EXPERIENCES OF COMMUNITY SERVICE RADIOGRAPHERS DURING THEIR TRANSITION INTO THE WORKPLACE WITHIN THE ETHEKWINI DISTRICT OF DURBAN, SOUTH AFRICA

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Dissertation submitted in fulfilment of the requirements for the Master of Health Sciences in Radiography degree at the Durban University of Technology.

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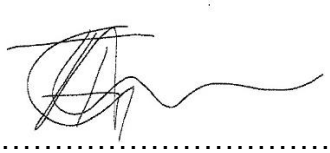
Date : 15 November 2018

DECLARATION

I, Tawanda Alfred Gilbert Chipere, do hereby declare that this dissertation represents my own work and that as far as I know, no other similar dissertation exists.



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DEDICATION

I dedicate this dissertation to my dear mother, Pamelah.

ACKNOWLEDGEMENTS

I would like to express my gratitude to the following, who were instrumental to me during the period I wrote this dissertation:

Dr. P.B. Nkosi, for her tirelessness and meticulous guidance offered in the construction of this document;

Mr. T. Motaung, for offering constant support, guidance and encouragement;

The Durban University of Technology, for affording me the opportunity to study and complete the Master of Health Sciences in Radiography degree;

The gatekeepers at the KZN Department of Health; at the different hospitals where studies were conducted; and the study participants, for granting me permission to conduct my studies and affording me their time;

My mother, Pamelah, for the constant encouragement, patience, and support;

and family and friends, who spurred me on to complete my qualification, and gave me invaluable moral support.

ABSTRACT

INTRODUCTION

Community service diagnostic radiographers have high professional expectations, but their initial workplace experiences often deviate sharply from these. As they transition into the workplace, they may experience a myriad of negative events, and these have a greater individual impact when experienced during the fragile transitional phase. Negative early career experiences may lead to reduced quality output, and eventual attrition from the already short-staffed profession. In South Africa, no studies have been carried out that detail the transitional phase in the careers of radiographers. Understanding the professional transitional phase as detailed by community service radiographers may help to address their needs, which can assist in shaping support structures for future community service radiographers. This may ultimately assist in radiographer retention within hospitals for the benefit of patients and the healthcare industry.

AIM

To explore and describe the lived experiences of community service radiographers during their transition into the workplace, in order to ensure improved transitional experiences for future community service radiographers.

METHODOLOGY

Criterion sampling was used to select five hospitals within the eThekwini District. From these hospitals, seven community service radiographers were interviewed, using a phenomenological approach. Face-to-face, one-on-one interviews were conducted by means of semi-structured questions, and the obtained data was transcribed verbatim. Interpretive phenomenological analysis was then employed to identify themes.

FINDINGS

Thematic analysis of the transcribed interviews revealed three main themes, namely reality shock, work environmental factors, and adaptation. Reality shock affects workplace retention, and needs to be minimised. The environment should meet participants' expectations and learning needs for them to be satisfied. Lastly, research participants suggested that formalised support, and prior exposure to institutions could help facilitate a smooth workplace adaptation.

CONCLUSION AND RECOMMENDATIONS

Minimising reality shock and ensuring that institutionalised support is available are essential measures required to ensure a smooth workplace adaptation and ultimately improve radiographer retention. Universities, students, and the Department of Health need to join forces to help ensure that community service radiographers integrate smoothly into the workplace.

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Full term
CEO	Chief Executive Officer
comm serve	community service radiographer
DUT	Durban University of Technology
HPCSA	Health Professions Council of South Africa
IAEA	International Atomic Energy Agency
IREC	Institutional Research Ethics Committee
KZN	KwaZulu-Natal
n	Number
UK	United Kingdom
USA	United States of America

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

There has been a steady increase in new radiographer vacancies, both globally and nationally (Alsharif *et al.* 2018: e102; Britton, Pieterse and Lawrence 2017: 28; Yuura, Miyamoto and Hidaka 2017: 889). However, there are not enough radiographers to fill up these vacancies, which proves detrimental for patients, who consequently fail to receive the care they need (Britton, Pieterse and Lawrence 2017: 28). At present, all African countries are experiencing shortages within the radiography workforce (Asamani *et al.* 2018: 1050; Okeji, Ugwuanyi, and Adejoh 2014: 6; Orintunsin 2011: 7). Frequently, this also means that the existing radiographers are short staffed and over-worked in their places of employment, which is a situation that proves common in the South African context (Britton, Pieterse and Lawrence 2017: 28). Thambura (2016: 3) has noted that in KwaZulu-Natal (KZN), the number of registered radiographers employed between 2011 and 2012 declined, despite already existing shortages. The same author documents how radiographer shortages in the public sector result in increased workloads, which lead to high levels of stress, and burnout. Radiographers often respond to these negative work pressures by emigrating to other countries, changing professions, or seeking employment in the private sector, exacerbating burdensome public sector skills shortages (Thambura 2016: 3).

The problem of radiographer shortages and attrition from the profession has received widespread attention in the literature, prompting studies that seek to understand factors influencing job satisfaction, as well as employee retention strategies (Britton, Pieterse and Lawrence 2017: 28). The current study takes a different approach, focusing on the initial stages of radiographer professional socialisation into the workplace. As the literature that follows will describe in greater detail, this early transitional stage in a radiographer's career is largely responsible for their overall

subsequent perception of their career, and may indeed determine the likelihood of future job satisfaction, or possible attrition from the profession. Newly qualified radiographers serving their compulsory year of community service (also referred to as “community service radiographers” in the current study), are deployed to public healthcare facilities experiencing skills shortages. According to Hatcher *et al*. (2014: para. 3 line 8), these are also the same facilities where many experienced radiographers complain of poor working conditions, resulting in some radiographers leaving the institutions, or even the profession.

Given such a background, it is evident that there is great value in exploring how early career transition progresses for community service radiographers. No extant literature has been identified within the South African context that examines this transitional period in detail. The current study steps in to address that gap.

1.2 PROBLEM STATEMENT

Prior research has shown a strong link between negative early career transitional experiences and poor workplace performance, increased medical errors, and subsequent attrition from the profession (Sparacino 2015: 38). Researchers have also noted the alarmingly high prevalence of negative early career transition experiences in the health sector (Maresse 2014: 12). In South Africa, the process of transitioning into autonomous medical practice has not been explored in the field of radiography. It is therefore uncertain as to whether community service radiographers are coping with the transitional phase into the professional realm. In addition, the issues associated with their transition have not been documented. It is therefore impossible to effectively cater to the needs community service radiographers may have, and should they have negative early career experiences, the likelihood of future attrition from the profession is high.

1.3 AIM OF THE STUDY

The study aims to explore and describe the lived experiences of community service radiographers as they transition to the workplace in order to ensure improved transitional experiences for future community service radiographers.

1.4 OBJECTIVES OF THE STUDY

The study objectives are to:

- understand and describe the transitional experiences of community service radiographers;
- describe community service radiographers' expectations with regards to transition into the workplace; and
- uncover strategies for improving the transition of community service radiographers.

1.5 RESEARCH QUESTIONS

The study sought to answer the following questions.

1.5.1 Main research question:

How are community service radiographers transitioning into the workplace?

1.5.2 Sub-questions:

a) What are the experiences of community service radiographers as they settle into the workplace?

b) What are community service radiographers' expectations with regards to transition into the workplace?

c) What can be done to help make the transition from student to professional a smooth one?

1.6 SIGNIFICANCE OF THE STUDY

By exploring and describing the lived experiences of community service radiographers during their early career phases, the current study brought to light issues surrounding their workplace integration. This information is valuable to public healthcare institutions currently faced with the problem of radiographer shortages, attrition from the profession, and poor employee retention (Thambura 2016: 4). Healthcare institutions, which are gazetted to receive community service radiographers, are encouraged by the National Department of Health to have a post-community service retention strategy to help alleviate their problems of staff shortages (South Africa, Department of Health 2018: 22). Knowledge of the issues affecting community service radiographers, and how best management and staff might attend to them, will be of paramount importance to these institutions in helping them to achieve the goal of radiographer retention.

Many of the conceptions formed by individuals about their future career are formed during the student phase. Student decisions about their careers are informed not only by what they know, but also by what they think they know (Gunderman and Hill 2012: 366). Exposing current radiography students to the highs and lows of the profession as experienced by peers transitioning into the professional realm will conscientise them, affording them the opportunity to re-frame their expectations in more pragmatic terms. This is likely to facilitate an easier integration into the workforce when they eventually graduate.

Institutions of higher learning can make use of the findings from the current study to improve their various curricula. The findings presented here can assist in that regard, by highlighting areas that may have been overlooked by existing curricula, enabling educators to tailor their university offerings in line with the needs of graduates soon after they professionalise. As an example, the curriculum at the University of Leeds (United Kingdom [UK]) includes a module for final year Radiography students called “Preparation for Practice” that highlights the way in which the acquired student

experience will differ from the professional experience, and what individuals can expect as newly qualified graduates (Morris 2014: para. 11 line 3). South African institutions of higher learning can follow suit by introducing similar modules to benefit their students, and studies such as the current one will play a critical role in providing guidance in the modelling of educational material. Information from graduates is therefore very important for institutional development, due to the ability of this group to provide a retrospective assessment of their training, which may come to serve as a springboard upon which to base curricular improvement (Mubuuke, Businge and Kiguli-Malwadde 2014 :52). No extant South African study has been identified that examines the way in which community service radiographers transition into industry. The current study addresses this lacuna in the literature by examining community-service radiographers at hospitals in the eThekwini district of KZN, which might pave the way for similar studies to be carried out in the country's other provinces.

1.7 STRUCTURE OF THE DISSERTATION

This dissertation is presented in six chapters, as outlined in Table 1.1.

Table 1.1: Structure of the dissertation

Chapter	Title	Content description
1	Introduction	Orientation to the study, research background, overview of the research problem, aims and objectives, research questions, significance of the study, and general overview of the chapters that follow.
2	Literature review	• An in-depth review of the literature related to the topic under investigation to give the reader information on what is published or discussed in the literature about the subject. • Selection and discussion of the theoretical and conceptual frameworks that were used to guide the study.
3	Research methodology	Research methodology that underpins the study.
4	Presentation of results	Presentation and interpretation of the research findings.
5	Discussion of results	Discussions of research findings.
6	Summary of the findings, limitations of the study, conclusion and recommendations	Presentation of the summary of findings, limitations of the study, conclusion and recommendations arising from the study.

1.8 SUMMARY OF THE CHAPTER

This chapter presented the background of the study, which discusses some of the problems in the healthcare industry within South Africa, namely personnel shortages, and discontentment with working conditions in the public sector. The aims and objectives of the current research paper were then detailed, which focused on the early transitional experiences of community service radiographers, followed by an explanation of the significance of the transition period, detailing relevant stakeholders. The chapter ends with an overview of the content of each of the following chapters. The next chapter is a literature review, showing the gaps in knowledge regarding transition into professional practice as a South African community service radiographer.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

A literature review constitutes a written appraisal of the existing knowledge regarding a particular subject or topic (Jesson, Matheson and Lacey 2011: 10). This chapter examines existing literature pertaining to student radiographer education and training, and the subsequent transition into professional practice as an autonomous health practitioner. To foster a better understanding of the transitional phase in career development, the chapter examines studies from around the globe, before narrowing focus to the African context, raising issues pertaining to South African radiography training institutions, as well as to the transition into professional practice of a community service radiographer. The chapter provides a map of the knowledge gaps pertaining to transition into professional practice as a community service radiographer.

2.1.1 The radiography profession

Radiography is the science focusing on x-rays and other high-energy radiation in the practice of medicine (Health Professions Council of South Africa [HPCSA] 2017: para. 1 line 1). It may be categorised into four distinct disciplines, a brief description of which follows. Diagnostic radiography involves imaging the body using x-rays to diagnose injuries and disease. Radiotherapy focuses on treating tumours using high energy x-rays, photons, and heavy charged particles. Ultrasonography utilises high-frequency sound waves to produce anatomical images for diagnostic purposes. Lastly, nuclear medicine uses radionuclides and radiopharmaceuticals for imaging and laboratory procedures to determine the physiological function within the organ systems (Durban University of Technology [DUT] 2017: para.7 line 1). Globally the demand for imaging services has been increasing steadily over the years, thereby increasing the importance of radiography. Medical imaging services are now widely recognised as being an essential and basic component of modern

healthcare, both internationally, as well as in South Africa (Kabongo, Nel and Pitcher 2015: para. 5 line 25).

