirical research, the QCSI criteria and TQM philosophy, through the application of the TQM elements. The chapter concluded with a visual portrayal and discussion of the implementation of the strategy to improve the quality of doctoral education in nursing in South Africa.

Chapter Six

Evaluation of the study, limitations and recommendations for practice, education, research and policy



http://www4.esu.edu/current_students/enrollment_serv/graduation/images/pic.jpg

*We shall not cease from
exploration, and the end of all our
exploring will be to arrive where
we started and know the place for
the first time.*

~ Thomas Stearns Eliot ~

CHAPTER SIX

EVALUATION OF THE STUDY, LIMITATIONS, AND RECOMMENDATIONS FOR PRACTICE, EDUCATION, RESEARCH AND POLICY

6.1 OVERVIEW OF THE CHAPTER

In this chapter, the study is evaluated in relation to the achievement of the objectives and rigour, the contributions made to nursing science development are highlighted, limitations are identified and recommendations are made for practice, education, research and policy.

6.2 INTRODUCTION

The overall aim of this study was to develop a strategy to improve the quality of doctoral education in nursing in South Africa. To attain this aim, the following objectives were set:

- To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of nursing deans with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.
- To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of academic personnel with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.

- To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of doctoral graduates with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.
- To explore and describe the quality of doctoral education in nursing in South Africa from the perspective of doctoral students with regard to the nature of the mission, the quality of academic personnel, doctoral students, curriculum, programme administration and infrastructure, availability of institutional resources, and evaluation of the programme.
- To develop a strategy to improve the quality of doctoral education in nursing in South Africa.

6.3 EVALUATION OF THE STUDY

The study is evaluated in two stages. Firstly, the study will be evaluated in relation to the achievement of the objectives and secondly, in relation to the rigour of the study.

6.3.1 EVALUATION OF THE ACHIEVEMENT OF THE OBJECTIVES

The process to develop a strategy to improve the quality of doctoral education in nursing in South Africa was divided into two phases based on the objectives of the study. Phase one consisted of objectives one to four, and entailed a comprehensive literature review and empirical research which resulted in the identification of sixty-two (62) problems with regard to the quality of doctoral education in nursing in South Africa. Phase two consisted of objective five, and comprised the development of a strategy to improve the quality of doctoral education in nursing using the sixty-two (62) problems identified in phase one of the study. A graphical presentation of the phases and objectives of the process to develop a strategy to improve the quality of doctoral education in nursing in South Africa is presented in Figure 6.1, followed by a discussion of each phase of the study.

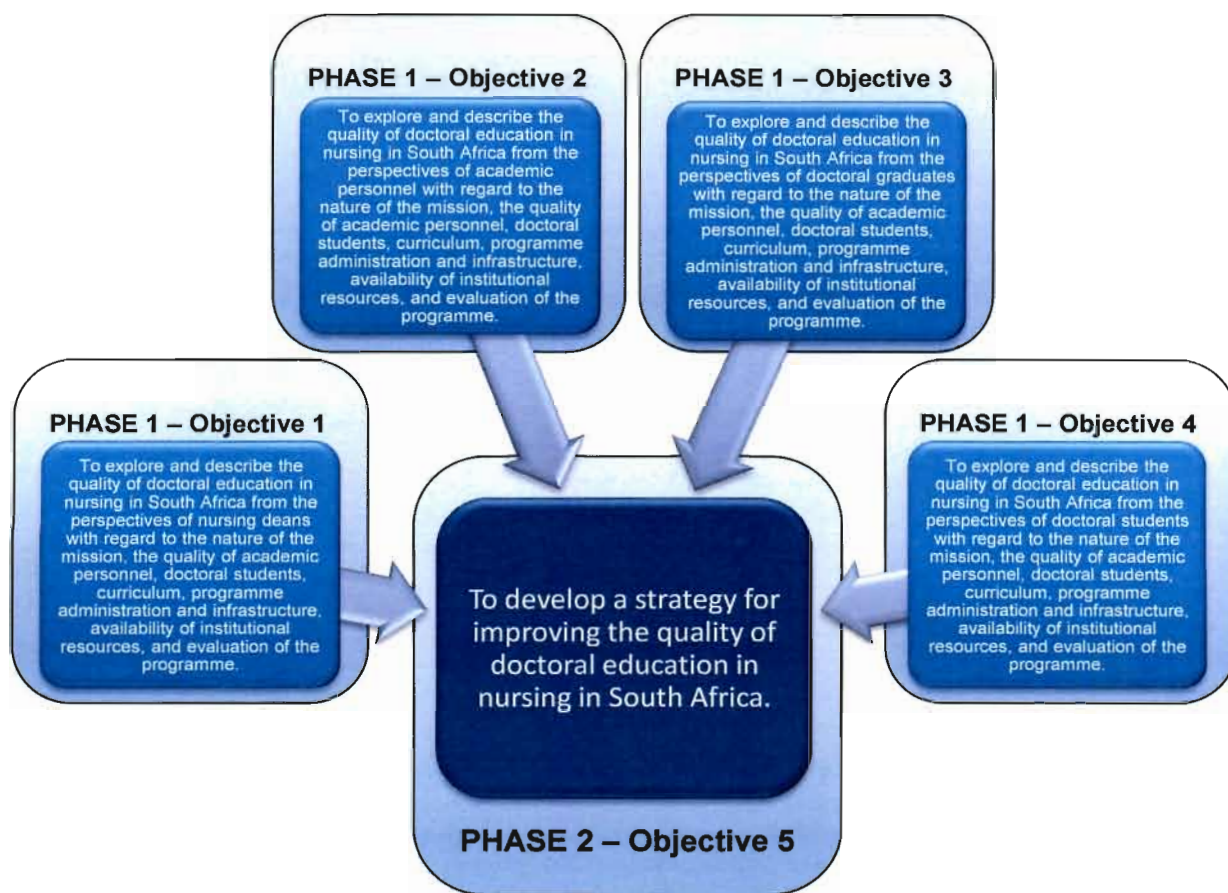


Figure 6.1: A graphical presentation of the phases and objectives of the process to develop a strategy to improve the quality of doctoral education in nursing in South Africa.

6.3.1.1 PHASE 1 – OBJECTIVES 1-4:

Phase 1 – Objectives 1-4 entailed a comprehensive literature review (see Chapter 2), and empirical research (see Chapter 4) using four structured (Likert-type) internet-mediated (by email) questionnaires (see Paragraph 3.4.1) to explore and describe the quality of doctoral education in nursing in South Africa from the perspectives of nursing deans, academic personnel, doctoral graduates and doctoral students. The quality of doctoral education in nursing was described with reference to the QCSI criteria (see Table 2.4) i.e. the mission of the institution (see Paragraphs 2.5.1 and 4.4), the quality

of academic personnel (see Paragraphs 2.5.2 and 4.5), doctoral students (see Paragraphs 2.5.3 and 4.6), curriculum (see Paragraphs 2.5.4 and 4.7), programme administration and infrastructure (see Paragraphs 2.5.5 and 4.8), availability of institutional resources (see Paragraphs 2.5.6 and 4.9), and evaluation of the programme (see Paragraphs 2.5.7 and 4.10), which enabled sixty-two (62) problems (see Table 5.2) with regard to the quality of doctoral education in nursing in South Africa to be identified.

6.3.1.2 PHASE 2 – OBJECTIVE 5:

Phase 2 – Objective 5 comprised the development of a strategy using deductive and inductive logic (see Paragraph 3.5) to improve the quality of doctoral education in nursing (see Chapter 5). The strategy was developed using a strategic process (see Paragraph 5.1) to develop a vision (see Paragraph 5.4.1), mission (see Paragraph 5.4.2), values (see Paragraph 5.4.3), principles (see Paragraph 5.4.4), assumptions (see Paragraph 5.4.5), strategy objectives (see Paragraph 5.4.6), and functional tactics (see Paragraph 5.4.7), based on TQM philosophy (see Paragraph 2.6). Seven strategy objectives were formulated in line with the vision, mission, values and principles for doctoral education in nursing in South Africa and based on the sixty-two (62) problems identified (see Table 5.2) from the literature review and the empirical research. The strategy objectives were also based on TQM philosophy with the goal of continuous improvement of the quality of doctoral education in nursing in South Africa and a focus on total involvement, process improvement and customer focus. The functional tactics were formulated from the strategy objectives, in order to enable operationalization and implementation of the strategy objectives. In addition, the functional tactics were applied to the QCSI criteria (see Table 2.4) i.e. mission of the institution, academic personnel, students, curriculum, administration and infrastructure, resources and evaluation, to allow monitoring and evaluation of the strategy objectives. The functional tactics were also based on TQM philosophy through the application of the TQM elements of leadership, education and training, communication, supportive structure, reward and recognition, and measurement, to ensure that the principles of total

involvement, process improvement and customer focus and the overall objective of continuous improvement of the quality of doctoral education in nursing is achieved.

This is the first study of this nature to be conducted on a national level to explore and describe the quality of doctoral education in nursing in South Africa, to identify problems with regard to the quality of doctoral education in nursing in South Africa using global quality criteria, sub-criteria, standards and indicators for doctoral education, and to develop a strategy to improve the quality of doctoral education in nursing in South Africa and therefore this study makes a unique contribution to the scientific body of knowledge of nursing science. The strategy to improve the quality of doctoral education in nursing is applicable on a national level, as well as on a nursing school/department/division level, and is based on TQM philosophy, which is the pre-eminent approach to ensure quality management and promote continuous improvement of an organization, in this case a nursing school/department/division. In conclusion, the study in itself is part of an international collaborative study to compare the quality of doctoral education in nursing in Australia, Japan, Korea, South Africa, Thailand, United Kingdom (UK) and the United States of America (USA). Also, to develop strategies for improving the quality of doctoral education in nursing among these countries, which in itself is breakthrough research to improve the quality of doctoral education on a global level. However, the international study's focus is on the comparison of quality in doctoral education in the different participating countries, while this study focused on the formulation of a strategy to improve the quality of doctoral education in nursing in South Africa, which is not an objective or expectation of the international study. This study has therefore fulfilled the requirements of doctoral education, in that it has constituted a unique contribution to the scientific body of knowledge of nursing science, and it is meaningful and impacts on the provincial and national level.

6.3.2 EVALUATION OF RIGOUR

The 'final' criterion for excellent research is the evidence of rigorous research. Therefore, the researcher deems it necessary to make concluding remarks about the rigour of the study. The rigour of the study was ensured through the validity and

reliability of the research instrument, applying the construct of trustworthiness, and ensuring the theoretical and inferential validity of the study.

6.3.2.1 RELIABILITY AND VALIDITY OF THE RESEARCH INSTRUMENT

The reliability (see Paragraph 3.6.1) and the validity of the research instrument, with regard to construct (see Paragraph 3.6.2.1) and content validity (Paragraph 3.6.2.2) was discussed and applied to this study prior to the commencement of data collection.

6.3.2.2 TRUSTWORTHINESS OF THE STUDY

The trustworthiness of the study was ensured through the application of the epistemological standards of truth value, applicability, consistency and neutrality, as well as the theoretical and inferential validity of the study.

I. TRUTH VALUE

Truth value (see Paragraph 3.6.3.1) was applied in this study through the techniques of prolonged engagement, triangulation and peer examination. Prolonged engagement was applied through collection of the data from all population groups by the individual researcher over a period of ten months. The researcher is also an academic personnel member working at a higher education institution for the last three years, and thus has experienced prolonged engagement in the context. Triangulation was used by means of collecting data from multiple data sources – nursing deans, academic personnel, doctoral graduates and doctoral students – with regard to the quality of doctoral education in nursing in South Africa, as well as the inclusion of literature. Peer examination was applied through contact sessions with the promoter, who is an expert in the field of nursing education. Also in meeting with statistical consultation services with regard to the development, analysis and interpretation of the data; evaluation of the proposal by the School of Nursing Science ethics committee; an oral defence of the proposal in the presence of the North-West University scientific committee; institutional reviews by nine South African ethical review boards and submission of the thesis for examination by experts in the field of nursing education.

II. APPLICABILITY

Applicability (see Paragraph 3.6.3.2) was applied through the technique of thick description. To ensure applicability of the findings to other contexts and professions, a thick description was given of the background and rationale of the study, the aim and objectives of the study, the ontological, epistemological and methodological assumptions of the researcher, the context of higher education in South Africa, and the research methodology. The research methodology, including the design, methods, data collection, data analysis, and interpretation of the data and development of the strategy to improve the quality of doctoral education in nursing in South Africa was comprehensively documented and linked to the objectives and the theoretic foundations of the study. The strategy to improve the quality of doctoral education in nursing in South Africa could therefore be adapted and transferred to the baccalaureate programme and master's programme in nursing, and even other disciplines.

III. CONSISTENCY

Consistency (see Paragraph 3.6.3.3) was applied through the techniques of an inquiry audit and triangulation. The inquiry audit was established through dense description of the context of higher education and the research methodology used in this study, so that the dependability of the data and supporting documentation could be audited and that another researcher can clearly follow the discussion trail that the researcher used in this study. Triangulation of multiple data sources was applied as discussed in Paragraph 6.3.2.2 (I).

IV. NEUTRALITY

Neutrality (see Paragraph 3.6.3.4) was applied through the techniques of a confirmability audit and triangulation. The confirmability audit was applied through stating the ontological, epistemological and methodological assumptions of the researcher. This was done so that the study can be evaluated to determine to what extent the findings of the study were determined by the participants and conditions, versus the researcher's biases, motivations, interests or perspectives. Also, to ensure

that the raw data, data reduction and analysis products, process notes, material relating to the intentions and dispositions, instrument information and data reconstruction products were made available for external peer review. A dense description of the study's theoretical foundation, the context of higher education in South Africa, methods, findings, interpretations and auditability also contribute to the standard of neutrality in this study. Triangulation of multiple data sources was applied as discussed in Paragraph 6.3.2.2 (l).

6.3.2.3 THEORETICAL VALIDITY

Theoretical validity (see Paragraph 3.6.4) was ensured through the technique of conceptualization. The technique of conceptualization was applied through describing the key concepts in the research, as well as grounding and integrating the research within the accepted body of knowledge in nursing and doctoral education in South Africa, and a theoretical foundation.

6.3.2.4 INFERENTIAL VALIDITY

In this study, inferential validity (see Paragraph 3.6.5) was ensured by inferences (problems identified) through deductive logic from the comprehensive literature review and empirical research. By developing strategy objectives, through deductive logic, that were based on the problems identified from the comprehensive literature review and empirical research, and TQM philosophy. By developing functional tactics, through deductive and inductive logic, that was based on the strategy objectives, QCSI criteria and TQM philosophy through the application of TQM elements.

6.4 LIMITATIONS OF THE STUDY

- The surveys, although based on global quality criteria, sub-criteria, standards and indicators, and pilot tested in South Africa before distribution, had some aspects that were not relevant in the South African context especially with regard to the quality of curriculum criteria questions. As previously discussed, South Africa offers research intensive doctoral education in nursing with no structured

course work; although some nursing schools/departments/divisions make use of either voluntary or compulsory research workshops to orientate prospective/registered doctoral students to doctoral education in nursing (see Paragraph 2.4.3.2). The quality of curriculum criteria questions should therefore have been restructured to ask about such research workshops. However, several participants contacted the researcher to clarify the issue in this regard, and the response rate for the quality of curriculum criteria (see Table 4.42) shows that most participants completed this section in its entirety. The nursing dean surveys also had sections that were not relevant to the South African context, but in the introductory letter, nursing deans were requested to complete only those sections relevant to their respective nursing school/department/division and the overall response rate of the nursing dean survey was 80% (see Table 3.1).

- The length of the questionnaire is one of the most important factors contributing to a poor response rate, and may have influenced the overall response rate of academic personnel, doctoral graduates and doctoral students in this study. This study was part of an international collaborative study to compare the quality of doctoral education in nursing among Australia, Japan, Korea, South Africa, Thailand, United Kingdom (UK) and the United States of America (USA), and to develop strategies for improving the quality of doctoral education in nursing in these countries, and therefore the researcher did not have the prerogative to adjust the surveys without compromising the international study.
- The strategy to improve the quality of doctoral education in nursing in South Africa was developed by an individual in fulfilment of the requirement for the degree philosophiae doctor. Involvement of nursing deans in South Africa in the development of the strategy would have provided valuable insights that could have been incorporated and improved the strategy. This will however be pursued after the completion of the study

6.5 RECOMMENDATIONS

Recommendations are provided to improve the quality of doctoral education in nursing in practice, education, research and policy.

6.5.1 RECOMMENDATIONS FOR PRACTICE

The researcher makes the following recommendations for practice:

- To hold workshops in nursing practice to introduce nurses in practice to doctoral education and discuss the need, purpose and type of contribution doctorally qualified nurses can make in nursing practice, thus building clinical scholarship.
- Involve the nursing practice in doctoral education, by consulting the nurses in practice to assist in the identification of research problems in practice, and consulting nurses in practice as experts in doctoral theses with a clinical focus.
- Negotiate and establish joint appointments where nurses in practice who meet the criteria for doctoral education and research, can serve as promoters and co-promoters of doctoral theses with a clinical focus.

6.5.2 RECOMMENDATIONS FOR EDUCATION

The researcher makes the following recommendations for education:

- To hold a participative workshop to present the research findings and the strategy to improve the quality of doctoral education in nursing in South Africa to nursing deans in South Africa for discussion and feedback, to further change, refine and renew the strategy to improve the quality of doctoral education in nursing in South Africa and ensure its applicability and relevance for all nursing schools/departments/divisions in South Africa.
- To encourage nursing deans to conduct a gap analysis at their respective nursing schools/departments/divisions and apply the relevant strategy objectives and functional tactics to the nursing school/department/division as required.
- To explore the possibility of offering structured PhD programmes in South Africa.

6.5.3 RECOMMENDATIONS FOR RESEARCH

The researcher makes the following recommendations for research:

- To develop a QCSI task team of nursing deans in South Africa to further refine and contextualize the QCSI surveys.
- To encourage each nursing dean to use the QCSI surveys to evaluate the quality of doctoral education in nursing at their nursing school/department/division annually and develop, change, refine and renew strategy objectives to improve the quality of doctoral education in nursing at their nursing school/department/division.
- To encourage nursing deans to provide the data collected from each nursing school/department/division to the QCSI task team of nursing deans in South Africa, so that the quality of doctoral education in nursing in South Africa can be explored and strategy objectives to improve the quality of doctoral education in nursing in South Africa can be changed, refined or renewed. Furthermore, national data about doctoral education in nursing in South Africa can be used to write position papers, publish facts and figures, benchmark with other countries, develop best practice guidelines, develop models for workforce planning for academic personnel, determine trends, identify threats and plan for the future of doctoral education in nursing in South Africa.
- To adapt the QCSI surveys for master's and baccalaureate programmes in nursing to allow the quality of nursing education in master's and baccalaureate programmes to be measured and allow for benchmarking nationally and internationally.
- To adapt the QCSI surveys to other disciplines, to allow the quality of education in doctoral, master's and baccalaureate programmes to be measured and allow for benchmarking across disciplines, nationally and internationally.

6.5.4 RECOMMENDATIONS FOR POLICY

The researcher makes the following recommendations for policy at higher education institutions, and national organizations and government:

- **HIGHER EDUCATION INSTITUTION POLICY:**

- Higher education institutions should develop unified salary structures, incentive distribution systems and opportunities for professional advancement amongst higher education institutions, to encourage an equal distribution of doctorally qualified academic personnel amongst higher education institutions and prevent doctorally qualified academic personnel from moving between higher education institutions because of discrepancies in salary, incentives and professional advancement opportunities.
- Higher education institutions should flag academic personnel in nursing schools/departments/divisions as a scarce skill and increase their salaries to retain and attract academic personnel in nursing schools/departments/divisions.