The healthcare professionals employed in the above-mentioned disciplines are collectively known as radiographers. Pasieka, Lewandowski and Żuk (2014: 12) define a radiographer as a healthcare professional who has the specific qualifications needed to perform the different tasks involved in the four disciplines. Apart from the essential technical knowledge required to perform such tasks, radiographers are also responsible for the patients' psychosocial well-being prior to, during, and post-imaging examination (Møller 2016: para. 10 line 2). The radiographer plays a vital role in the patient's care plan, because the images they produce will inevitably affect the final diagnosis and follow-up care that a patient will receive (Enes 2011: 212). In a healthcare setting, radiographers work as part of a team that includes doctors, nurses, medical physicists, and other support staff, who all work together for the optimisation of the well-being of patients (World Health Organization 2017: para.1 line 1).

To become a radiographer in South Africa, students are trained at institutions of higher learning for a minimum period of three years. KZN as a province only possesses one such radiography training institution (Thambura 2016: 1). Students must attend theoretical as well as practical training, and on completion of their education, it is compulsory that they undertake a year of community service at a hospital gazetted by the Department of Health. Community service is performed in a public sector facility that is experiencing skills shortages, and after completion of the year of service, a radiographer is then free to practise their profession at any government or public institution at which they secure a post (South Africa, Department of Health 2018: 5-6).

2.1.2 Brief history of radiographer training

Radiography is a young profession amongst medical disciplines, with the German physicist Wilhelm Roentgen only having made the discovery of x-

rays on 8 November 1895 (Ghom and Ghom 2017: 4). However, almost overnight, the scientific community realised the importance of electromagnetic radiation. The application of x-ray radiation as a medical diagnostic tool was swift, and the first ever documented diagnostic x-ray was performed just two months later in February 1986. Physicists who could replicate and operate Roentgen's experiment with the x-ray tube effectively became the first radiographers. Soon afterwards, physicians started learning how to use the apparatus in medical applications, and they trained their assistants to help them with the examinations. These assistants became known as x-ray technicians (Ehrlich and Coakes 2016: 4). The new technology spread rapidly, and just three years later, in 1897, the first x-ray machine was in use in South Africa (Baddeley 2008: 178).

During these times, radiographer training was conducted on an "on-the-job" basis, but this evolved into hospital-based training programmes, where students would be taught theory in formal classes combined with the clinical experience they received at the hospital. It was not long before hospitals started taking advantage of the academic training offered at local universities, such that their radiography students could learn subjects such as anatomy and physiology (Ehrlich and Coakes 2016: 4). Between 1916 and 1918, the first formally trained x-ray technologists – a cohort of 150 students – had been trained in France by Marie Curie (Gurley and Callaway 2013: 256). A radiography society was formed shortly afterwards in 1920 in the USA, marking the emergence of radiography as a formalised profession (Dutton, Linn-Watson and Torres 2012: 20). The first ever university-based radiological qualification was offered in 1922, and it was the Diploma in Medical Radiology and Electrology, offered by the University of Cambridge in the UK. From around 1920 till 1930, standardised radiography views were developed, culminating in the publication of the book *Positioning in Radiography* by K.C. Clark in 1929 (Thomas and Banerjee 2013: 26).

K.C. Clark accepted a South African radiography student by the name of May Tomkins to study in the UK. In 1933 Tomkins completed her

radiography training in London, and returned to South Africa as the country's first qualified diagnostic radiographer. She promptly began training the first local cohort of four radiography students (Engel-Hills 2005: 24). By 1979, in addition to radiography, radiotherapy, nuclear medicine, and ultrasonography were being taught at teaching hospitals in the country (Engel-Hills 2005: 24). As of 2016, South Africa had 8072 radiographers registered by the HPCSA, and the different radiography programmes are no longer taught via the hospital-based model, but are now offered as diplomas and degrees at eight institutions of higher learning (Health Systems Trust 2017: 306).

2.2 GLOBAL VIEW

Globally, radiographer training has developed at a very fast pace over the years, moving from unskilled operators, who used a "hit and miss" system to view anatomy, to becoming a structured profession that can be studied up to doctorate level at institutions of higher learning (South Carolina Society of Radiologic Technologists n.d.). Despite this, the education of radiographers is heterogeneous across countries and learning centres, with some European institutions combining multiple offerings under one degree, such as a Medical Imaging and Radiotherapy degree, whilst others advocate for more specialised training, such as a degree in Diagnostic Medical Ultrasound (McNulty, Brown and Knapp 2017: para. 3 line 5). There is also variability when it comes to the time it takes to become a fully qualified diagnostic radiographer, ranging from a year for some programmes in the UK and USA, up to five years, for certain radiography programmes in Nigeria (South African Qualifications Authority 2017: para. 8 line 6). Within the European region, The Higher Education Network of Radiographers in Europe has tried to address these variations seen in the curricula in a bid to ensure comparability of qualifications for their member institutions and states (England *et al.* 2015: 2). Ensuring comparability in the training of health professionals is important for the maintenance of standards and provision of quality benchmarks (Institutional Management in Higher Education 2012: 10).

The process of educating and training radiography students is multifaceted. Radiography programmes are generally comprised of a split between academic studies offered at an institution of higher learning, and a clinical component, usually conducted within a hospital or other medical imaging facility (Naylor, Ferris and Burton 2016: para. 3 line 1). At some training institutions, particularly those where the available radiography training programmes have a duration of two years, the amount of time spent performing clinical rotations can be as much as 50% of the entire time spent at the university to afford students adequate exposure to the clinical environment (Morris 2014: para. 7 line 2). The International Atomic Energy Agency (IAEA) (2005: 2) recommends that no less than a year of radiographer education be conducted in a clinical environment, and that clinical education be started as early as possible, concurrently with classroom education. Apart from teaching students the technical and practical aspects of the profession, the clinical environment is also important for multi-professional education, which is recommended by the World Health Organisation (2016: 11). Multi-professional education is defined as the educational experience shared by members or students of different health professions. The purpose is to teach students how to interact with other professions within the clinical setting (Crutcher *et al*. 2004: 435). The concept of inter-disciplinary healthcare workers learning together has been suggested as essential for them to improve their competence towards rendering better healthcare to patients.

Whilst the developed world began the process of formalising the training of radiographers in the early 1920s, developing countries took several decades longer. Saudi Arabia in the Middle East only started training students in 1960; Kenya and Tanzania in Africa both followed suit in 1964; and in Asia, Thailand commenced with radiographer training in 1965 (Pongnapang n.d.: 4; Bandio 2008: 1; Alaamer 2012: 134). Developing nations have had to contend with other pressing public health concerns, such as containing high levels of communicable disease, hence the delays in radiographer training (IAEA and the World Health Organisation 1991: 13). That said, having initiated formal radiography training in 1933, South

Africa has had a significant head start in terms of radiographer education on the African continent.

2.3 CONTEXT IN AFRICA

African countries have, in recent years, done much to catch up to global trends in healthcare education. There has been significant modification of teaching methods moving away from the traditional teacher-centred approaches, towards more student-centred, competency-based, community-oriented, as well as transformative learning approaches. Follow-up studies have shown that these methods have resulted in the production of graduates who are extremely competent, and capable of addressing their community's needs (Mubuuke, Businge and Kiguli-Malwadde 2014: 52).

However, when considered as a whole, the African continent has been slow to satisfy the medical imaging needs of its population, as evidenced by the low numbers of imaging personnel in the different countries. The Country Report on Zambia by the non-governmental organisation Rad-Aid (2015: 25), highlighted an urgent need for the revision of the education and training offered to radiographers, who were also mentioned to be in short supply in that country. Certain countries in the region, namely Zambia, Zimbabwe, and Botswana each had less than 500 radiographers serving the entire country's population, according to data collected from 2009 to 2012 by the World Health Organization Global Health Observatory Data Repository (2016: para. 12 line 1). These numbers suggest that the available numbers of radiographers in these countries are too low for there to be adequate provision of quality diagnostic imaging services to the population at large. Munsanje (2013: 18) states that in 2005, the 139 public service radiographers in Zambia effectively corresponded to each staff member serving a total of 81 747 patients.

2.4 CONTEXT IN SOUTH AFRICA

The teaching of radiography as an academic subject in South Africa has been a constantly evolving process, principally directed by changes in the national political climate, as well as the advent of globalisation. The Society of Radiographers of South Africa (2017: para. 15 line 3) in the 1970s developed the curriculum used for the three-year national diploma in diagnostic radiography, radiotherapy and nuclear medicine, as well as for the certificate in ultrasound. Radiography education was offered predominantly at Technikons within the country. However, prior to South Africa's independence from colonial rule in 1994, the existing educational system was based on the state-prescribed so-called separate-but-equal development system known as apartheid. This notorious system held that different races could only develop to their full potential if they were separated from one another (Rodgers, Beall and Kanbur 2012: 137). In practice, this resulted in great amount of focus being placed on the specific institution at which a student undertook their studies, as opposed to a focus on an individual's personal capabilities and interests. Institutions catering to white populations were better equipped and more highly regarded, at the expense of those catering for other races.

After South Africa's independence in 1994, the separatist system was abolished, and in 1995, the National Qualification Framework was formalised (South African Qualifications Authority 1995: para. 1 line 1). Under the new system, universal learning outcomes and assessment criteria were developed, which each student was expected to adhere to irrespective of where they undertook their studies. This effectively brought about a shift in the way students were to be evaluated (HPCSA 2016: 4). After the new framework was established, there were several mergers and name changes of existing educational institutions, such that radiography education was now exclusively offered at the university level, with universities of technology, as well as two traditional universities offering training. The existing national radiography curriculum was obliged to be

upgraded to meet university standards, a task which saw its completion in 2008 (HPCSA 2016: 4).

In 2008, the National Qualification Framework (which had been established in 1995) was repealed, and replaced with an upgraded structure that demanded that all existing radiography education be either phased out or upgraded. To upgrade, an overhaul of the existing programmes was made mandatory, with extensive changes spanning from the admission criteria and purpose descriptions, to the very name of the qualifications. At this point, three-year diplomas were the predominant undergraduate radiography qualifications offered, accompanied by a vertical articulation with either the Bachelor of Technology, or Honours degrees (HPCSA 2016: 4).

More recently, in 2014, yet another revision to the national educational structure was implemented requiring universities to further advance their radiography offerings (HPCSA 2016: 6). This saw universities independently developing their own curricula, all of which had to be internationally aligned, and upgraded to four-year degrees. The degrees have vertical articulation into a master's degree, then into a doctoral degree. To date, five universities are already offering these four-year degrees, whilst the other three are in the process of designing new programmes for which they plan to seek approval (HPCSA 2016: 6). The approval process for implementing new curricula involves acquiring institutional approval, South African Qualifications Authority registration, Radiography and Clinical Technology Board of the HPCSA approval, Department of Higher Education and Training approval, and Council for Higher Education approval (HPCSA 2016: 6). The aim of a successful curriculum should be to produce graduates who are technically competent, with all the pre-requisite theoretical and practical knowledge, and who are "workplace ready" (Mendy 2017: 27).

Radiography education is offered at eight universities, three of which are located in the Gauteng Province. Each of the other provinces have a single

institution where radiography is offered, except for the Mpumalanga, North West, and Northern Cape provinces. There are four disciplines encompassed under radiography, namely: diagnostic radiography, sonography, nuclear medicine, and radiation therapy; and all are taught in the country (Bagley, Randall and Anderson 2015: para. 10 line 4). However, the specific combination of radiography disciplines offered at the different universities varies, where at least three universities offer training in all four disciplines, and a fourth university is in the process of becoming able to do so. The institutions provide classroom-based learning to teach the theoretical aspect of radiography, and collaborate with public hospitals and private medical imaging facilities so that students can undertake their clinical training. The intended outcome of the degree in diagnostic radiography is to produce graduates with knowledge and skills in research, management principles and practice, and general diagnostic imaging procedures (Du Plessis, Friedrich-Nel and Van Tonder 2012: 113).