- **NATIONAL POLICY:**

- The Department of Education (DoE) should develop and implement workforce planning for academic personnel in nursing schools/departments/divisions that consider both the current need and future demand of academic personnel in South Africa.
- The Department of Health (DoH) should increase the salaries of academic personnel in nursing schools/departments/divisions based on the Occupational Specific Dispensation of nurses in clinical practice, in order to retain and attract academic personnel in nursing schools/departments/divisions.
- The DoH should create a career path for advanced practitioners in the clinical practice setting.
- The South African Nursing Council (SANC) should develop an advanced scope of practice.
- SANC or FUNDISA should implement a system to recognize doctorally qualified nurses in South Africa.

6.6 SUMMARY

The purpose of this study was to explore and describe the quality of doctoral education in nursing in South Africa and to develop a strategy to improve the quality of doctoral education in nursing in South Africa. This chapter provided a reflective overview of the study by evaluating the study in relation to the achievement of the objectives and rigour, identifying limitations and providing recommendations for practice, education, research and policy.

~ Soli Deo Gloria ~

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Addendum A: Nursing dean survey



Survey of the Quality of Nursing Doctoral Education

- Nursing Dean/Department Head -

Please write your answers or mark (x) for your response. You may attach separate relevant documents if necessary.

1. How closely do the vision, goals, mission, and objectives of the nursing doctoral program align with those of your University?

Not at all closely1
 Somewhat closely2
 Quite closely.....3
 Very closely.....4

2. How likely will achievement of the program objectives contribute to meeting student needs in the following areas?

	Very unlikely	Somewhat unlikely	Somewhat likely	Very likely
a. Occupational/Career	1	2	3	4
b. Intellectual	1	2	3	4
c. Research skill	1	2	3	4
d. Cultural	1	2	3	4

3. Please provide the following statistics regarding enrollment in the doctoral program in the prior 3 years.

	2006	2007	2008
a. Total number of students admitted to doctoral program	_____	_____	_____
b. Total number of students currently enrolled in doctoral program	_____	_____	_____

4. In 2008, please answer the following for the students in your doctoral program.

a. Total number of students taking mainly course work _____
 b. Total number of students doing mainly dissertation research (post qualifying and preliminary examinations) _____
 c. Total number of full-time students unemployed _____

5. For the prior three years, please provide the number of graduates from the doctoral program and how many of those have accepted career positions upon completion of the program.

	2006	2007	2008
a. Total number of graduates	_____	_____	_____
b. Total number employed since graduation	_____	_____	_____
c. Employed as full-time faculty	_____	_____	_____
d. Part-time lecturer/adjunct faculty	_____	_____	_____
e. Researcher (out of academia)	_____	_____	_____
f. Clinical practice	_____	_____	_____
g. Others (please specify: _____)	_____	_____	_____

6. Please describe the admission standards and any special requirements (i.e., interview, experience, license) to be admitted to the program. In addition, please indicate if the following items are part of the current admission standards and identify the required minimum criteria.

- a. ___ Professional performance: proportion (%) _____ minimum criteria score _____
 aa. Undergraduate GPA: minimum criteria (score) _____
 ab. Graduate GPA: minimum criteria (score) _____
 ac. Clinical experience: minimum criteria (score) _____
 ad. Publication: minimum criteria (score) _____
 ae. Others (please specify: _____): minimum criteria (score) _____
- b. ___ Written exam: proportion (%) _____ minimum criteria (score) _____
- c. ___ Oral exam: proportion (%) _____ minimum criteria (score) _____
- d. ___ Interview: proportion (%) _____ minimum criteria (score) _____
- e. ___ Others (please specify: _____): proportion (%) _____ minimum criteria (score) _____

7. How many semester* hours must be completed to earn a doctorate post master's degree?

- a. Total number of semester hours in core** courses: _____ hours
 b. Total number of semester hours required for graduation: _____ hours

*Semester hours are credit hours for 15 week instruction. If you have different system, please prorate the credit hours

**Core courses refer to required courses for all doctoral students

8. Do students have to register for dissertation research?

Yes _____: If yes, minimum semester hours required: _____ semester hours
 No _____

9. What is the total number of credit hours (in semester hours = 15 weeks) required for graduation to the doctoral program?
 _____ semester hours

What are the core courses and their credit hours?

Course Titles	Credit hours (Semester hours)
Philosophy of Science for Health Research	_____
Theory and theory development for Nursing Research	_____
Advanced Research Design	_____
Measurement in Health Research	_____
Research Seminars	_____
Advanced Nurse Practicum	_____
Leadership in Scientific Careers	_____
Others (please specify)	_____
_____	_____
_____	_____
_____	_____

10. How many hours per semester are required for faculty to teach?
 _____ hours/semester

11. On average, how many hours per semester have faculty actually taught in the prior year?
 _____ hours/semester

12. Are any doctoral courses taught by faculty included in their required teaching hours?
 Yes _____
 No _____: If not, is there a separate honorarium for faculty to teach doctoral courses?
Yes _____
No _____

13. What types and levels of financial support are available to doctoral students? Mark (x) all that apply.

	Yes	No
a. Tuition waiver (full)	_____	_____
b. Tuition waiver (partial)	_____	_____
c. Stipend	_____	_____
d. Special program/conference support	_____	_____
e. Research support	_____	_____
f. Scholarship	_____	_____
g. Others (Please specify: _____)	_____	_____

14. Is there a graduate committee within the department or college that provides administrative advice or recommendations to the person who leads or directs the graduate program?
 Yes _____
 No _____

15. What is the maximum number of semester hours allowed for students with full-time jobs?
 _____ hours/semester
 _____ no limitation

16. Is the budget for the doctoral program separate from the budget for your undergraduate program?

Yes _____

No _____

17. Are there any courses or certificate programs available in collaboration with graduate programs in other disciplines?

Yes _____: If yes, describe the process _____

No _____

18. Do dissertation committee members receive any special honorarium for advising on dissertations?

Yes _____

No _____

19. In which semester are doctoral students assigned to their academic advisors?

_____ semester

20. Please comment on dissertation committees as follows:

a. Stage (semester) at which dissertation committee finalized: _____ semester

b. Minimum total number of committee members needed, including chair: _____

c. Number of committee members: In college/dept _____

Outside college/dept _____

No limitation _____

21. Please provide the eligibility criteria for serving as the dissertation committee chair and members in your school/department. Please mark all that apply:

a. _____ PhD or doctoral degree

b. _____ Nurse

c. _____ Non nurse

d. Others (please specify)

22. What additional questions/comments would you pose about nursing doctoral education?

THE FOLLOWING ADDITIONAL QUESTIONS ARE SPECIFICALLY FOR THOSE DOCTORAL PROGRAMS THAT OFFER RESEARCH DOCTORATES WITHOUT COURSEWORK REQUIREMENTS:

- 23. Does your institution have well developed system to foster quality research including consultation on grant proposal and analysis of data?**
 Not well.....1
 Somewhat well2
 Quite well3
 Very well.....4
- 24. The emphasis of the supervision is consistent with the mission of the university and the discipline of nursing.**
 Not well.....1
 Somewhat well2
 Quite well3
 Very well.....4
- 25. Emphasis is on nursing science and research training in supervision**
 Not agree1
 Somewhat agree.....2
 Quite agree3
 Completely agree.....4
- 26. The supervision includes areas appropriate for a doctorate degree in nursing (e.g. theory development, research methodologies for quantitative and qualitative research, ethical consideration in research, dissertation seminars, etc.)**
 Not agree1
 Somewhat agree.....2
 Quite agree3
 Completely agree.....4
- 27. Students receive formal training in research ethics**
 Yes
 No
- 28. The written rules and policies for students undertaking a doctorate program is available to students, staff, and academics**
 Yes
 No
- 29. How would you rate the quality of supervision in your doctorate program?**
 Poor.....1
 Fair.....2
 Good3
 Excellent.....4

BACKGROUND INFORMATION

30. In what year were you born? _____ year
31. Are you:
Male 1
Female..... 2
32. When was your doctoral degree granted? (mm/yy) _____ / _____
Domestic _____
International _____
33. Did you earn your doctoral degree from the same school where you earned your Baccalaureate degree?
_____ Yes
_____ No
34. Which is the type of doctoral degree (e.g., PhD, DNS, EdD): _____
35. When did you begin your doctoral program?
(mm/yy) _____ / _____
36. How long did you take courses before you took preliminary or qualifying examinations for your doctoral degree?
_____ years _____ months
37. After coursework and examinations, how long did it take to complete your dissertation?
_____ years _____ months
38. What is the primary field that the science of your dissertation best applies?
Adult nursing 1
Child health nursing 2
Community health nursing..... 3
Geriatric nursing..... 4
Mental health nursing 5
Nursing administration 6
Nursing informatics 7
Women and family health..... 8
Biological nursing science 9
Others (please specify)..... 10
39. In your dissertation studies, were the objects of the study/analysis:
Persons 1
Systems..... 2
Animals 3
Literature/data base..... 4
Other..... 5

40. Please list 3 key concepts relating to the science of your dissertation.

41. If your dissertation research was interdisciplinary, list the disciplines incorporated (e.g. psychology, sociology, epidemiology, medicine, etc.)

Thank you for completing the questionnaire survey. Please e-mail the completed questionnaire survey to Siedine.Knobloch@nwu.ac.za or fax it to 018 299 1715 to the attention of Siedine Knobloch.

BACKGROUND INFORMATION

30. In what year were you born? _____ year
31. Are you:
Male..... 1
Female..... 2
32. When was your doctoral degree granted? (mm/yy) _____ / _____
Domestic _____
International _____
33. Did you earn your doctoral degree from the same school where you earned your Baccalaureate degree?
____ Yes
____ No
34. Which is the type of doctoral degree (e.g., PhD, DNS, EdD): _____
35. When did you begin your doctoral program?
(mm/yy) _____ / _____
36. How long did you take courses before you took preliminary or qualifying examinations for your doctoral degree?
_____ years _____ months
37. After coursework and examinations, how long did it take to complete your dissertation?
_____ years _____ months
38. What is the primary field that the science of your dissertation best applies?
Adult nursing 1
Child health nursing 2
Community health nursing 3
Geriatric nursing 4
Mental health nursing 5
Nursing administration 6
Nursing informatics 7
Women and family health 8
Biological nursing science 9
Others (please specify) 10
39. In your dissertation studies, were the objects of the study/analysis:
Persons 1
Systems 2
Animals 3
Literature/data base 4
Other 5

40. Please list 3 key concepts relating to the science of your dissertation.

41. If your dissertation research was interdisciplinary, list the disciplines incorporated (e.g. psychology, sociology, epidemiology, medicine, etc.)

Thank you for completing the questionnaire survey. Please e-mail the completed questionnaire survey to Siedine.Knobloch@nwu.ac.za or fax it to 018 299 1715 to the attention of Siedine Knobloch.

Addendum B: Academic personnel survey



Survey of the Quality of Nursing Doctoral Education

- Academic Personnel -

Thank you for agreeing to complete this questionnaire, regarding the quality of doctoral education in nursing which consists of 5 sections, namely: program, resources, academic personnel, evaluation, and background information. Directions are provided for each section or question. Please write your answers or mark (x) for your response.

A. PROGRAM.

The following section asks about the doctoral program of your school/department. This includes content, scholarship, learning environment, program administration and infrastructure of your doctoral education. For each question below, please mark (x) the response that comes closest to the way you feel.

		Strongly Disagree	Disagree	Agree	Strongly Agree
1.	The importance of research is clearly stated as a goal of the doctoral program by both the university and the school/department of nursing.	1	2	3	4
2.	Your institution values, supports, and provides rewards to students for their research and scholarly activities.	1	2	3	4
3.	Your institution has a well-developed system to foster quality research (e.g., consultation on grant proposal and statistics).	1	2	3	4
4.	The emphasis of the content of the program is consistent with the mission of the university and the discipline of nursing.	1	2	3	4
5.	There is a clear emphasis on nursing science and research training in the content of the program.	1	2	3	4
6.	Academic personnel research expertise areas (e.g., nursing ethics, women's health, biobehavioral science, genetic nursing, etc.) are presented in the content of the program.	1	2	3	4

		Strongly Disagree	Disagree	Agree	Strongly Agree
7.	The content of the program includes core information (e.g., theory development, research methodologies for qualitative and quantitative research, ethical considerations in research, doctoral dissertation/thesis seminars, etc.) and other relevant information (e.g., leadership, policy, etc.) appropriate for doctoral degree in nursing.	1	2	3	4
8.	All students receive formal training in ethics and the protection of human/animal subjects in research.	1	2	3	4
9.	Program descriptions are written and available to students and academic personnel in detail.	1	2	3	4
10.	The program includes interdisciplinary doctoral dissertation/thesis research seminars.	1	2	3	4
11.	The environment is supportive of students' learning.	1	2	3	4
12.	The program has a process in place that fosters socialization of students to doctoral education, and facilitates interaction among students, and between academic personnel and students.	1	2	3	4
13.	There are sufficient numbers of academic personnel to facilitate learning.	1	2	3	4
14.	There are administration systems in place to ensure that academic personnel carry out regular and appropriate supervision of students' progress.	1	2	3	4
15.	Sufficient materials and information are available for students (e.g., financial support, scholarships, grants, and resources).	1	2	3	4
16.	Sufficient information about careers is available.	1	2	3	4
17.	Academic personnel provide recommendation letters when needed and seek job opportunities for students.	1	2	3	4

18.	Please answer the following questions regarding professional development.	a) Please mark (x) any training that is required during doctoral program for professional development	b) Please mark (x) any training your school/ department has offered for professional development
a.	Presentation skills	_____	_____
b.	Writing proposals for funding	_____	_____
c.	Preparing manuscripts for publication	_____	_____
d.	Working in collaborative groups	_____	_____
e.	Conducting independent research/scholarship	_____	_____
f.	Project management	_____	_____
g.	Research ethics	_____	_____
h.	Speaking to non-academic audiences	_____	_____
i.	Lecturing in undergraduate or graduate courses	_____	_____
j.	Leadership development (e.g., attending international conferences, leading discussion sections of undergraduate or graduate courses, etc.)	_____	_____
k.	Others (please specify: _____)	_____	_____

19.	Please mark (x) any of the following you think should be required after the completion of a doctoral program.	
a.	Post-doc	
b.	Internship	
c.	Publication	
d.	Proposal development	
e.	Others _____ (please specify: _____)	

20.	Does your doctoral program provide doctoral students with opportunities to:	Yes	No
a.	Receive formal instruction in teaching.	1	2
b.	Receive formal supervision and evaluation in teaching.	1	2
c.	Teach in a variety of academic environments.	1	2

21.	Do academic personnel participate in annual or more frequent assessment of your students' progress?	Yes	No
		1	2

22. How would you rate the quality of the research basis for the doctoral program?

1 Poor

2 Fair

3 Good

4 Excellent

23. How would you rate the content of your doctoral program?

1 Poor

2 Fair

3 Good

4 Excellent

PLEASE CONTINUE WITH SECTION B ON THE NEXT PAGE

B. ACADEMIC PERSONNEL

The next section asks about the quality of academic personnel, which includes qualification, teaching, advisement, mentoring, practice, service, and diverse roles. Please mark (x) the response that comes closest to the way you feel.

		Strongly Disagree	Disagree	Agree	Strongly Agree
24.	Academic personnel members meet the requirements of the university for graduate research and doctoral education.	1	2	3	4
25.	Academic personnel members have expertise in the subject area appropriate for student learning.	1	2	3	4
26.	Academic personnel members have evidence of extramural support for their research and for their success in obtaining funding support for their students, such as fellowships or bursaries.	1	2	3	4
27.	Academic personnel members have sufficient evidence of scholarship, and have published in peer-reviewed journals.	1	2	3	4
28.	Academic personnel members have teaching experience in nursing education prior to working with doctoral students.	1	2	3	4
29.	Academic personnel members provide students with diverse and challenging learning experiences (e.g., social, ethical, cultural, economic, and political issues related to nursing, health care, and research).	1	2	3	4
30.	Academic personnel members have been certified in nursing specialties and hold membership in professional organizations/societies.	1	2	3	4
31.	Academic personnel members demonstrate fulfillment of diverse academic personnel responsibilities and roles, including teaching, research, service, and mentoring.	1	2	3	4
32.	Academic personnel members mentor and assist students to understand the value of programs of research and scholarship.	1	2	3	4
33.	Academic personnel members utilize resources within the university and broader community to support program goals.	1	2	3	4
34.	Academic personnel members devote significant time to students' doctoral dissertation/thesis research.	1	2	3	4
35.	Academic personnel members give timely feedback on students' research.	1	2	3	4

36.	How many post-graduate students do you advise/mentor?			
	Doctoral students	_____	Master's students	_____

37.	In the prior 3 years, how many doctoral students have you financially supported from your research projects?	_____
-----	--	-------

38.	How many semester hours are you currently teaching?		
	Doctoral program _____	Master's program _____	Undergraduate program _____

39.	On average, how many doctoral courses and semester hours per year have you taught?	Courses: _____
		Hours: _____
		Percentage: _____
Solo teaching: courses: _____ hours: _____		Team teaching: courses: _____ hours: _____

40.	Overall, do you think that you are spending sufficient time advising/mentoring doctoral students			
	1 Very unlikely	2 Somewhat unlikely	3 Somewhat likely	4 Very likely

41.	Please mark (x) any of the following training programs you have experienced at least for a year.	
	Exchange/visiting professor	
	Postdoctoral fellowship	
	International training program (please specify _____)	
	Others (please specify _____)	

42.	In the prior 3 years, how many papers have you published in peer-reviewed scholarly journals?	_____
-----	---	-------

43.	In the prior 3 years, how many times have you attended professional meetings and presented?	
	Domestic: attendance _____	Presentation (including posters) _____
	International: attendance _____	Presentation (including posters) _____

44.	In the prior 5 years, have you received extramural funding from externally-reviewed sources?	Yes 1	No 2
If YES, in the prior 5 years, how many extramural funding have you received from externally-reviewed resources?			
Government _____ please specify _____ International organization _____ please specify _____ Others _____ please specify _____			

45.	How would you rate the overall quality of teaching by academic personnel in your doctoral program?		
1 Poor	2 Fair	3 Good	4 Excellent

PLEASE CONTINUE WITH SECTION C ON THE NEXT PAGE

C. RESOURCES

The next section asks about the resources of the university and the school/department of nursing in which your doctoral program resides. Please mark (x) your response.

		Strongly Disagree	Disagree	Agree	Strongly Agree
46.	Number of technical and support staff is sufficient to support doctoral students.	1	2	3	4
47.	Research infrastructure is appropriate for facilitating research and education.	1	2	3	4
48.	Advanced computing facilities with Internet access are in place.	1	2	3	4
49.	Advanced information technology is available for research and education at off-sites, if offered.	1	2	3	4
50.	Library has sufficient holdings, search engines, and databases.	1	2	3	4
51.	School/department building provides sufficient space for student activities (e.g., seminar, offices, student lounge).	1	2	3	4
52.	School/department is equipped with sufficient resources for teaching and research (e.g., computers, photocopiers, teleconference capability).	1	2	3	4
53.	School/department has relevant and ancillary facilities for education; training and research (e.g., affiliated hospitals, community health agencies).	1	2	3	4
54.	The school/department has various sources of funding for student research.	1	2	3	4

PLEASE CONTINUE WITH SECTION D ON THE NEXT PAGE

D. EVALUATIONS

The next section asks about evaluation of your school's/department's doctoral program.