Section 24A of the amended Health Professions Act, Number 56 of 1974, as well as the Government Notice 618 of 5 August 2011, stipulate that, graduates who are registering with the HPCSA for the first time should undertake a year of community service (South Africa, Department of Health 2007: 32; South Africa, Department of Health 2011: 30). Community service is explained as remunerated employment within a public health facility, complex of health facilities, or local sphere of government (South Africa, Department of Health 2018: 5). Its purpose is to ease the burden caused by a lack of human resources, which frequently affects rural healthcare centres, and to thereby improve access to healthcare for all citizens (Hatcher *et al*. 2014: para. 3 line 8). For the individual radiographer, community service affords the opportunity to develop professionally by gaining skills, knowledge, and learning behaviour patterns with critical thinking that will be useful in their career (Hatcher *et al*. 2014: para. 3 line 8).

The Minister of Health gazettes a list of public health facilities from which graduates may apply for employment, and when they have served the

community for 12 months, they may register with their professional body to practice within the profession (South Africa, Department of Health 2007: 32; South Africa, Department of Health 2018: 6). The concept of community service is an international one, recommended by the World Health Organisation and adopted by South Africa and 70 other countries to help improve access to healthcare in the rural areas that have been shown to have chronic shortages (Hatcher *et al*. 2014: para. 3 line 8).

Once the community service period is complete, the radiographer can proceed to register with the relevant council, and seek employment either in the public or private sectors. Employment opportunities for radiographers include public and private healthcare facilities, the Department of Health, the South African National Defence Force, mining companies, educational institutions and training bodies, and companies supplying apparatus and equipment (University of Pretoria Undergraduate Faculty Brochure 2017/2018: 12; Public Service Education and Training Authority 2011: 66).

2.5 EARLY PROFESSIONAL RADIOGRAPHER PRACTICE

Phillips (2016: 40) performed a survey of related literature pertaining to newly qualified practitioners and concluded that there was a lack of consensus regarding the timeframe that ought to be used for one to be considered either a 'newly qualified' practitioner, or an established professional. The new practitioner phase is generally described in the literature as commencing at the point when one begins formal employment, and ranges from three months to a year (Phillips 2016: 40). The majority of texts suggest that a professional who has been employed for a period shorter than a year ought to be considered newly graduated, although a few authors argue that this period should extend up to two, or even three years (Phillips 2016: 40).

Although there is lack of consensus as to how a newly qualified practitioner ought to be defined, the literature does agree that there is almost always a 'gap' that exists between graduation from university, and the first

employment post, where recently graduated practitioners frequently find that they do not comfortably fit into their new organisations (Keen *et al*. 2016: 1). The afore-mentioned 'gap' appears not to acknowledge the country in which a person graduates, or their specific profession (Keen *et al*. 2016: 1). The theory-practice gap is frequently evident when new graduates start formal employment, and it manifests as incongruences between expectations of the profession, and the physical reality encountered upon joining the workforce (Cunningham, Wright and Baird 2015: 258). That said, the radiography profession unfortunately does not have much related literature describing this period of career development. To address this paucity of knowledge, when other authors examine the transition period with regards to radiographers, they often resort to data sourced from other caring professions, such as nursing or occupational therapy (Maresse 2014: 16). Phillips (2016: 41) found that transitional experiences of nurses are closely aligned to those reported by other allied health professionals, thereby validating the practice of transposing the experiences of new nurses to recently-graduated radiographers, and vice versa, for the purposes of scientific research.

2.6 THE TRANSITION PHASE

The Merriam-Webster Dictionary (2018: para. 1 line 4) defines a transition as the "passage from one state, stage, subject, or place to another." Bridges (2004: xii) illustrates transition as representing the "confusing nowhere of in-betweenness." The same author (2004: xii) adds that a transition is also "a time of inner reorientation and self-redefinition." Several health sciences texts use the word 'transition' to refer to changes in health and social circumstances, or changes in life's developmental stages (Kralik, Visentin and Van Loon 2006: 322). However, the word transition is not merely a synonym for change, but rather a term denoting the complex psychological processes involved when one adapts to a change event or disruption (Bridges 2004: xii). It means that the transitional phase is an internal one, involving self-redefinition that an individual undergoes to incorporate changes that occur in their immediate environment. An

individual undergoing transition needs to feel connected to, and needs to interact with, their surroundings as well as other people (Kralik, Visentin and Van Loon 2006: 323). This interaction increases self-confidence and assists in a person's ability to cope with the changes, as well as master new skills and new ways of living (Meleis *et al*. 2000, cited in Kralik, Visentin and Van Loon 2006: 323). Some authors call this transition the socialisation stage, referring to the process of professional socialisation it involves (Schein 1978, cited in Kodama 2017: 1). To place the above definition in context with the domains of the current study, the transition phase will refer to the complex psychological processes and events that individuals undergo as they move from the stage of being student radiographers, to graduating and becoming autonomous professionals as community service radiographers.

One prevalent theory on transition was postulated by Van Gennep in 1960. His work has seen strong influence in anthropological circles, but it also finds significance in the social and health sciences (Phillips 2016: 41). His theory conceptualises distinct life phases, known as the rites of passage, namely: separation, liminality, and incorporation (Phillips 2016: 41). An individual must first be separated from their original identity or role in society before being reintegrated (Shah 2015: para. 15 line 1). During the period of time between separation and incorporation, referred to as liminality, participants are disoriented, having lost their pre-ritual status, and have not yet begun to transition into their new status (Guendalina 2016: 173). Several authors in recent years have obtained value in adopting ethnographic study designs, which draw upon Van Gennep's theory to explore the influence of culture and organisation on healthcare professionals' transitional experiences (Phillips 2016: 41).

Schlossberg proposed a theory on transition derived from studying adults undergoing life changes in various settings, known as the Transition Theory (Schlossberg 1981; 1984, cited in Poronsky 2013: 353). The theory defines a transition as "as any event, or non-event that results in changed relationships, routines, assumptions, and roles" (Evans, Forney and Guido-

DiBrito 1998: 111). The theory suggests that any transition in life, whether planned or not, be it negative or positive, results in stress. Individuals cope with this stress in varying ways, as best they can. An individual's balance during transition is based on multiple factors, such as the nature of the situation, personal attributes, available support, and coping mechanisms and strategies (Schlossberg 1984, cited in Poronsky 2013: 353). The transition theory views transition as a continuous process with no end-point, meaning that adults are constantly transitioning, leaving behind old relationships, habits, and ways of living, whilst constantly establishing new ones (Goodman *et al.* 2006, cited in Poronsky 2013: 353).

Duchscher has more recently produced definitive works covering the transition to professional practice in the health sciences, focusing on the experiences of newly qualified nurses (Phillips 2016: 41). She conducted several studies, building on cumulative knowledge spanning several years. In each of four different studies undertaken between 2001 and 2009, she employed different methodologies, namely: phenomenology; interpretivism; retrospective qualitative analysis of secondary data; and grounded theory, so as to gain insight into the transition phase and contribute to the body of knowledge (Phillips 2016: 41). Her studies document the incongruences between relationships, roles, performance expectations, knowledge, and responsibilities that exist between the world of academia and the professional realm (Phillips 2016: 40).

As illustrated by the preceding, somewhat conflicting theories outlining the process of transition, researchers fail to agree on how exactly the process occurs in individuals. The concepts proposed by Van Gennep suggest that transitions have a definite beginning, with a corresponding end-point (Kralik, Visentin and Van Loon 2006: 323). However, Kralik, Visentin and Van Loon (2006: 323) are of the view that transitions aren't as linear, and do not necessarily follow a chronological trajectory: a conclusion which, they point out, was also arrived at by Paterson (2001) after a metasynthesis of 292 studies. To resolve the conflict, Tanner, Glasby and McIver (2015:

para. 11 line 4) suggest that the exact nature of a transition may be dependent on the circumstances involved.

2.7 REQUIREMENTS FOR POSITIVE TRANSITION

During the transition phase, adaption, development, and change are necessary and expected from the new graduate and the other members of the team in order for there to be a positive outcome (Chang *et al.* 2010, cited in MacLellan, Higgins and Levett-Jones 2015: 154). A positive or successful transition is associated with increased levels of job satisfaction, as well as lower voluntary staff turnover rates; underscoring its importance (Kovner *et al*. 2009, cited in Phillips 2016: 42). Such a transition involves negative feelings of distress being replaced with a sense of well-being, and the mastery over a change event (Schumacher and Meleis 1994, cited in Kralik, Visentin and Van Loon 2006: 321). According to the anthropological model described by Van Gennep, disruption in an individual's current reality results in separation from that reality, forcing a person to create a new reality during the liminality phase. For the transitional outcome to be positive, Kralik, Visentin and Van Loon (2006: 323) propose a clear awareness by the individual experiencing transition to be essential, followed by an active engagement with their surroundings. Such engagement involves activities such as seeking information and support; identifying coping mechanisms and new ways of living; altering former behaviours; and making sense of the circumstances. An increased level of awareness will therefore heighten the level of engagement, and it should consequently produce a better outcome, or positive transition.

A 2012 survey undertaken by the College of Radiographers in the UK found that the working environment provided by the organisation in which one is employed has a large bearing on how newly qualified radiographers feel about their transition phase (Phillips 2016: 44). Another survey in 2013 performed on nurses who had been employed for less than six months after graduation similarly suggested that organisational culture and professional socialisation had great significance for their integration process (Phillips

2016: 46). Both studies highlight the importance of relationships with colleagues and other hospital staff, and the way in which this has a strong bearing on the success of the transitional process for new graduates.

2.8 CHALLENGES DURING TRANSITION

New graduates may feel well-qualified for employment when entering the workforce, but a recent survey conducted in the USA found that once these same graduates were employed, only about 40% of their hiring managers felt they were competent enough for their assigned roles (Berr 2016: para. 3 line 1). The finding does not necessarily mean the graduates are inadequately trained, but rather, it indicates that their performance is consistent with Bridge's transition model, as illustrated below:

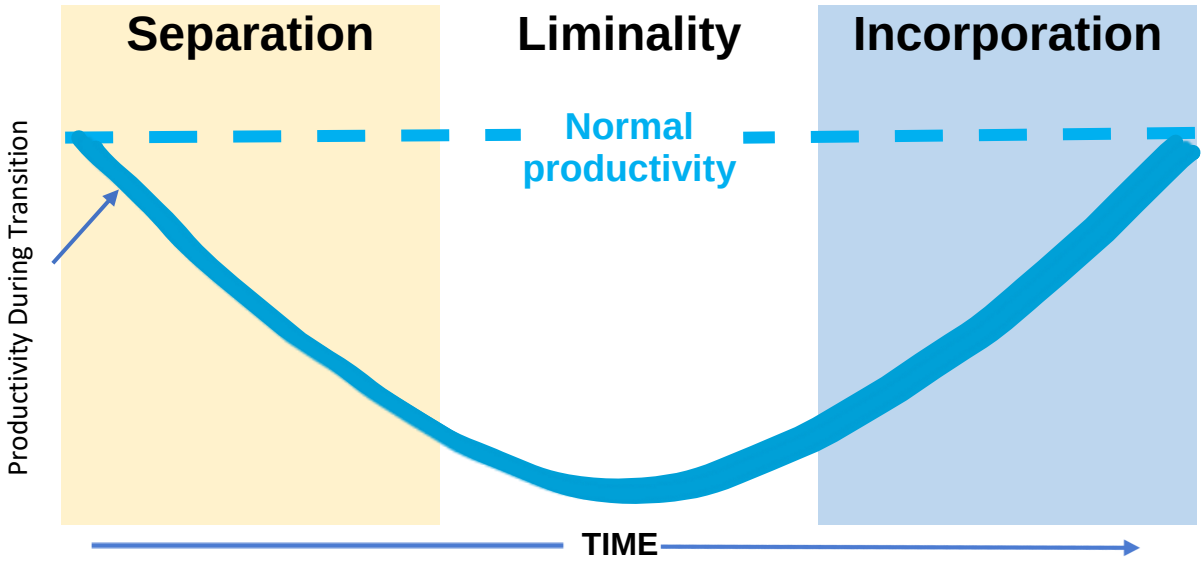


Figure 2.1 Bridge's Transition Model

(Adapted from Bridges 1991 cited in Career Vision: 2018)

The above model shows how new graduates are likely to perform sub-optimally soon after being hired, and their internal psychological struggles during the separation and liminality phases may help to explain the perception of their incompetence, as reported by their managers. It is during this period that new graduates require the most support, such that they might pass the first two phases and arrive at the incorporation stage

(Phillips 2016 :122; Kodama 2017 :9). In light of this, the British Department of Health recommends preceptorship, which is recognised as the period of support for a newly qualified healthcare practitioner (Phillips 2016: 46). The concept behind this is to distinguish graduate practitioners as safe, competent practitioners, who, as novices, will continue to develop their skills as part of their continuing professional development. However, policy regarding preceptorship has been found wanting, with certain basic definitions such as “newly qualified practitioner” remaining ambiguous; and some of the health bodies within the UK failing to formally define preceptorship, or determine its implications to their organisations (Phillips 2016: 46). However, the UK is not isolated in this matter. Riese *et al*. (2013: para. 6 line 3) conducted a survey on new health practitioners in 35 countries, and found that in almost all cases, new graduates were not given any specific form of support when they started working as autonomous professionals.

Failure to support newly qualified radiographers often leads to them failing to cope in their new work environments. They need to contend with managing suddenly increased demands on their time and person, and simultaneously gaining clinical competency (O'Connell, Gardner and Coyer 2014: 2728). Duchscher (2009: 1106) documents how certain institutional demands may be so unrealistic that they leave new practitioners feeling overwhelmed, and at times experiencing physically and psychologically debilitating levels of stress. Without any form of support, some healthcare practitioners used such expressions as ‘drowning’, ‘terrified’ and ‘scared to death’ to describe their early career experiences (Duchscher 2009: 1106).

2.9 REALITY OR TRANSITION SHOCK

In the health sciences, the transition phase has been studied most extensively in the field of nursing, where most of the available literature on role transition arises (Phillips 2016: 41). It is also from the nursing field that the concept of reality shock was first described. The term “reality shock” was first coined by Kramer in 1974, who defined this phenomenon as “the

reactions of new workers when they find themselves in a work situation for which they have spent several years preparing, for which they thought they were going to be prepared, and then suddenly find they are not" (Harwood 2011: 2). Reality shock is, however, not exclusive to the health sciences, and has been shown in literature to be a reality for newly qualified graduates across disciplines (Ogata 2012: 49).

In more recent times, Duchscher (2009), basing her study on Kramer's earlier work, collated research results obtained over a period of 10 years and four qualitative studies, to generate what she has termed the "transition shock" theory. Her research examines transition of the contemporary healthcare practitioner and role adaption in new graduates. The theoretical model she devised is illustrated below:

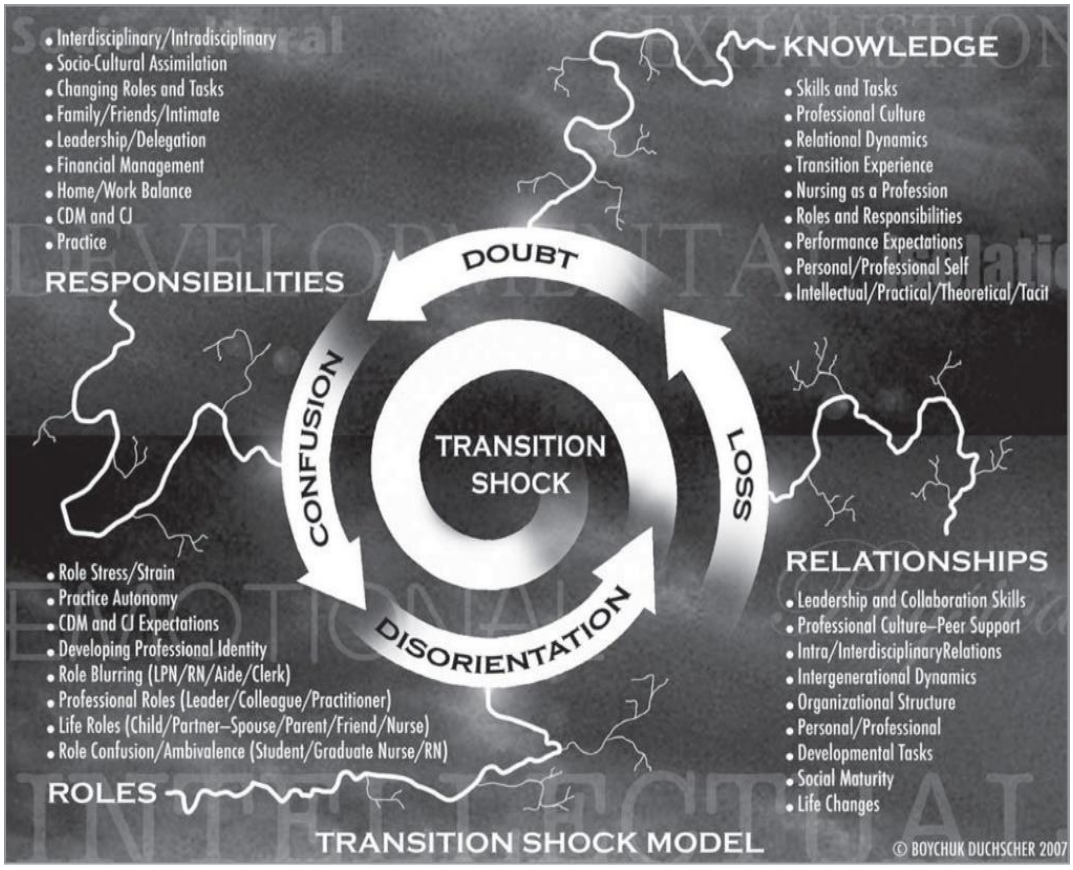


Figure 2.2 Transition Shock Model (Duchscher 2009: 1106)

Her model illustrates the process of professional role transition, which she describes as following a non-linear progression. According to the Transition

Shock Model, the new healthcare practitioner during the transitional phase undergoes “developmental and professional, intellectual and emotive, skill and role-relationship changes,” and the phase contains within it “experiences, meanings and expectations” (Duchscher 2009: 1105).

For new radiographers, reality shock comes about when they join the workforce, and realise that the support mechanisms and assistance that had been previously afforded to them as students is no more, which instils a fear of making mistakes, and of the repercussions. The pace of work tends to be rapid, and the resulting pressure is compounded by the individual’s lack of familiarity with the institution and its protocols and policies. For this reason, newly qualified radiographers feel the pressure of a busy work environment more acutely than do their more experienced colleagues (Naylor 2014: 19). There is therefore very little room for the new practitioner to render quality patient care, resulting in patients being more likely to be unhappy, and possibly even complaining about the quality of service received – further undermining the practitioner’s confidence. A lack of experience and increased accountability add to this already delicate situation, creating fertile ground for frustration and anxiety (Naylor 2014: 39).

Reality shock and the pressures of the early career transitional period negatively affect performance, undermine effectiveness, and may result in isolation, overdependence, denial, projection, fear, job dissatisfaction, lack of motivation, and a myriad of other negative emotions and events (Azimian, Negarandeh and Fakhr-Movahedi 2014: 89). This usually culminates in a desire to resign, and in some cases, to leave the profession altogether (Dhar 2013: 257).

When community service radiographers transition into the professional domain and new work environments, they are often under-resourced, which makes them extremely busy. Additionally, they are required to deal with the risks associated with emotionally-demanding work, and be observers of or participate in potentially traumatic events (Maresse 2014:

12). Needless to say, these circumstances affect their workplace engagement, satisfaction levels, attitude, and ultimately, likelihood of attrition from the profession (Maresse 2014: 12). Negative experiences faced by radiographers tend to have a greater impact when they occur during transition into professional practice, because new graduates are relatively inexperienced, and hence are less likely to have the necessary coping mechanisms required to respond with resilience (Maresse 2014: 12).

2.10 WORKPLACE TRANSITIONAL EXPERIENCES FOR SOUTH AFRICAN COMMUNITY SERVICE RADIOGRAPHERS

In the absence of literature documenting the transitional experiences of South African community service radiographers, one cannot conclusively describe this transitional stage of early career development within the South African context. The paucity of literature increases the importance of the current research paper, which endeavours to fill the gap in knowledge. Previous research carried out in other medical professions, such as that by Schlossberg and Dutscher mentioned earlier in the current chapter, suggest that without specific support structures aimed at facilitating the integration of new health workers into the workplace, individuals typically have a difficult transition into their respective professions (Schlossberg 1984, cited in Poronsky 2013: 353). In the South African context, there are no established support mechanisms for aiding community service radiographers as they assimilate into the work environment. Attrition rates from the profession are high, and there is a resultant shortage of radiographers in the country (Thambura 2016: 4). The vacancy rate of radiographer positions in the public sector for the KZN province has been deemed unacceptably high (South Africa, Department of Health KZN 2017: 31). These are all tell-tale signs that suggest that an environment may not be adequately catering to the needs of the professionals concerned. The same signs are also characteristic in professional environments where health professionals have negative early career experiences (Sparacino 2015: 38).

2.11 THEORETICAL FRAMEWORK

A theoretical framework is defined as a group of related ideas used to provide guidance in a research project. These ideas must illuminate the theories that will be used in the study, and which are relevant to the intervention and outcome of the research (Monsen 2017: 12). The theoretical framework for the current study is explained below.

As highlighted earlier in this chapter, the various definitive theories on transition that have emerged over the years postulate ideas that are not necessarily congruent with one another, and in several instances there are clear contradictions. At the very basic level, certain theories view transition as a linear process, whilst others view it as a cyclical, or non-chronological one. The linear approach – Van Gennep's theory (1960) being a classic example – has the clear advantage of making transitions easier to study as the researcher can identify definite start and end points within the transition process (Kralik, Visentin and Van Loon 2006: 322). In addition, the researcher can assign variables (such as productivity over a set time) at these set points, which can then be objectively measured. Subsequent to the publishing of Van Gennep's work, the linear approach was afterwards developed by other researchers, such as Turner (1969), Sheehy (1977), and Bridges (1988) (Kralik, Visentin and Van Loon 2006: 322).

However, a chronological analysis of the several theories shows that whilst historical transition theorists tended to lean more towards the linear perspective, contemporary research identifies transition as a cyclical, or non-chronological event. Duchscher's Transition Shock Theory (2009) is one good example, as is Schlossberg's Transition Theory (1981), which not only adopts a cyclical approach, but suggests there is no end-point to transition (Poronsky 2013: 353). Describing transition as a cyclical process may be more representative of real-world transitional events, and adopting such an approach may indeed bear greater alignment to the complexities of observed human cognitive behaviour. It is an acknowledgement of the

fact that people do not experience emotions in a set predefined sequence, and that there is no predictable pattern that individuals employ when processing events of a transitional nature. Considering a linear approach may indeed be more straightforward for the purposes of research, but it may also represent an over-simplification of the transition event, thereby defeating the purpose of scientific research by producing non-representative data and conclusions.

Duchscher's transition shock theory is based on Kramer's reality shock theory, and both these were derived from studies of healthcare workers transitioning from the academic realm into the workplace. Kramer describes phases of transition shock as consisting of the honeymoon stage, followed by shock, recovery, and then finality. The honeymoon stage is characterised by euphoria, when new graduates embark on their new career and enter the workplace with an idealistic view of their professional role; but this is short-lived (Sparacino 2015: 38). When new professionals experience inconsistencies between what had previously been believed to be normal during the academic phase, and what is now the new normal in the workplace, shock and rejection quickly set in, and it is during the reality shock phase that the most extreme responses are seen. Anger and anxiety are commonplace at this stage, as are job changes, medical errors, and attrition from the profession. Healthcare workers who survive the shock stage then proceed to recovery and finality, as they settle in to their new roles (Sparacino 2015: 38).

Duchscher's theory examines the first year of professional practice and identifies the concurrent personal and professional journeys involved during the transitional shock period. Her theory suggests that there are three stages involved, namely that of 'doing', 'being', and 'knowing' (Duschscher 2008: 444). She also explains the importance of timing when gathering data, and the three aforementioned phases are spread out over different months within the first year. Practitioners within the first three months tend to be dedicated to adjusting to new roles and responsibilities and the team environment, and accepting the differences between the

theoretical and practical aspects of their profession. At five to seven months, practitioners have a significantly different view of their experiences. They reach a stage of greater consolidation and decision-making (Duchscher 2008: 442).