55.	Does your school/department evaluate the doctoral program on a regular basis?	Yes 1	No 2
If your response is NO, please skip to Question 61			
If your response is YES, please mark (x) the response that comes closest to the way you feel.			

		Strongly Disagree	Disagree	Agree	Strongly Agree
56.	Program evaluation systems adhere to ethical and procedural standards for formal program evaluation (e.g., confidentiality).	1	2	3	4
57.	Students and graduates have been involved in program evaluation activities.	1	2	3	4
58.	Program evaluation is systematic, ongoing, comprehensive, and focuses on the university's and program's specific mission.	1	2	3	4
59.	School/department provides comprehensive data in order to determine patterns and trends of nursing doctoral education and recommend future directions at regular intervals.	1	2	3	4
60.	Regular feedback is provided to program academic personnel, administrators, and external constituents.	1	2	3	4

61.	How would you rate the overall quality of your doctoral program?						
1	Poor	2	Fair	3	Good	4	Excellent

62.	How would you rate the intellectual milieu of your program?						
1	Poor	2	Fair	3	Good	4	Excellent

63.	Considering the overall intellectual environment of your school/department and university, how much do you think you have benefited from it?						
1	Not at all	2	A little	3	Some	4	A lot

PLEASE CONTINUE WITH SECTION E ON THE NEXT PAGE

E. BACKGROUND INFORMATION

64.	In what year were you born?				
-----	-----------------------------	--	--	--	--

65.	Your gender?	1 Male	2 Female
-----	--------------	-----------	-------------

66.	What is your current position in your school/department?			
	1 Professor	2 Associate professor	3 Senior Lecturer	4 Lecturer
	Other (please specify) _____			

67.	When was your doctoral degree granted?	MM/YYYY	1 Domestic	2 International
-----	--	---------	------------	-----------------

68.	Which is the type of doctoral degree (e.g., PhD, EdD)?	
-----	--	--

69.	How long did it take to complete your doctoral dissertation/thesis?	
	_____ years	_____ months

70.	What is the primary field that the science of your doctoral dissertation/thesis best applies?	
	Medical/surgical nursing	1
	Child health nursing	2
	Community health nursing	3
	Geriatric nursing	4
	Mental health nursing	5
	Nursing administration	6
	Nursing informatics	7
	Women and family health	8
	Biological nursing science (e.g., physiology, pharmacology, etc.)	9
	Others (please specify: _____)	10

71.	In your doctoral dissertation/thesis studies, were the objects of the study/analysis:	
	Persons	1
	Systems	2
	Animals	3
	Literature/databases	4
	Other	5

72.	Please list 3 key concepts/keywords relating to the science of your doctoral dissertation/thesis.		

73.	If your doctoral dissertation/thesis research was interdisciplinary, list the disciplines incorporated (e.g. psychology, sociology, epidemiology, medicine, etc.)		

74.	Did you earn your doctoral degree from the same school/department where you earned your Baccalaureate degree?	Yes 1	No 2
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75.	Are you employed in the same school/department where you earned your Baccalaureate degree?	Yes 1	No 2
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76.	What additional questions/comments would you pose about nursing doctoral education?		

The following additional questions are specifically for those doctoral programs that offer research doctorate without coursework requirement:

77.	Does your institution have well developed system to foster quality research including consultation on grant proposal and analysis of data?		
	1. Not well	2. Somewhat well	3. Quite well
			4. Very well

78.	The emphasis of the supervision is consistent with the mission of the university and the discipline of nursing.		
	1. Disagree	2. Somewhat agree	3. Quite agree
			4. Completely agree

79.	Emphasis is on nursing science and research training in supervision.		
	1. Disagree	2. Somewhat agree	3. Quite agree
			4. Completely agree

80.	The supervision includes areas appropriate for a doctorate degree in nursing (e.g. theory development, research methodologies for quantitative and qualitative research, ethical consideration in research, doctoral dissertation/thesis seminars, etc.).		
1. Disagree	2. Somewhat agree	3. Quite agree	4. Completely agree

81.	The written rules and policies for students undertaking a doctorate program is available to students, staff, and academics.	
1. Yes	2. No	

82.	How would you rate the quality of supervision in your doctoral program?		
1. Poor	2. Fair	3. Good	4. Excellent

 Thank you for completing the questionnaire survey. Please e-mail the completed questionnaire survey to Siedine.Knobloch@nwu.ac.za or fax it to 018 299 1715.

Addendum C: Doctoral graduate survey



Survey of the Quality of Nursing Doctoral Education

- Doctoral Graduates -

Thank you for agreeing to complete this questionnaire, which consists of 5 sections regarding the quality of doctoral education in nursing: program, resources, academic personnel, evaluations, and background information. Directions are provided for each section or question. Please write your answers or mark (x) for your response.

A. PROGRAM.

The following section asks about the doctoral program of your school/department. This includes program content, scholarship, learning environment, program administration and infrastructure of your doctoral education. For each question below, please mark (x) the response that comes closest to the way you feel.

		Strongly Disagree	Disagree	Agree	Strongly Agree
1	The importance of research is clearly stated as a goal of the doctoral program by both the university and the school/department of nursing.	1	2	3	4
2	Your institution values, supports, and provides rewards to students for their research and scholarly activities.	1	2	3	4
3	Your institution has a well-developed system to foster quality research (e.g., consultation on grant proposal and statistics).	1	2	3	4
4	The emphasis of the program content is consistent with the mission of the university and the discipline of nursing.	1	2	3	4
5	There is a clear emphasis on nursing science and research training in the program content.	1	2	3	4
6	Academic personnel research expertise areas (e.g., nursing ethics, women's health, biobehavioral science, genetic nursing, etc.) are presented in the program content.	1	2	3	4

		Strongly Disagree	Disagree	Agree	Strongly Agree
7	The program content includes core information (e.g., theory development, research methodologies for qualitative and quantitative research, ethical considerations in research, dissertation/thesis seminars, etc.) and other relevant information (e.g., leadership, policy, etc.) appropriate for doctoral degree in nursing.	1	2	3	4
8	All students receive formal training in ethics and the protection of human/animal subjects in research.	1	2	3	4
9	Program descriptions are written and available to students and academic personnel in detail.	1	2	3	4
10	The program includes interdisciplinary dissertation/thesis research seminars.	1	2	3	4
11	The environment is supportive of students' learning.	1	2	3	4
12	The program has a process in place that fosters socialization of students to doctoral education, and facilitates interaction among students, and between academic personnel and students.	1	2	3	4
13	There are sufficient numbers of academic personnel to facilitate learning.	1	2	3	4
14	There are administration systems in place to ensure that academic personnel carry out regular and appropriate supervision of students' progress.	1	2	3	4
15	Sufficient materials and information are available for students (e.g., financial support, scholarships, grants, and resources).	1	2	3	4
16	Sufficient information about careers is available.	1	2	3	4
17	Academic personnel provide recommendation letters when needed and seek job opportunities for students.	1	2	3	4

18.	During your PhD/doctoral program, did you receive training for the	Yes	No
-----	--	-----	----

	following?		
a.	Presentation skills	1	2
b.	Writing proposals for funding	1	2
c.	Preparing manuscripts for publication	1	2
d.	Working in collaborative groups	1	2
e.	Conducting independent research/scholarship	1	2
f.	Project management	1	2
g.	Research ethics	1	2
h.	Speaking to nonacademic audiences	1	2
i.	Lecturing in undergraduate or graduate courses	1	2
j.	Leadership development (e.g., attending international conferences, leading discussion sections of undergraduate or graduate courses, etc.)	1	2
k.	Others (please specify: _____)	1	2

19.	Please mark (x) any of the following you think should be required after the completion of a doctoral program.	
a.	Post-doc	
b.	Internship	
c.	Publication	
d.	Proposal development	
e.	Others (please specify: _____)	

20.	If you have had teaching experience, please answer the following:	Yes	No
a.	I received formal instruction in teaching.	1	2
b.	I received formal supervision and evaluation in teaching.	1	2
c.	I had opportunities to teach in a variety of academic environments. If YES, please specify: _____	1	2

21.	Did your program provide annual or more frequent assessment of your progress?	Yes 1	No 2
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22.	How would you rate the quality of your research experience?	
1	Poor	2 Fair
3	Good	4 Excellent
5	Not applicable	

23.	How would you rate the program content of your PhD/doctoral program?
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1 Poor	2 Fair	3 Good	4 Excellent
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PLEASE CONTINUE WITH SECTION B ON THE NEXT PAGE

B. ACADEMIC PERSONNEL

The next section asks about the quality of academic personnel, which includes qualification, teaching, advisement, mentoring, practice, service, and diverse roles. Please consider all the academic personnel of your school/department that you experienced during the doctoral program, including dissertation/thesis research, working as a research/teaching assistant and student activities, and mark (x) the response that comes closest to the way you feel.

		Strongly Disagree	Disagree	Agree	Strongly Agree
24.	Academic personnel members meet the requirements of the university for graduate research and doctoral education.	1	2	3	4
25.	Academic personnel members have expertise in the subject area appropriate for student learning.	1	2	3	4
26.	Academic personnel members have evidence of extramural support for their research and for their success in obtaining funding support for their students, such as fellowships or bursaries.	1	2	3	4
27.	Academic personnel members have sufficient evidence of scholarship, and have published in peer-reviewed journals.	1	2	3	4
28.	Academic personnel members have teaching experience in nursing education prior to working with doctoral students.	1	2	3	4
29.	Academic personnel members provide students with diverse and challenging learning experiences (e.g., social, ethical, cultural, economic, and political issues related to nursing, health care, and research).	1	2	3	4
30.	Academic personnel members have been certified in nursing specialties and hold membership in professional organizations/societies.	1	2	3	4
31.	Academic personnel members demonstrate fulfillment of diverse academic personnel responsibilities and roles, including teaching, research, service, and mentoring.	1	2	3	4
32.	Academic personnel members mentor and assist students to understand the value of programs of research and scholarship.	1	2	3	4
33.	Academic personnel members utilize resources within the university and broader community to support program goals.	1	2	3	4
34.	Academic personnel members devote significant time to students' dissertation/thesis research.	1	2	3	4
35.	Academic personnel members give timely feedback on students' research.	1	2	3	4

36.	Do you have one or more academic personnel members at your institution that you consider mentor(s) (i.e., individuals from whom you seek advice about your education, career development, and other matters of concern to you)?	Yes	No
		1	2

37.	How would you rate the overall quality of teaching by academic personnel in your doctoral program?		
	1 Poor	2 Fair	3 Good

PLEASE CONTINUE WITH SECTION C ON THE NEXT PAGE

C. RESOURCES

The next section asks about the resources of the university and the school/department of nursing in which your doctoral program resided. Please mark (x) your response.

		Strongly Disagree	Disagree	Agree	Strongly Agree
38.	Number of technical and support staff is sufficient to support doctoral students.	1	2	3	4
39.	Research infrastructure is appropriate for facilitating research and education.	1	2	3	4
40.	Advanced computing facilities with Internet access are in place.	1	2	3	4
41.	Advanced information technology is available for research and education at off-sites, if offered.	1	2	3	4
42.	Library has sufficient holdings, search engines, and databases.	1	2	3	4
43.	School/department building provides sufficient space for student activities (e.g., seminar, offices, student lounge).	1	2	3	4
44.	School/department is equipped with sufficient resources for teaching and research (e.g., computers, photocopiers, teleconference capability).	1	2	3	4
45.	School/department has relevant and ancillary facilities for education, training and research (e.g., affiliated hospitals, community health agencies).	1	2	3	4
46.	The school/department has various sources of funding for student research.	1	2	3	4

PLEASE CONTINUE WITH SECTION D ON THE NEXT PAGE

D. EVALUATIONS

The next section asks about the evaluation of your school/department's doctoral program.

47.	Does your school/department evaluate the doctoral program on a regular basis?	Yes 1	No 2
If your response is NO, please skip to Question 53.			
If your response is YES, please mark (x) the response that comes closest to the way you feel.			

		Strongly Disagree	Disagree	Agree	Strongly Agree
48.	Program evaluation systems adhere to ethical and procedural standards for formal program evaluation (e.g., confidentiality).	1	2	3	4
49.	Students and graduates have been involved in program evaluation activities.	1	2	3	4
50.	Program evaluation is systematic, ongoing, and comprehensive and focuses on the university's and program's specific mission.	1	2	3	4
51.	School/department provides comprehensive data in order to determine patterns and trends of nursing doctoral education and recommend future directions at regular intervals.	1	2	3	4
52.	Regular feedback is provided to program academic personnel, administrators, and external constituents.	1	2	3	4

53.	How would you rate the overall quality of your doctoral program?						
1	Poor	2	Fair	3	Good	4	Excellent

54.	How would you rate the intellectual liveliness of your program?						
1	Poor	2	Fair	3	Good	4	Excellent

55.	Considering the overall intellectual environment of your school/department and university, how much do you think you have benefited from it?						
1	Not at all	2	A little	3	Some	4	A lot

PLEASE CONTINUE WITH SECTION E ON THE NEXT PAGE

E. BACKGROUND INFORMATION

56. In what year were you born?

57. Your sex? 1 Male 2 Female

58. When was your doctoral degree granted? MM/YYYY Domestic International

59.	Did you earn your doctoral degree from the same school/department where you earned your Baccalaureate degree?	Yes	No
		1	2

60. What is the type of doctoral degree (e.g., PhD, DNS, EdD)?:

61. How many years did you work on your dissertation/thesis research?
 years months

62. When did you start your doctoral program? MM / YYYY

63.	What is the primary field that the science of your dissertation/thesis best applies?	
	Medical/Surgical nursing	1
	Child health nursing	2
	Community health nursing	3
	Geriatric nursing	4
	Mental health nursing	5
	Nursing administration	6
	Nursing informatics	7
	Women and family health	8
	Biological nursing science (e.g., physiology, pharmacology, etc.)	9
Others (please specify: <input type="text"/>)	10	

64.	In your dissertation/thesis studies, were the objects of the study/analysis:	
	Persons	1
	Systems	2
	Animals	3
	Literature/databases	4
	Other	5

65.	Please list 3 key concepts under the primary field of your dissertation/thesis.

66.	If your dissertation/thesis research was interdisciplinary, list the names of disciplines (e.g., medicine, psychology, sociology, etc.).

67.	Did you receive full or partial tuition remission (waiver) for your doctoral studies?	
	I did not receive any tuition remission	1
	Less than 1/3 of tuition	2
	Between 1/3 and 2/3 of tuition	3
	More than 2/3 of tuition but less than full	4
	Full tuition remission	5

68.	Which of the following are sources of financial support during your doctoral program? Mark ALL that apply.	
	Fellowship, scholarship	1
	Grant, stipend	2
	Teaching/research assistantship	3
	Traineeship	4
	Loans (from any source)	5
	Personal savings	6
	Personal earnings during graduate school/department (other than sources listed above)	7
	Spouse's, partner's, or family earnings or savings	8
	Employer reimbursement/assistance	9
Others (please specify: _____)	10	

69.	When you received your doctoral degree, how much money did you owe that was directly related to doctoral graduate education, including tuition, dissertation/thesis research expenses, and book costs?	
	Nothing	1
	Less than R5 000	2
	R5 000 – R9 999	3
	R10 000 – R14 999	4
	R15 000 – R19 999	5
	R20 000 – R24 999	6
	R25 000 or greater	7

70.	Are you currently employed as:	
	Full-time academic personnel in nursing school/department	1
	Part-time academic personnel in nursing school/department	2
	Full-time nurse in hospital	3
	Part-time nurse in hospital	4
	Unemployed(please describe 3 top reasons: _____ _____ _____)	5
	Others (please specify: _____)	6

71.	During your doctoral program, indicate how many times you presented (including poster presentations) at research conferences.	
a.	On your campus	_____ times
b.	At national or regional meetings	_____ times
c.	At international meetings	_____ times

72.	During your doctoral program, indicate how many authored or co-authored research publications you participated in (include pieces accepted for publication but not yet published)?	
a.	Non peer-reviewed articles	_____ times
b.	Peer-reviewed articles	_____ times
c.	Book chapters	_____ times
d.	Book reviews	_____ times
e.	Books or edited volumes	_____ times

73. What additional questions/comments would you pose about nursing doctoral education?

74. Does your institution have well developed systems to foster quality research including consultation on grant proposal and analysis of data?

1. Not well	2. Somewhat well	3. Quite well	4. Very well
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75. The emphasis of the supervision is consistent with the mission of the university and the discipline of nursing.

1. Not agree	2. Somewhat agree	3. Quite agree	4. Completely agree
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76. Emphasis is on nursing science and research training in supervision.

1. Not agree	2. Somewhat agree	3. Quite agree	4. Completely agree
--------------	-------------------	----------------	---------------------

77. The supervision includes areas appropriate for a doctorate degree in nursing (e.g., theory development, research methodologies for quantitative and qualitative research, ethical consideration in research, dissertation/thesis seminars, etc.).

1. Not agree	2. Somewhat agree	3. Quite agree	4. Completely agree
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78. The written rules and policies for students undertaking a doctorate program is available to students, staff, and academics.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
------------------------------	-----------------------------

79. How would you rate the quality of supervision in your doctoral program?

1. Poor	2. Fair	3. Good	4. Excellent
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Thank you for completing the questionnaire survey. Please e-mail the completed questionnaire survey to Siedine.Knobloch@mwu.ac.za or fax it to 018 299 1715.

Addendum D: Doctoral student survey



Survey of the Quality of Nursing Doctoral Education

- Doctoral Students -

Thank you for agreeing to complete this questionnaire, regarding the quality of nursing doctoral education which consists of five sections, namely: program, resources, academic personnel, evaluation, and background information. Directions are provided for each section or question. Please write your answers or mark (x) for your response.

A. PROGRAM.

The following section asks about the doctoral program of your school/department. This includes program content, scholarship, learning environment, program administration and infrastructure of your doctoral education. For each question below, please mark (x) the response that comes closest to the way you feel.