Both these theories help to describe the researcher's assumptions regarding transition, and will be employed here to explore the nature of events when radiography students transition from the classroom to the workplace as autonomous professionals. Although the theories were both derived from studying nurses who were transitioning into the professional realm, transition theorists within the health sciences agree that the experience of transition is very similar for all allied health, or caring professions. Not enough literature exists monitoring transitions for diagnostic radiographers, and no definitive transition theories known to the researcher were derived from observations and studies of radiographers. The two transition theories by Kramer and Duchscher form the basis of the study's conceptual framework.

2.12 CONCEPTUAL FRAMEWORK

According to Monsen (2017: 12), a conceptual framework is a system of concepts, assumptions, expectations, and beliefs that support and informs a body of research. The same author explains that such a framework extends beyond theory, and explores the underlying thought processes that may bias the project. For this research, the conceptual framework is as described below.

Radiography education and training is heterogenous across the different universities in South Africa, and each institution will naturally emphasise varying aspects of the profession within the curriculum. It is an international requirement that all student radiographers undergo clinical training during the educational phase (IAEA 2005: 2). However, this too is heterogenous, and students in the same class are often sent to different imaging facilities due to limitations in the numbers of students that an imaging facility can

simultaneously accommodate. From the researcher's experience, facilities typically offer differing ranges of imaging modalities, and even when the imaging modalities are the same, the equipment used and standard departmental protocols are likely to differ. Consequently, students acquire slightly different technical skill sets. In addition, the cultures of the different imaging facilities will not be the same, resulting in varying professional socialisation processes for different sets of students within the same class. Since 1994, the diagnostic radiography programme has been offered as a three-year diploma, and institutions based their programmes upon a national curriculum, which was set by the Society of Radiographers of South Africa (2017: para. 15 line 3). In a bid to align the educational standards of the country with the international community, the curriculum has been revised several times, until recently, when that curriculum was done away with, leaving universities free to design their own curricula as a four-year degree programme (HPCSA 2016: 6). These new individual curricula still need to adhere to very high standards and be aligned with international trends and local industry needs. In addition, accreditation and approval from several local health and educational bodies is mandatory before the universities can offer their programmes to students (HPCSA 2016: 6). Clinical practical education remains an essential part of the radiography programme, and the IAEA recommends that clinical training commence as soon as possible, concurrently with the theoretical components (IAEA 2005: 2).

Upon graduation, radiographers are expected to complete a year of community service, working in an underserved, usually rural location. It is a practice recommended by the World Health Organisation and adopted by the South African Department of Health to help ease healthcare worker staff shortages in poorer, typically rural communities (Hatcher *et al*. 2014: para. 3 line 8). It is under these conditions that community service radiographers begin their journey as professionals. They work without supervision, and assume the normal duties of a qualified radiographer. They are placed where staff shortages exist, and so it may be reasonably assumed that the workload is likely to be higher than what they may have

experienced during the training phase. A set limited number of locations are gazetted to offer community service training posts for new radiographers, and frequently the new radiographer has to travel to an area unknown to them, to live there for a year as they undertake their community service (South Africa, Department of Health 2018: 6). Adaptation to the new environment hence becomes necessary – not only on the professional, but also on the personal front. In some cases, even the predominant language spoken in the area where a radiographer performs community service may be unfamiliar, adding to the complexity of the adaptation process.

The existing model of community service is likely to be biased more towards providing skills to the hospital, as opposed to focusing on the professional socialisation of the new radiographer. In its essence, the idea of community service is to ensure that the community has adequate numbers of healthcare personnel attending to their needs, for the purposes of better healthcare provision. However, poor personnel management and lack of support for the new radiographer during their community service phase may have detrimental effects on the radiographer during these early stages of career development (Kralik, Visentin and Van Loon 2006: 323).

Reality shock is likely to affect the new radiographers who, after a short while, may come to realise that radiographic protocols for the hospital may be different to what they learnt in theory and experienced during their practical education. In addition, they may also find themselves regularly scheduled to work during the most undesirable and inconvenient hours, without a say in the matter. Quality patient care, which is so greatly emphasised during the training phase, may in practice be found to be secondary to the speed with which service is required to be rendered. These circumstances are all likely to lead to medical errors, anger, resentment, and frustration. Ultimately such circumstances may lead to attrition for a profession already experiencing staff shortages, which is recognised as a scarce skill by the South African Qualifications Authority (2017: para. 2 line 5).

To understand the exact nature of the transitional phase for community services radiographers in the South African context, it is important to gather data from newly qualified radiographers who are fulfilling their community service requirements. In-depth interviews were necessary in this study to understand the transitional process as experienced by community service radiographers, and to describe transition as perceived by the individual. It is also important to take note of the number of months a graduate has been employed for, because it may have had a bearing on the general content of the interviewee's perception of their transition as explained by Duchscher (2008).

There are multiple areas of interest that can be investigated to determine how well the graduate is at handling transition, such as their responsibilities, roles, knowledge, and relationships within the workplace, which can then be used for analysis of the transitional process. Several analytical models have been shown to be suitable for dealing with data regarding transition. Grounded theory, phenomenology, mixed-methods, and interpretivism are some of the methods that have been successfully used to analyse data obtained from health workers undergoing professional transition.

The grounded theory approach is a commonly used data analysis method for processing qualitative data. Interviews are the primary way in which data is obtained, and the method may be used to analyse transitions into the workplace for healthcare workers (Gubrium *et al.* 2012: 347). Duchscher (2008) used a grounded theory approach to study the transition of nurses into professional practice. The rationale for using grounded theory was to "examine further, build on, and mature aspects of the newly graduated nurse's transition experience…" (Duchscher 2008: 443). Gubrium *et al*. (2012: 347) explains that this research method is highly efficacious for collecting data that have largely remained unaddressed.

However, the grounded theory approach is notoriously laborious and tiring, due to the extensive coding processes required when processing data

(Hussein *et al.* 2014: 5). The approach is also associated with a high potential for methodological error, due to the incorrect sampling and data collection that tends to occur with novice researchers (Hussein *et al.* 2014: 6). Authors frequently debate how a grounded theory ought to be conducted with regards to existing literature and conducting a literature review. Some authors feel that conducting a literature review diminishes the value and rigour of the grounded theory research method, whilst others argue that it is essential to perform the literature review for studies to be sound and well-planned (Hussein *et al.* 2014: 7).

As explained above, the grounded theory approach is commonly used to generate new theories for content for which little to no theoretical basis is available. The current study examined the transition of community service radiographers into the workplace, and used theoretical lenses created by other researchers who studied similar transitions. The researcher's intent was not to generate any new theories, but to understand the transitional process as experienced by the study participants. For this reason, the grounded theory approach was not appropriate in the current study.

A mixed-methods approach entails gathering both qualitative and quantitative data, and integrating the two for interpretations to be drawn based on the combined strengths of the datasets so that the research question may be addressed (Cresswell 2014: 2). It is used in the social, behavioural, and health sciences, and has also been used by previous authors such as Mackay, Anderson and Hogg (2008) to study the transition of newly graduated healthcare professionals (Cresswell 2014: 2; Phillips 2016: 43). The mixed-methods approach solicits information from multiple data sources, which in turn may help to address a research question more effectively. It may result in greater engagement of study participants, and a greater individual, or community impact (Creswell *et al.* 2011, cited in Clark and Ivankova 2015: 239).

However, the mixed methods approach is not without its disadvantages. Creswell *et al.* (2011, cited in Clark and Ivankova 2015: 239) suggest that

mixed-methods research may be disruptive to participants' lives due to the data collection process, which frequently requires follow-ups of the participants. As such, greater commitment is required of them, which may lead them to feel burdened by the research process (Creswell *et al.* 2011, cited in Clark and Ivankova 2015: 239). The mixed methods research method also carries the disadvantages and risks inherent in both qualitative and quantitative data collection methods (Curry and Nunez-Smith 2015: 186). The mixed-methods approach was not used for the current research study, due to the potential of the research being viewed as disruptive by the participants, resulting in either non-participation, or withdrawal from the study. It would have caused significant delays in the data gathering process, due to the time-consuming requirement to first seek approvals from the hospital authorities before approaching study participants and seeking their approval.

Phenomenology was the research method of choice for the current research paper, and it is defined by Ram and Houston (2015: 1) as an investigation of how humans perceive, experience and comprehend the world in which they live. Phenomenology as a research method is discussed in greater detail in Chapter 3. Naylor (2014) conducted research on the experiences of newly graduated radiographers as they transitioned into the workplace, and Britton, Pieterse and Lawrence (2017) investigated the experiences of South African radiographers within the Gauteng Province. Both these studies used phenomenology, because it allowed for the interpretation of information-rich narratives, provided deep insight, and a greater understanding of the events in question (Britton, Pieterse and Lawrence 2017: 28). Giorgi (2011, cited in Naylor 2014: 67) criticises the phenomenological research method and suggests that it is methodically unclear, and lacking in rigour. However, texts such as those of Creswell (2013) and Smith, Larkin and Flowers (2009) provide clear methodical guidance on how to conduct phenomenological analyses, speaking against such arguments. Phenomenology is interested in the lived experiences of individuals, making it well-suited to the current study, which seeks to explore the personal encounters and private thoughts, feelings and needs

of individual community service radiographers. Guidance on performing phenomenological analysis was sought from various literature sources, which are quoted within the document, so that the research was conducted in a methodologically clear and trustworthy manner.

Most articles dealing with transition in health professionals document the negative experiences that health workers endure during their first year as an autonomous medical professional. It has been noted earlier that very few of these studies focus upon radiographers specifically. A study performed by Naylor (2014: 116) on radiography graduates relates their positive experiences during their initial employment stages, and did not find any evidence of reality shock. However, the rest of the articles encountered by this researcher seemed to have opposite findings. For example, Kodama (2017) considered a range of articles from India, Japan, the USA, and other countries, and found reality shock to be always present in the different populations of new graduates studied. As the current study is possibly the first ever research done in South Africa on the transition of radiography community service radiographers, it is uncertain whether the outcome of the research will show that students have positive transitional experiences, but it appears unlikely, based on the majority of documented experiences by other health professionals undergoing similar transitions.

2.13 SUMMARY OF THE CHAPTER

This chapter covered literature on the topics pertaining to transition of healthcare professionals. The gaps identified in literature showed that there is no study that has been conducted in South Africa, and KZN in particular, regarding transitional experiences of community service radiographers into the profession. Although many studies have been undertaken to better understand the phenomenon of transition, there has been no unanimous conclusion regarding the appropriate description of positive transition, and factors contributing to it for community service radiographers.

The chapter also considered theoretical and conceptual frameworks derived from the literature, which describes the theoretical lenses with which the research will be perceived, and how it will be conducted. These frameworks are based on Duchscher and Kramer's theories studying transitions within the healthcare domain. The following chapter describes in detail the methodology employed in the current research study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter outlines the research methodology adopted for the current study. It describes the research design and the methods to collect and analyse data. Creswell (2013: 84) defines research methodology as the process of research that includes those methods and procedures a researcher used for conducting the actual study and data collection, and the techniques for organising, analysing, and synthesising the data obtained. Methodology used for research can be classified into three broad categories, namely qualitative, quantitative, or mixed-methods research. Quantitative methodology represents data through predominantly numerical representations; qualitative methodology provides rich and contextual descriptions of contexts, users, and situations; and mixed methods methodology generates both data types (Creswell 2013: 611). The current study was suited to the qualitative approach, because of its explorative and descriptive nature, and it seeks to provide contextual information on how community service radiographers experience transition in their individual capacities.

However, as with most qualitative studies, flexibility is key when collecting and analysing obtained data, as unexpected events or themes frequently arise, and the researcher may need to adapt, or even change pre-planned methodologies to suit the nature of the study (Creswell 2013: 611).

3.2 DESIGN

Heppner *et al.* (2015: 118) define research design as a tool, or conceptual framework that a researcher uses to guide their pursuit of scientific enquiry. Alternatively, the design of a research is either a plan or a protocol for carrying out or accomplishing something (Maxwell 2013: 2). Creswell and Poth (2017: 5) suggest that research design refers to the logical sequence connecting a study's empirical data to research questions, and ultimately,

to a conclusion. Heppner *et al.* (2015: 118) argue that the ultimate goal of the design is to understand a construct or phenomenon, even though there may be multiple potential sources of bias, or confounding variables. By this definition, a good design must therefore endeavour to be resilient against counter-argument, and enable an unbiased understanding of the construct under study.