		Strongly Disagree	Disagree	Agree	Strongly Agree
1	The importance of research is clearly stated as a goal of the doctoral program by both the university and the school/department of nursing.	1	2	3	4
2	Your institution values, supports, and provides rewards to students for their research and scholarly activities.	1	2	3	4
3	Your institution has a well-developed system to foster quality research (e.g., consultation on grant proposal and statistics).	1	2	3	4
4	The emphasis of the program content is consistent with the mission of the university and the discipline of nursing.	1	2	3	4
5	There is a clear emphasis on nursing science and research training in the program content.	1	2	3	4
6	Academic personnel research expertise areas (e.g., nursing ethics, women's health, biobehavioral science, genetic nursing, etc.) are presented in the program content.	1	2	3	4

		Strongly Disagree	Disagree	Agree	Strongly Agree
7	The program content includes core information (e.g., theory development, research methodologies for qualitative and quantitative research, ethical considerations in research, dissertation/thesis seminars, etc.) and other relevant information (e.g., leadership, policy, etc.) appropriate for a doctoral degree in nursing.	1	2	3	4
8	All students receive formal training in ethics and the protection of human/animal subjects in research.	1	2	3	4
9	Program descriptions are written and available to students and academic personnel in detail.	1	2	3	4
10	The program includes interdisciplinary dissertation/thesis research seminars.	1	2	3	4
11	The environment is supportive of students' learning.	1	2	3	4
12	The program has a process in place that fosters socialization of students to doctoral education, and facilitates interaction among students, and between academic personnel and students.	1	2	3	4
13	There are sufficient numbers of academic personnel to facilitate learning.	1	2	3	4
14	There are administration systems in place to ensure that academic personnel carry out regular and appropriate supervision of students' progress.	1	2	3	4
15	Sufficient materials and information are available for students (e.g., financial support, scholarships, grants, and resources).	1	2	3	4
16	Sufficient information about careers is available.	1	2	3	4
17	Academic personnel provide recommendation letters when needed and seek job opportunities for students.	1	2	3	4

18.	During your PhD/doctoral program, did you receive training for the	Yes	No
-----	--	-----	----

	following?		
a.	Presentation skills	1	2
b.	Writing proposals for funding	1	2
c.	Preparing manuscripts for publication	1	2
d.	Working in collaborative groups	1	2
e.	Conducting independent research/scholarship	1	2
f.	Project management	1	2
g.	Research ethics	1	2
h.	Speaking to nonacademic audiences	1	2
i.	Lecturing in undergraduate or graduate courses	1	2
j.	Leadership development (e.g., attending international conferences, leading discussion sections of undergraduate or graduate courses, etc.)	1	2
k.	Others (please specify: _____)	1	2

19.	Please mark (x) any of the following you think should be required after the completion of a doctoral program.	
a.	Post-doc	
b.	Internship	
c.	Publication	
d.	Proposal development	
e.	Others (please specify: _____)	

20.	If you have had teaching experience, please answer the following:	Yes	No
a.	I received formal instruction in teaching.	1	2
b.	I received formal supervision and evaluation in teaching.	1	2
c.	I had opportunities to teach in a variety of academic environments. If YES, please specify: _____	1	2

21.	Does your program provide annual or more frequent assessment of your progress?	Yes	No
		1	2

22.	How would you rate the quality of your research experience?			
1 Poor	2 Fair	3 Good	4 Excellent	5 Not applicable

23.	How would you rate the program content of your PhD/doctoral program?
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1 Poor	2 Fair	3 Good	4 Excellent
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PLEASE CONTINUE WITH SECTION B ON THE NEXT PAGE

B. ACADEMIC PERSONNEL

The next section asks about the quality of academic personnel, which includes qualification, teaching, advisement, mentoring, practice, service, and diverse roles. Please consider all the academic personnel of your school/department that you have experienced during the doctoral program, including dissertation/thesis research, working as a research/teaching assistant and student activities, and mark (x) the response that comes closest to the way you feel.

		Strongly Disagree	Disagree	Agree	Strongly Agree
24.	Academic personnel members meet the requirements of the university for graduate research and doctoral education.	1	2	3	4
25.	Academic personnel members have expertise in the subject area appropriate for student learning.	1	2	3	4
26.	Academic personnel members have evidence of extramural support for their research and for their success in obtaining funding support for their students, such as fellowships or bursaries.	1	2	3	4
27.	Academic personnel members have sufficient evidence of scholarship, and have published in peer-reviewed journals.	1	2	3	4
28.	Academic personnel members have teaching experience in nursing education prior to working with doctoral students.	1	2	3	4
29.	Academic personnel members provide students with diverse and challenging learning experiences (e.g., social, ethical, cultural, economic, and political issues related to nursing, health care, and research).	1	2	3	4
30.	Academic personnel members have been certified in nursing specialties and hold membership in professional organizations/societies.	1	2	3	4
31.	Academic personnel members demonstrate fulfillment of diverse academic personnel responsibilities and roles, including teaching, research, service, and mentoring.	1	2	3	4
32.	Academic personnel members mentor and assist students to understand the value of programs of research and scholarship.	1	2	3	4
33.	Academic personnel members utilize resources within the university and broader community to support program goals.	1	2	3	4
34.	Academic personnel members devote significant time to students' dissertation/thesis research.	1	2	3	4
35.	Academic personnel members give timely feedback on students' research.	1	2	3	4

36.	Do you have one or more academic personnel members at your institution that you consider mentor(s) (i.e., individuals from whom you seek advice about your education, career development, and other matters of concern to you)?	Yes 1	No 2
-----	---	----------	---------

37.	How would you rate the overall quality of teaching by academic personnel in your doctoral program?		
1 Poor	2 Fair	3 Good	4 Excellent

PLEASE CONTINUE WITH SECTION C ON THE NEXT PAGE

C. RESOURCES

The next section asks about the resources of the university and the school/department of nursing in which your doctoral program resides. Please mark (x) your response.

		Strongly Disagree	Disagree	Agree	Strongly Agree
38.	Number of technical and support staff is sufficient to support doctoral students.	1	2	3	4
39.	Research infrastructure is appropriate for facilitating research and education.	1	2	3	4
40.	Advanced computing facilities with Internet access are in place.	1	2	3	4
41.	Advanced information technology is available for research and education at off-sites, if offered.	1	2	3	4
42.	Library has sufficient holdings, search engines, and databases.	1	2	3	4
43.	School/department building provides sufficient space for student activities (e.g., seminar, offices, student lounge).	1	2	3	4
44.	School/department is equipped with sufficient resources for teaching and research (e.g., computers, photocopiers, teleconference capability).	1	2	3	4
45.	School/department has relevant and ancillary facilities for education; training and research (e.g., affiliated hospitals, community health agencies).	1	2	3	4
46.	The school/department has various sources of funding for student research.	1	2	3	4

PLEASE CONTINUE WITH SECTION D ON THE NEXT PAGE

D. EVALUATIONS

The next section asks about the evaluation of your school/department's doctoral program.

47.	Does your school/department evaluate the doctoral program on a regular basis?	Yes 1	No 2
If your response is NO, please skip to Question 53.			
If your response is YES, please mark (x) the response that comes closest to the way you feel.			

		Strongly Disagree	Disagree	Agree	Strongly Agree
48.	Program evaluation systems adhere to ethical and procedural standards for formal program evaluation (e.g., confidentiality).	1	2	3	4
49.	Students and graduates have been involved in program evaluation activities.	1	2	3	4
50.	Program evaluation is systematic, ongoing, and comprehensive, and focuses on the university's and program's specific mission.	1	2	3	4
51.	School/department provides comprehensive data in order to determine patterns and trends of nursing doctoral education and recommend future directions at regular intervals.	1	2	3	4
52.	Regular feedback is provided to program academic personnel, administrators, and external constituents.	1	2	3	4

53.	How would you rate the overall quality of your doctoral program?						
1	Poor	2	Fair	3	Good	4	Excellent

54.	How would you rate the intellectual liveliness of your program?						
1	Poor	2	Fair	3	Good	4	Excellent

55.	Considering the overall intellectual environment of your school/department and university, how much do you think you have benefited from it?						
1	Not at all	2	A little	3	Some	4	A lot

PLEASE CONTINUE WITH SECTION E ON THE NEXT PAGE

E. BACKGROUND INFORMATION

56. In what year were you born?

57. Your gender? 1 Male 2 Female

58. Are you:

Part-time student? 1	Full-time student? 2
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59. When did you start your doctoral program? MM / YY

60. What is the primary field that the science of your dissertation/thesis best applies?

Medical/surgical nursing	1
Child health nursing	2
Community health nursing	3
Geriatric nursing	4
Mental health nursing	5
Nursing administration	6
Nursing informatics	7
Women and family health	8
Biological nursing science (e.g., physiology, pharmacology, etc.)	9
Others (please specify: _____)	10

61. In your dissertation/thesis studies, are the objects of the study/analysis:

Persons	1
Systems	2
Animals	3
Literature/databases	4
Other	5

62. Please list 3 key concepts under the primary field of your dissertation/thesis.

63. If your dissertation/thesis research is interdisciplinary, list the names of disciplines (e.g., medicine, psychology, sociology, etc.).

64. Have you received full or partial tuition remission/bursary for your doctoral studies?

I did not receive any tuition remission/bursary	1
Less than 1/3 of tuition	2
Between 1/3 and 2/3 of tuition	3
More than 2/3 of tuition but less than full	4
Full tuition remission	5

65. Which of the following are sources of financial support during your doctoral program? Mark ALL that apply.

Fellowship, scholarship	1
Grant, stipend, bursary	2
Teaching/research assistantship	3
Traineeship	4
Loans (from any source)	5
Personal savings	6
Personal earnings during graduate school/department (other than sources listed above)	7
Spouse's, partner's, or family earnings or savings	8
Employer reimbursement/assistance	9
Others (please specify: _____)	10

66. When you receive your doctoral degree, approximately how much money will you owe that is directly related to doctoral graduate education, including tuition, dissertation/thesis research expenses, and book costs?

Nothing	1
Less than R5 000	2
R5 000 – R9 999	3
R10 000 – R14 999	4
R15 000 – R19 999	5
R20 000 – R24 999	6
R25 000 or greater	7

67.	Are you currently employed as:	
	Full-time academic personnel in nursing school/department	1
	Part-time academic personnel in nursing school/department	2
	Full-time nurse in hospital	3
	Part-time nurse in hospital	4
	Unemployed(please describe 3 top reasons: _____ _____ _____)	5
	Others (please specify: _____)	6

68.	During your doctoral program, indicate how many times you have presented (including poster presentations) at research conferences.	
a.	On your campus	_____ times
b.	At national or regional meetings	_____ times
c.	At international meetings	_____ times

69.	During your doctoral program, indicate how many authored or co-authored research publications you participated in (include pieces accepted for publication but not yet published)?	
a.	Non peer-reviewed articles	_____ times
b.	Peer-reviewed articles	_____ times
c.	Book chapters	_____ times
d.	Book reviews	_____ times
e.	Books or edited volumes	_____ times

70.	What additional questions/comments would you pose about nursing doctoral education?

71.	Does your institution have well developed systems to foster quality research including consultation on grant proposal and analysis of data?		
1. Not well	2. Somewhat well	3. Quite well	4. Very well

72.	The emphasis of the supervision is consistent with the mission of the university and the discipline of nursing.		
1. Disagree	2. Somewhat agree	3. Quite agree	4. Completely agree

73. Emphasis is on nursing science and research training in supervision.

- | | | | |
|-------------|-------------------|----------------|---------------------|
| 1. Disagree | 2. Somewhat agree | 3. Quite agree | 4. Completely agree |
|-------------|-------------------|----------------|---------------------|

74. The supervision includes areas appropriate for a doctorate degree in nursing (e.g., theory development, research methodologies for quantitative and qualitative research, ethical consideration in research, dissertation/thesis seminars, etc.).