The current study employs an exploratory, descriptive design. The rationale for such a design is to explore new ideas and concepts according to conceptual models and empirical evidence (Habib, Pathik and Maryam 2014: 7). Such research provides pertinent information that is used to create a hypothesis about a given subject (Habib, Pathik and Maryam 2014: 7). It can later be transformed into a research problem, where there are very few or no prior studies to which reference for information can be made. Exploratory research does not aim to produce conclusive evidence, but rather to clarify the nature of a problem and form the basis on which subsequent research can be done (Habib, Pathik and Maryam 2014: 7).

Descriptive research is an application of exploratory research, but descriptive research delves deeper, in an attempt to ascertain and describe the characteristics of pertinent issues (Habib, Pathik and Maryam 2014: 8). It involves detailed descriptions of specific situations, and typically instruments such as document reviews, interviews, and observation are used (Habib, Pathik and Maryam 2014: 8). The focus in descriptive research is first to understand the phenomenon taking place, and then to predict the associated characteristics, patterns, and behavioural outcomes (Welman, Kruger and Bruce 2009: 25; Sreejesh, Mohapatra and Anusree 2014: 31;58). A descriptive design is desirable for the current study in order to obtain a deep understanding of the issues affecting community service radiographers, and to detail such issues so that a contextual understanding may be fostered in the reader. Such an understanding of the situation pertaining to the individual transitions of the study participants assisted in explaining their behavioural patterns, where future behaviour could therefore be predicted using this knowledge. A descriptive design was

hence well-suited to the study and aligned well with the research in addressing the research questions.

Zikmund and Babin (2006 :156) explain that exploratory research designs usually involve qualitative research techniques. The basic categories of qualitative research are briefly explained as follows. Ethnography is generally used to study cultures, and participant observation is a common ethnographic approach used to gather data. Phenomenology is a philosophical study of subjective human experience. Grounded theory studies are inductive, qualitative investigations that involve the researcher continually asking questions about a respondent's discourse to obtain a deep understanding of their behaviour. Lastly, case studies are documented histories about a specific person, event, group, or organisation (Zikmund and Babin 2006 :156).

Having considered the above categories of qualitative research, it is necessary to select a technique that adequately addresses the research question. The aim of this research is to explore the personal experiences of selected community service radiographers, and to describe these experiences as perceived by the participants. The study makes use of in-depth interviews to understand the context and environment responsible for shaping their perception of reality. This information is subsequently used to paint a rich, descriptive picture of their experiences, and the resultant behaviour and feelings that were elicited by the different professional experiences. Phenomenology, which concerns human experiences, is therefore the best qualitative technique suited to addressing the research question. From amongst the various modes of phenomenology, the approach taken in the current study is elucidated, but first, an articulation of the study's particular research paradigm is provided before phenomenology is discussed.

3.3 RESEARCH PARADIGM

A research paradigm is defined as a set of fundamental assumptions and beliefs regarding how the world is perceived, which serves as a framework to guide the actions of the researcher (Jonker and Pennink 2010, cited in Wahyuni 2012: 69). A paradigm consists of an ontology, epistemology, methodology, and methods (Scotland 2012: 9). The current study adopted the interpretive paradigm. Interpretivism searches for the deep understanding of a concept, and explores how a person understands the world in which they live (Rahi 2017: 1). As such, true knowledge under a given paradigm can only be obtained by deep interpretation of the subject (Rahi 2017: 1). When applied, the interpretivist paradigm requires a deep understanding of the transition phenomenon, exploring it from the point of view of the participants who are undergoing such transition. In the next section, the three components (ontology, epistemology, and methodology) of research are described in detail.

3.3.1 Ontology

Ontology is the study of being, and concerns itself with how one perceives reality (Scotland 2012: 9; Wahyuni 2012: 69). The same authors maintain that reality may either be viewed as subjective, and dependent on social actors who actively contribute to reality, or it may be objective, independent of social actors and their interpretations (Wahyuni 2012: 69). The interpretivist paradigm to which the current study is aligned lends itself to the subjectivist ontological position. This is the view that reality is subjective, and will not be the same from one individual to the next (Scotland 2012: 11). Reality is therefore an individual construct, meaning that there are as many versions of reality as there are individuals (Scotland 2012: 11). The community service radiographers, according to the ontological perspective, all had unique, subjective realities, which were individually constructed. Each community service radiographer and the social actors around them, such as the administration staff, nurses, and doctors at the respective hospitals included, actively contributed to the perceived reality.

3.3.2 Epistemology

Epistemological assumptions are concerned with the creation, acquisition and communication of knowledge, which is deemed to be of value (Scotland 2012: 9). According to Levers (2013: 2), epistemological enquiry is a way of understanding and explaining how we know what we know. The epistemology associated with interpretivism is subjectivism (Scotland 2012: 11). Subjectivism is the belief that knowledge is "always filtered through the lenses of language, gender, social class, race, and ethnicity" (Denzin and Lincoln 2005: 12). In subjectivism, the world only exists as we know it to exist, meaning it is dependent on our subjective knowledge of it (Scotland 2012: 11). Interpretive research therefore views reality as a subjective construct, which is entirely dependent on an individual's perception of their situation (Scotland 2012: 12).

Application of the subjectivist epistemological lens for the current research meant that the researcher viewed the reality of transition as it was portrayed by the specific community service radiographer. There was no universal reality for all study participants, because each account of reality was individually constructed, and understood based on the individual's language, gender, social class, and ethnicity. Each individual in turn contributed to their reality and actively interacted with it, and as such, there was no right or wrong answer. The researcher was able to attain a deep understanding of the social influences that led to a particular behaviour, or the environment that elicited certain emotions within the study participants.

3.3.3 Methodology

From the epistemology of a study, a suitable methodology can be derived. The methodology provides a theoretical perspective that links a research problem and approach with a particular method, or methods of data collection and analysis (Flick 2017: 548). Research methodology may be defined as the procedure of the research techniques (Daniel and Sam 2011: 39). Methodology contains the standards and principles employed to

guide the choice, structure, process, and use of methods, as directed by the overarching paradigm (Daniel and Sam 2011: 39).

The current research study adopted a qualitative research methodology. Qualitative research encompasses a wide variety of approaches and methods that are used to study social life (Saldana 2011: 3). Data collected is typically in the form of interview transcripts, field notes, documents, and visual items such as artefacts and photographs that document human experiences (Saldana 2011: 3).

There are multiple methods of qualitative enquiry, and the more commonly used ones have been briefly explained in section 3.2. The choice as to which method to use depends on the research question, and how adequately the method is able to satisfy the needs of the question at hand. The study adopted a phenomenological approach, explored in greater detail below.

3.4 PHENOMENOLOGY

Phenomenology is defined as the study of the structures of consciousness as experienced from a first-person perspective (Smith 2008, cited in Gallagher 2016: 7). Van Manen (2017: 775) argues that the original intent of phenomenology is to capture experience in its primordial essence, without trying to explain, interpret, or theorise. Phenomenology may then be viewed as the study of “how things show or give themselves” without any pre-determined construction or attribution of meaning to a phenomenon (Van Manen 2017: 775). Cohen *et al*. (2007) (cited in Sloan and Brian 2014: 2) define phenomenology as a theoretical point of view that advocates for the study of individuals’ experiences, based on the reasoning that human behaviour is determined by the phenomena of experience rather than the objective, physically described reality that is external to the individual. When these definitions from the varying authors are considered, it becomes clear that phenomenology is concerned with personal encounters and individual, subjective meaning, as perceived by

the study participants in question, which in the current research study are the community service radiographers.

There are seven types of phenomenology (descriptive, naturalistic constitutive, existential, generative historicist, genetic, hermeneutic / interpretive, and realistic) as identified by The Encyclopaedia of Phenomenology (1997, cited in Kumar 2012: 791) that may be used for scientific enquiry. Within the health sciences, the descriptive and interpretive phenomenological routes of enquiry are usually of relevance, and hence are the commonly used methods (Kumar 2012: 792). The study adopted an interpretive route, as discussed further in the next section.

3.4.1 Interpretive phenomenology

This branch of social enquiry is also sometimes referred to as hermeneutic phenomenology (Kumar 2012: 794). It is based on the premise that humans are interpretive, or hermeneutic beings that are capable of finding significance and meaning in their own lives (Kumar 2012: 794). The same author maintains that it regards the context in which a phenomenon occurs to be of central concern (Kumar 2012: 794). It means that the understanding that the community service radiographers ascribe to their transitional situations cannot occur in isolation, but rather, understanding is moulded by the surrounding environment, namely, interactions of the different cultures and/or races of people around them, the social contexts and organisational structure within the given hospital, as well as the historical period in which a person lives (Kumar 2012: 794).

The current research study aims to understand how study participants experienced transition into professional practice, so as to forward recommendations for improving the transitional experiences of future community service radiographers. The clinical setting, or hospital, served as the main environment in which study respondents created meaning or understanding of their subjective transitional experiences. Recommendations for future improvements are therefore mainly targeted

at this environment. For this reason, interpretive phenomenology, which seeks to understand the personal experiences of individuals within the context of their environment, is understood to be best suited to this study, and hence is the phenomenological method of choice.

3.4.2 Conducting interpretive phenomenological analysis

There are three main steps carried out when performing interpretive phenomenological analysis, as outlined by Pietkiewicz and Smith (2012: 7-8), and these are as follows.

(a) Multiple reading and making notes. It entails the researcher reading the interview transcript, or listening to the recording a number of times. It is useful because each reading and listening may provide some new insights. During this phase, the researcher makes notes about observations, reflections of the interview setting and experience, or any other thoughts or comments that may be of significance.

(b) Transforming notes into emergent themes. The researcher achieves this by examining the notes to create a concise phrase that reflects a psychological conceptualisation. This must still, however, be grounded in the particular detail of the participant's account.

(c) Seeking relationships and clustering themes. At this stage, emerging themes that share similarities are grouped together and given a descriptive label. Some themes, which may have a weak supporting base, may be dropped. A final list is made with numerous themes and subthemes.

A narrative account of the study can then be given after the analysis is complete. Such a narrative involves writing about the themes, and an extract from the interview as an example of the theme, as well as analytic comments by the researcher.

3.5 SETTING

The study setting is the location in which the research is conducted (Suresh 2014: 40). It can be natural, partially controlled, or highly controlled (Suresh 2014: 40). A natural or field setting is an uncontrolled real-life situation, meaning no alterations have been made for the purposes of the study (Suresh 2014: 40). A hallmark characteristic of qualitative research is that people are studied in their natural settings, and the aim is to make sense of phenomena and interpret them in terms of the meanings that people bring to them (Creswell 2013: 144). This qualitative study obtained data from the natural setting of the environments where community service radiographers were ordinarily resident, or from their work environments. The specific location where data was collected needed to be sensitive to the people and places under study (Creswell 2013: 145). As a result, each study participant was afforded the task of deciding where the interview process took place. They had to select an environment that was not disruptive of the normal day-to-day work schedule, and activities of the community service radiographer or other personnel at the hospital. In addition, the environment had to be fairly quiet and allow for an uninterrupted flow of communication between the participant and researcher. The participant had to feel safe, relaxed, and able to talk and express their views freely.

The current study was carried out in KZN, which is one of the coastal provinces of South Africa, with an estimated population of about 11 million people (South Africa, Department of Health KZN 2017: 35). The province has 72 provincial hospitals and 615 radiographers employed in the public sector (Health Systems Trust 2017: 306). The KZN province comprises of 11 districts, and it is depicted in Figure 3.1 (Statistics South Africa 2014: 27). The study was conducted within the eThekwini District, home to the majority (33.5%) of the province's population, making it the most densely populated (Statistics South Africa 2014: 27). eThekwini District contains 18 provincial hospitals, which is the highest number for any single district in

the province (Department of Health KZN 2018: para. 1 line 1). A map of the KZN province and its districts is shown below.

Figure 3.1 Map of KZN showing the districts (Geohealth n.d.).

The districts in KZN are depicted in yellow; eThekwini is depicted in red.

Public healthcare facilities in South Africa are structured according to a hierarchical referral system, and are classified according to the different categories corresponding to the services they are capable of rendering to patients (South Africa, Department of Health 2012: 35-37). Clinics, community centres, and district hospitals offer the most basic services, and are classified as Level 1. Regional hospitals are Level 2, provincial tertiary

hospitals are Level 3, and the most comprehensive services are offered at Level 4, which has central hospitals and specialised hospitals (South Africa, Department of Health KZN 2017: para. 1 line 1). Imaging facilities may be found in hospitals at all these levels. Alternatively, hospitals may be differentiated by their different classifications, as explained by the South African Department of Health (2012: 3) in the National Health Act of 2003. Using this system, hospitals may be classified as district, regional, tertiary, central, and specialised.

In line with provisions of the National Health Act 61 of 2003 (South Africa, Department of Health 2004: 58), community service radiographers are placed at any hospital level where there is a shortage of radiographers. Of the four radiography disciplines, diagnostic radiographers have the highest numbers in KZN, and hence have the most community service placements relative to the other disciplines (South Africa, Department of Health KZN 2018: para. 3 line 4).

3.6 SAMPLING PROCESS

Sampling involves selecting a group of people, objects, or elements with which to conduct a study (Grove, Gray and Burns 2015: 249). According to classical definitions, the purpose of selecting a sample is generally to find elements or parts of the population that are characteristic, or representative of the entire population (Gentles *et al.* 2015: 1772). The aim is to achieve statistical generalisability. However, the definition does not hold true for qualitative studies (Gentles *et al.* 2015: 1772). Sampling for qualitative study can be defined as the selection of specific data sources from which data is collected for the purposes of addressing research objectives (Gentles *et al.* 2015: 1776). For phenomenological studies, the data sources are limited to people, and sampling is essentially the process of choosing informants. The objective of sampling in these types of studies is to achieve analytic generalisability, which is explained as generalisability at a conceptual level (Gentles *et al.* 2015: 1776).

Although the samples chosen for qualitative study do not necessarily need to be representative of the entire population, it is important for qualitative researchers to choose a systematic and organised approach for selecting samples, as opposed to a convenient and disorderly approach. Systematic sampling is not only a quantitative issue, but it is particularly important in qualitative studies, because it affects the overall credibility of the study (Roller and Lavrakas 2015: 26).

Creswell (2013: 432) explains that in qualitative research, sampling occurs at multiple levels, and researchers need to decide which sites will be sampled, at what stage in the event or process sampling will occur, and which participants will be sampled. For the current study, it was necessary to select a sampling strategy that would be used to identify the hospitals from which respondents were chosen. Next, the stage at which participants were in their transition before interviews could be conducted had to be determined. Creswell (2013: 432) also describes that multiple sampling strategies may be used in a single study. The sampling processes that were used in the current study are elaborated below, starting with sampling at the hospital level.

3.6.1 Sampling at hospital level

All hospitals located in the eThekwini District that had community service radiographers allocated to them form the total population at the hospital level. The exact number of hospitals gazetted for community service radiographers varies annually depending on national policy, and existing staffing levels at the different hospitals. For the year 2018, a total of ten hospitals had community service radiographers allocated to them in the eThekwini District (South Africa, Department of Health KZN 2018: para. 3 line 4).

Criterion sampling was used to select hospitals within the eThekwini District from which study participants were drawn. This sampling technique involved selecting hospitals that satisfied a predetermined criterion of

importance (Patton 2001: 238). Hospital classification, as explained by the Department of Health in the National Health Act of 2003 (South Africa, Department of Health 2011: 6-9) (district, regional, tertiary, central, and specialised) was used as the differentiator for criterion sampling. For the five hospital classifications, a single institution that belonged to each category was selected. Some categories had more than one hospital eligible for selection. In these instances, purposive random sampling was used to select one institution from the available choices. It involves selecting an initial sample for the study using one of the purposive sampling techniques, such as criterion sampling, and then using simple random sampling to select study participants. It increases the credibility of the results, even if the purposive random sampling was done on a very small sample (Burns and Grove 2010: 313). A total of five hospitals were selected for inclusion into the study.

3.6.2 Sampling at participant level

Creswell (2013: 434) recommends that the participant sample size for phenomenological studies ought to range from three to ten participants. However, Bagnasco, Ghirotto and Sasso (2014: e6) highlight that the sample size for qualitative data should be dependent on saturation of themes.

Once the hospitals had been identified, the total population sampling technique was employed to select all the community service radiographers at the institutions for inclusion into the study. This resulted in a targeted population of eight community service radiographers, who were approached for consent to participate in the study. One participant declined to give consent and the remaining seven agreed to participate. After the respondents had been interviewed, it was noted that no new themes continued to emerge, meaning saturation had occurred and the selected sample size was adequate. For this reason, no extra community service radiographers were recruited.

It was necessary to ensure that the study participants met certain pre-determined criteria for them to be included in the study based on the theoretical and conceptual frameworks that were used. These criteria are explained in the following section.

3.6.3 Inclusion and exclusion criteria

Community service radiographers were included and excluded in the study based on the following:

3.6.3.1 Inclusion criteria

Criteria were that participants ought to be:

- recently graduated diagnostic radiographers undertaking their community service;
- community service radiographers with at least three months employment experience;
- HPCSA registered as a community service radiographer in diagnostic radiography in 2018; and
- at least 18 years old.

3.6.3.2 Exclusion criteria

Criteria were that participants ought to not be:

- community service radiographers who had been previously employed;
- community service radiographers with less than three months employment experience; or
- HPCSA registered in a capacity other than that of a community service radiographer.

3.7 DATA COLLECTION PROCESS

Data collection entails acquiring the subjects and collecting data for the study (Burns and Grove 2010: 361). The data must be collected in a consistent way, which is crucial for study validity to be maintained (Burns

and Grove 2010: 361). Researchers need to develop clear and detailed data collection guidelines to ensure that the results obtained will be accurate, reliable, and unbiased (Johnson 2014: 97).

After ethical clearances from the different health institutions (explained further in section 3.11 later in the chapter) had been received by the researcher, study participants were approached, and their written consent to participate in the study was obtained before interviews were scheduled. Semi-structured, one-on-one in-depth interviews were used to collect data for the current research. The interviews involved posing questions to respondents, and the order in which these were asked was not rigid, but rather participant-led (Flick 2017: 233). In addition, follow-up questions known as probes were asked, based on what respondents had said during the interview (Flick 2017: 233). One-on-one interviews were preferred because they are easily managed, allowing rapport to be built, and they provide an optimum environment for participants to think, speak, and be heard (Smith, Flowers and Larkin 2009: 57). Such an arrangement is well suited to, and encourages in-depth and personal discussion (Smith, Flowers and Larkin 2009: 57). Interviews were audio recorded with the permission of participants, and a verbatim written transcription of each interview was produced. The transcript was then used for interpretative phenomenological analysis.

3.7.1 Timing of data collection

Community service radiographers are expected to serve the community for a total period of 12 months, and it was necessary to decide when during this period they were to be interviewed. Using the theoretical framework based on Duchscher's Transition Shock theory, most community service radiographers will likely experience their most stressful period within the first three months of professional practice (Duchscher 2009: 1107). The period represents the most crucial stage in their professional development, and it is at this time that they are most vulnerable and require the most support. Recommendations to improve transitional experiences for future

community service radiographers must therefore aim to ensure that the initial three-month period is as stress-free as possible. For this reason, interviews were carried out after the new radiographers had been employed for a period of at least three months, as they were likely to be information-rich and able to provide comprehensive information regarding their transitional experiences.

3.7.2 Pilot study

A pilot study is defined as a small-scale version of anticipated research that may form the basis of a future study (LeBlanc *et al*. 2011: 2). This is an iterative process that is useful for self-correction and refinement of the qualitative data collection tool and helps to ensure rigour and reliability (Hurst *et al*. 2015: para. 7 line 1). It also improves the validity of qualitative data collection procedures and interpretation of findings (Hurst *et al.* 2015: para. 7 line 1). Community service radiographers from a hospital that was not included in the sample were approached and interviewed to test the interview guide. It helped to ensure that all questions asked were clear and unambiguous, and that respondents were able to easily interpret them and give detailed responses. Table 3.1 shows the questions that were posed to the community service radiographers in the current research study.

Table 3.1: Summary of data collection methods, data sources management, and operational levels

Objective	Data source	Method	Research sub-questions
To understand and describe the transitional experiences of community service radiographers	Community service radiographer, or radiographers in the selected hospital within the province.	In-depth Interviews for one participant and focus groups when participants are more than one in a selected hospital.	What are the experiences of community service radiographers as they settle into the workplace?
To describe community service radiographers' expectations with regards to transition into the workplace	Community service radiographer, or radiographers in the selected hospital within the province.	In-depth Interviews for one participant and focus groups when participants are more than one in a selected hospital.	What are their expectations with regards to transition into the workplace?
To uncover strategies for improving the transition of community service radiographers	Community service radiographer, or radiographers in the selected hospital within the province.	In-depth Interviews for one participant and focus groups when participants are more than one in a selected hospital.	What can be done to help make the transition from student to professional a smooth one?

An interview guide (Appendix 11) was used comprising two sections: the first of which was for demographic data, and the second was comprised of open-ended interview questions to be posed to the respondents. Bengtson *et al.* (2004: 75) explains that demographic data is useful for providing a contextual background about the participants in qualitative studies. Creswell (2013: 241) states that open-ended questions are asked to respondents in order to gather data that will lead to a textural and structural description of their experiences, which is important for phenomenological data analysis.

All interviews with participants were conducted in English, because the interviews involved community service radiographers who had completed their higher education in English, so it was assumed that they were fully conversant in the language.

3.8 DATA ANALYSIS

The researcher documented his own experiences with the transition phenomenon, and included the context and situations that influenced his experiences (Appendix 13). This was to encourage an unbiased analysis of data, and is described further in Section 3.9.

Phenomenological data analysis involves horizontalisation, which refers to the process of going through the interview transcriptions and highlighting significant statements, sentences, or quotes which shed light on how the community service radiographers experienced their transition (Creswell 2013: 241). These statements were used to develop clusters of meaning, or themes (Creswell 2013: 241-243). A textural description of the transitional experience was then developed from these themes. In addition, a structural description, which is essentially a description of the context or setting that influenced how the community service radiographers experienced their transition, was also generated from the same themes. The structural and textural descriptions were used to derive the "essential invariant structure" of the phenomenon, also known as the "essence." The essence focused on the common experiences of participants and outlined the underlying structure of the transitional process (Creswell 2013: 241-243). No software was used in this study for data analysis. Interpretative phenomenological analysis was used for the current study, as explained in section 3.4.4.

3.9 TRUSTWORTHINESS

Lincoln and Guba (1985) proposed criteria to be applied to qualitative research to ensure its trustworthiness, viz. credibility, dependability, confirmability, and transferability (Polit and Beck 2008: 539). These criteria are defined below, together with the steps taken to ensure the trustworthiness of the current research.

(a) ***Credibility*** refers to confidence in the truth of the study's data and its interpretation. It is the overriding goal of qualitative research. Random

purposive sampling was used to select the specific hospitals from which community service radiographers were selected, and it increases a study's credibility (Roller and Lavrakas 2015: 26). Research findings were analysed and related to, or compared with similar bodies of literature identified in the literature review. Such comparisons also have the effect of increasing credibility (Pandya-Wood 2014: para. 1 line 3).

(b) ***Dependability*** refers to the stability or reliability of the data over time, and/or varying conditions. It determines whether or not the study findings would be the same if the study were conducted with similar participants and in similar conditions (Pandya-Wood 2014: para. 4 line 2). To ensure dependability, an audit trail was maintained. It was done by keeping records of the pilot study, electronic communication with study supervisors, all versions of the interview guide, information and consent letter, and letters requesting permission, as well as analytical procedures used to process the data (Pandya-Wood 2014: para. 4 line 2).

(c) ***Confirmability*** speaks to the objectivity of a study regarding its accuracy, relevance, and/or meaning. Neutrality of the researcher is important for confirmability to be ensured (Polit and Beck 2008: 539). The concept of 'epoché' was used to increase its confirmability (Appendix 13) (Creswell 2013: 238). Epoché, also known as bracketing, involves the researcher describing their own experiences with the transitional process, bracketing out their views, before going on to analyse the experiences of the study respondents. This practice allows the reader to decide how much of the researcher's own experiences and views may be guiding the study and hence be a potential source of bias in the final study.