- | | | | |
|--------------|-------------------|----------------|---------------------|
| 1. Not agree | 2. Somewhat agree | 3. Quite agree | 4. Completely agree |
|--------------|-------------------|----------------|---------------------|

75. The written rules and policies for students undertaking a doctorate program is available to students, staff, and academics.

- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

76. How would you rate the quality of supervision in your doctoral program?

- | | | | |
|---------|---------|---------|--------------|
| 1. Poor | 2. Fair | 3. Good | 4. Excellent |
|---------|---------|---------|--------------|

Thank you for completing the questionnaire survey. Please e-mail the completed questionnaire survey to Siedine.Knobloch@nwu.ac.za or fax it to 018 299 1715.

Addendum E: Nursing dean explanatory letter



NORTH-WEST UNIVERSITY
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School of Nursing Science
Tel: (018) 299 1717
Fax (018) 299 1715
EMail Hester.Klopper@nwu.ac.za

28 February 2009

Dear Nursing Dean

PERMISSION TO CONDUCT RESEARCH AT _____

We are writing to ask for your help with a survey that aims to compare the quality of nursing doctoral education in Australia, Japan, Korea, **South Africa**, Thailand, United Kingdom, and the United States of America. This study will target all South African universities that offer nursing doctoral education. The survey seeks to gain insights on the current status of nursing doctoral education in South Africa, as well as the six other countries listed above from the perspectives of nursing deans, academic personnel, nursing doctoral graduates and nursing doctoral students. Results of the survey will help develop strategies for improving the quality of nursing doctoral education in South Africa, as well as the six other countries that are collaborators in this study.

The information you provide in the survey will be kept confidential, and it will be used for research purposes only. You should not put your name or that of your university on the survey, so that neither you nor your university can ever be connected to the results in any way. The results of the study will be reported in group, so that individual persons or universities cannot be identified. Only with your generous help, by you sharing your experiences and opinions, can this research be useful. It should take you about 20-30 minutes to complete. This survey is voluntary. If for some reason you prefer not to respond, please let us know via e-mail.

This study further targets all current academic personnel, nursing doctoral graduates who have completed their doctoral education in the most recent three years and registered nursing doctoral students. We thus request permission to make contact with the academic personnel, nursing doctoral graduates and nursing doctoral students at your nursing school/department/division in order to introduce them to this research study, and request them to complete a survey developed specifically for each of the respective population groups. These surveys are available for you to review upon such a request. We would most appreciate if you would provide us with the contact details of an academic personnel member or administrative personnel member who would be able to supply us with the contact details of nursing doctoral graduates that have completed their doctoral education at your nursing school in the most recent three years and the current registered nursing doctoral students.

The study and its procedures have received ethical clearance from the North-West University Ethics Committee (NWU-0085-08-A1). If you have any questions or comments about the study, please call or e-mail us at the numbers or e-mail addresses listed below.

Thank-you very much for helping with this important research.

Kind Regards



Hester Klopper (Country PI & Promoter)
Email: Hester.Klopper@nwu.ac.za
Tel: (018) 299 1715
Fax: (018) 299 1717



Siedine Knobloch (PhD Candidate)
Email: Siedine.Knobloch@nwu.ac.za
Tel: (018) 299 1879
Fax: (018) 299 1717

I understand that my participation in this research project is voluntary and that I may refuse to participate or withdraw my consent and stop partaking in the research at any time without penalty. I furthermore give permission for the researchers to contact the academic personnel, nursing doctoral graduates and nursing doctoral students at my nursing school/department/division to complete a questionnaire survey at the participants own discretion.

Signature of Nursing Dean

Addendum F: Cover letter



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School of Nursing Science
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Fax (018) 299 1715
EMail Siedine.Knobloch@nwu.ac.za

24 October 2009

Dear _____

REQUEST TO PARTICIPATE IN THE QUALITY OF DOCTORAL NURSING EDUCATION (QNDE) STUDY

We are writing to ask for your help with a survey that aims to compare the quality of nursing doctoral education in Australia, Japan, Korea, **South Africa**, Thailand, United Kingdom, and the United States of America. This survey seeks to gain insights on the current status of nursing doctoral education in South Africa, as well as the six other countries listed above from the perspectives of nursing deans, academic personnel, doctoral graduates and doctoral students. Results of the survey will help develop strategies for improving the quality of nursing doctoral education in South Africa, as well as the six other countries that are collaborators in this study.

The information you provide in the attached survey will be kept confidential, and it will be used for research purposes only. You should not put your name or that of your university on the survey, so that neither you nor your university can ever be connected to the results in any way. The results of the study will be reported in group, so that individual persons or universities cannot be identified. Specifically, your individual responses will not be made available to your employer/school officials.

Only with your generous help, by you sharing your experiences and opinions, can this research be useful. It should take you about 20-30 minutes to complete. This survey is voluntary. If for some reason you prefer not to respond, please let us know via e-mail.

The study and its procedures have received ethical clearance from the North-West University Ethics Committee (NWU-0085-08-A1) as well as at your university ethics review board at _____ (_____) and consent has been received from your Nursing Dean, _____, to contact you with the request to participate in this study.

If you have any questions or comments about the study, please call or e-mail us at the numbers or e-mail addresses listed below.

Your consideration of this request is most sincerely appreciated. Please email completed surveys to Siedine.Knobloch@nwu.ac.za or fax it to 018 299 1715 before the **24th November 2009.**

Thank-you very much for helping with this important study.

Kind Regards



Hester Klopper (Country PI)
Email: Hester.Klopper@nwu.ac.za
Tel: (018) 299 1715
Fax: (018) 299 1717



Siedine Knobloch (PhD Candidate)
Email: Siedine.Knobloch@nwu.ac.za
Tel: (018) 299 1879
Fax: (018) 299 1717

Addendum G: Follow-up emails

FIRST CONTACT

Dear _____

REQUEST TO PARTICIPATE IN THE QUALITY OF DOCTORAL NURSING EDUCATION (QNDE) STUDY

You are invited to take part in a research project regarding the Quality of Nursing Doctoral Education (QNDE) in South Africa.

Your comments and views are very important and will be viewed with the utmost confidentiality and anonymity. Attached you will find the survey with a letter explaining the importance of the study. The completion of the survey will take about 20-30 minutes.

Please complete the survey and return it on or before 30th June 2009 to: Siedine Knobloch (email Siedine.Knobloch@nwu.ac.za or fax 018 299 1715)

Your participation will be highly appreciated and thank you for your co-operation.

Kind Regards
Siedine

Ms Siedine Knobloch
(M.Cur; RN; RM)
Research Project Manager
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Vrywaring:
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SECOND CONTACT

Dear _____

REMINDER: REQUEST TO PARTICIPATE IN THE QUALITY OF DOCTORAL NURSING EDUCATION (QNDE) STUDY

A survey asking about the Quality of Nursing Doctoral Education (QNDE) in South Africa was sent to you about two weeks ago. We were wondering if you were able to consider our request and if you could please complete the survey at your earliest convenience.

We are especially grateful for your help because it is only by asking people like you to share your experiences and opinions that we can better understand the current status of doctoral education in nursing in South Africa. It should take you about 20-30 minutes to complete. If for some reason you prefer not to respond, please let us know via e-mail.

Your consideration of this request is most sincerely appreciated. **Please complete the survey and return it on or before 30th June 2009 to: Siedine Knobloch (email Siedine.Knobloch@nwu.ac.za or fax 018 299 1715)**

Your participation will be highly appreciated and thank you for your co-operation.

Kind Regards
Siedine

Ms Siedine Knobloch
(M.Cur; RN; RM)
Research Project Manager
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Potchefstroom Campus
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THIRD CONTACT

Dear _____

REMINDER: REQUEST TO PARTICIPATE IN THE QUALITY OF DOCTORAL NURSING EDUCATION (QNDE) STUDY

About one month ago, we asked for your participation in a survey asking about your perspectives regarding the quality of doctoral education in nursing in South Africa you have experienced. To the best of our knowledge, it has not yet been completed. We are writing again because it is important to receive input from as many people as possible since everyone has unique circumstances, experiences and opinions.

Only with your generous help, by you sharing your experiences and opinions, can this research be useful. It should take you about 20-30 minutes to complete. This survey is voluntary. If for some reason you prefer not to respond, please let us know via e-mail.

Your consideration of this request is most sincerely appreciated. **Please complete the survey and return it on or before 30th June 2009 to: Siedine Knobloch (email Siedine.Knobloch@nwu.ac.za or fax 018 299 1715)**

Thank-you very much for helping with this important study.

Kind Regards
Siedine

Ms Siedine Knobloch
(M.Cur; RN; RM)
Research Project Manager
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Tel: +27 (0) 18 299 1879
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Addendum H: North-West University ethics certificate



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AUThER
Tel: (018) 299 4037
Fax: (018) 299 2464
E-mail: Este.Vorster@nwu.ac.za

Mrs. Marietjie Halgryn

16 October 2008

Dear Marietjie

ETHICS APPLICATION: NWU-0085-08-S5

Because this Research Protocol has already been approved by the Expedited review process of the University of Illinois at Chicago it is recommended that approval by the NWU Ethics Committee is given without further panel evaluation.

Kind Regards

Este (H.H.) Vorster

Prof. H.H. Vorster