(e) ***Transferability*** refers to the generalisability of data. It constitutes the extent to which it may have applicability in other settings. The researcher ensured transferability by providing a thick description of the context relating to the study, as well as explaining assumptions that were central to the research (Creswell 2013: 661).

3.10 ETHICAL CONSIDERATIONS

Resnik (2015: para. 5 line 3) defines ethics as the methods, procedures, and perspectives that are used to decide how to act and how to analyse complex problems and issues. Ethics are important to disciplines, institutions, and professions, and are tailored to suit their aims and goals. Application of these ethical standards helps members of the discipline coordinate their behaviour and activities, and in turn helps achieve the public's trust of the discipline. In research, ethical norms promote the aims of scientific research, such as truth, knowledge, and avoidance of error, by discouraging actions involving the misrepresentation and falsification of information and data obtained (Resnik 2015: para. 7 line 3).

The World Medical Association has created a set of ethical guidelines for those engaging in medical research, and the document is widely lauded as being the central authority in medical research ethics. It is known as the Declaration of Helsinki, and it was first adopted in 1964 (Carlson, Boyd and Webb 2004: para. 2 line 2). In South Africa, the National Health Act No. 61 of 2003 mandates the Minister of Health to establish a statutory body that oversees health research in the country. It is known as the National Health Research Ethics Council, and it oversees all health research ethics committees in the country. No research involving human participants may commence in the country unless the investigator has documentation stating that approval has been granted by an Ethics Committee, and these are typically affiliated with institutions of higher learning and research, as well as some of the larger health institutions (National Health Research Ethics Council 2017: para. 1 line 1; South African Medical Research Council 2017: para. 1 line 1).

It is in line with these legal regulations that the researcher sought ethical approval for the study before commencing with the data collection process. After the study was approved by DUT, ethical clearance was sought from the Institutional Research Ethics Committee (IREC). Conditional permission to conduct the study was granted with IREC Reference Number

REC 16/18, with the stated condition that all responsible gatekeepers were required to give additional permission, and the received conditional ethics approval has been included as an appendix to the current document (Appendix 1a). Copies of this approval letter were attached to all subsequent requests for permission to the different gate keepers.

After institutional approval had been obtained, permission to conduct the study within eThekwini hospitals was requested (Appendix 2a) from the eThekwini Health District Office. Permission was granted (Appendix 2b), and the office instructed that further permission be sought from the Health Research and Knowledge Unit of the KZN Department of Health. The KZN Department of Health was contacted using their online application form for this purpose, and research approval was granted (Appendix 3), and it was requested that the researcher proceed to make arrangements with the different institutions prior to commencement of the study.

The respective Chief Executive Officers at the hospitals where study participants were to be recruited were sent letters via email requesting permission to conduct studies at their institutions (see Appendices 4a, 5a, 6a, 7a, and 8a) as advised by the KZN Department of Health. They all granted the researcher access to their community service radiographers (Appendices 4b, 5b, 6b, 7b and 8b), and all these letters of approval were then sent to the institutional ethics committee to obtain full ethics approval (Appendix 1b). All prior approvals that the researcher had received were attached to the email to show the concerned gatekeeper that proper steps had been followed, and that all necessary permissions had been received.

Only after permission had been granted by all these authorities were participants approached to participate in the study. The researcher verbally explained the nature of the study and what participation would entail, and gave all respondents a chance to ask questions so that any areas of doubt would be clarified. Participants who expressed interest in being part of the study were presented with a written information (Appendix 9) and consent form (Appendix 10).

The researcher kept all personal information obtained from the study strictly confidential and anonymous. Pseudonyms were utilised to ensure privacy of all the participants and their respective places of work. Only the researcher had access to the collected information. The transcribed data was stored on a computer where only the researcher had the password. The researcher requested permission to audiotape the interview. However, for participants who refused, the researcher took notes to collect data. Data was analysed and reported objectively by the researcher. No participant received any form of remuneration.

3.11 SUMMARY OF THE CHAPTER

The methodology section details how the researcher conducted the study. It starts by outlining the philosophical underpinnings of the research, which adopted an interpretive paradigm, with a relativist ontology, and a subjectivist epistemology. The study adopted a phenomenological methodology. The researcher chose participants from selected hospitals, and after in-depth interviews, the gathered data was analysed using interpretive phenomenological analysis. The researcher also describes how trustworthiness of the research was ensured. The chapter ends with a discussion of important ethical considerations observed throughout the data collection process, as well as during the other stages of research.

CHAPTER 4: PRESENTATION OF FINDINGS

4.1 INTRODUCTION

This chapter presents the findings of interview data obtained from seven community service radiographers placed at different hospitals within the eThekwini District. The interview data were analysed for their relevance to the research questions of the study. The chapter begins by describing the interviewees briefly, then presents the findings of the study as themes. The chapter concludes with a summary.

The current research focuses on exploring and describing the lived experiences of community service radiographers during their transition into the workplace, to recommend facilitators for a smooth transitional process. The study's objectives as described in Chapter 1 are as follows:

a) To understand and describe the transitional experiences of community service radiographers;

b) To describe community service radiographers' expectations with regards to transition into the workplace; and

c) To uncover strategies for improving the transition of community service radiographers.

One-on-one, in-depth, semi-structured interviews were conducted with each participant, and the interviews were audio-recorded. An interview schedule was used consisting of two parts: the first part was for the collection of demographic data, and the second contained the questions that were asked by the researcher during the interviews. The interviews were conducted at the different hospitals where the community service radiographers were working, and the participant selected the venue used for the interview. In each case, a quiet room that was free from disturbances and distractions was selected, so that the

interview could progress as smoothly as possible with no interference from the external environment.

All the interviews were initiated by the main research question, as per the interview guide. Creswell (2014: 245) states that in cases where data is rich and dense, it should be collected into small numbers of themes, as it allows easy conceptualisation of the participants' individual accounts. Conducting one-on-one interviews allowed deep exploration into participants' personal experiences. Once all the interviews had been conducted, they were transcribed so that analysis could be carried out. The sequence of data analysis is validated by Whitehead, LoBiondo-Wood and Haber (2012:143), who suggest that the complete set of data be focused on as a whole, after data collection is complete. The same authors argue that such an approach gives the researcher a sense of the entire data set, and this method is particularly useful when conducting phenomenological studies. Data saturation was reached after analysis of the interview transcript from the fifth respondent. The participants' profiles are shown under participant demographics. The chapter will illustrate how the data was analysed and presented.

4.2 DEMOGRAPHIC DATA OF THE PARTICIPANTS IN THE STUDY

The researcher employed the sampling process outlined in Section 3.6.1 to identify five hospitals within the eThekwini District. At these hospitals, there were a total of eight community service radiographers who were transitioning into the workplace. Of the eight potential participants identified, seven gave consent to participate in the study, and one declined. The demographic profiles of the individual community service radiographers are given in Table 4.1 below.

Table 4.1: Demographic data of study participants

Participant number	Gender	Race	Age (Years)	Marital Status
1	Female	Asian	18-22	M
2	Female	Coloured	23-27	S
3	Female	White	18-22	S
4	Female	Other	18-22	S
5	Male	African	23-27	S
6	Female	African	18-22	S
7	Female	Coloured	18-22	S

With regards to gender identity, only a single participant identified as male, and the remaining six identified as females. The African and coloured racial groups had two participants each, whilst the white, Asian, and 'other' groups each had a single participant. Five of the interviewed participants were within the 18-22 years age group, and the remaining two fell in the 23-27 years age range. Apart from one person who was married, all of the interviewed participants were single. Based on the analysis of the interview data, the findings that emerged as themes are discussed next.

4.3 CONCEPTUALISATION OF TRANSITIONING INTO THE WORKPLACE

The three main themes that emerged from the thematic analysis that was used on transcribed data, were as follows:

1) reality shock;
2) work environmental factors; and
3) adaptation.

From these themes, the researcher discussed their related sub-themes that emerged, as shown in Table 4.2.

Table 4.2: Summary of themes, subthemes and categories that emerged from data analysis

Theme	Subtheme	Category
4.3.1 Reality Shock	4.3.1.1 Feelings of being overwhelmed	• Increased workload • Adjusting from the private healthcare system to the public system • Daily work routine • Dealing with shortages in public healthcare system
	4.3.1.2 Frustration at being undermined	• Being assigned to substitute absent staff • Perceptions of not being valued
	4.3.1.3 Increased responsibility	• Feeling stressed due to being responsible for one's own work • Apprehension that something may go wrong
	4.3.1.4 Attrition from the profession	• Plans to leave radiography • Intent to study further • Desire to remain in radiography
4.3.2 Work Environmental Factors	4.3.2.1 Collegial Environment	• Qualified radiographers • Fellow community service radiographers • Broader hospital staff
	4.3.2.2 Departmental Environment	• Lack of stimulation • Limited imaging equipment • Exposure to multiple modalities • Digital equipment • Professional freedom to learn • Adequate rotation for learning • Inadequate rotation • Lack of professional growth
4.3.3 Adaptation	4.3.3.1 Support	• Mentorship • Orientation • Technical support • Collegial support
	4.3.3.2 Familiarity	• Prior knowledge of institution • Prior work experience as a student at the hospital.

To highlight the point, the quotations derived from the transcribed face-to-face interviews are used. A sample of the interview transcript is provided (Appendix 12).

4.3.1 THEME 1: Reality shock

Participants were asked about their perceptions regarding how prepared they were for employment as community service radiographers. All the participants

expressed some form of reality shock, and they described how it was more apparent soon after they began their community service work. Subthemes that emerged included how overwhelmed participants felt, frustration at being undermined in the workplace, increased responsibility, and their thoughts of leaving the profession.

4.3.1.1 SUBTHEME 1: Feelings of being overwhelmed

Participants had expectations of what they thought it would be like to work in the hospital. They had performed clinical duties during their training phase as students, and so their expectations were based on prior experience. However, as students, they were only required to work for a limited time, and they worked under the supervision of a qualified radiographer. As community service radiographers who now had to work full-time without supervision, participants were faced with discrepancies between their expectations and reality, which led to feelings of being overwhelmed. Participants cited different aspects that led to feelings of being overwhelmed, namely the increased workload due to being short-staffed; adjusting to institutional differences between the private and public sector; the routine of coming to work daily; and dealing with the shortages which are found in the public healthcare sector. The following statements highlight these sentiments (all transcriptions are verbatim):

> "[We were] *very overwhelmed* [by the workload] *especially because we were very short-staffed. We were like, 'Woah! What are we in for? Is it gonna be like this? Like how it's supposed to be?'"* **Participant 2**
>
> *"I had to make like a huge adjustment from the private sector to the government sector."* **Participant 3**
>
> *"…it was a bit hard… just getting used to the routine of coming to work…"* **Participant 4**
>
> "[We trained in a private hospital, so] *we're not prepared for the lack of equipment, the lack of money to fix anything, the lack of staffing* [in the public sector] …" **Participant 6**

4.3.1.2 SUBTHEME 2: Frustration at being undermined

Participants expressed different aspects of the reality shock that they experienced. For some, reality shock was evident in the difference between expectation and reality of how they thought they would be regarded by their qualified peers now that they had graduated in status from being a student to a community service radiographer. Most participants felt their role at work was merely to substitute staff members who were absent due to sickness or other causes. Others felt they were not valued, and subtly undermined by their older peers in the workplace. These sentiments are expressed in the following excerpts:

> *"If someone calls in sick, automatically… the comm serve is gonna do it."* **Participant 1**

> *"sometimes you do feel like… I'm being undermined a little bit."* **Participant 7**

4.3.1.3 SUBTHEME 3: Increased responsibility

Although prior work experience during the student phase helped participants in the study feel prepared for their role as community service radiographers, it emerged that they were not prepared for differences in the level of responsibility, and it resulted in reality shock. Student radiographers are always supervised by a qualified radiographer, and are not held accountable for the final quality of radiographs. However, as community service radiographers, they work without supervision, and are independently responsible for their quality of work. Participants highlighted that the increased level of responsibility stood in contrast to what they had experienced during the student phase. Being fully accountable for their work, and the potential repercussions of any mistakes made, was viewed as stressful by the participants. It is reflected in the following statements:

> *"…as a comm serve you have to take more responsibility, so it can be a bit stressful…"* **Participant 4**

"[as a comm serve] *should you do anything wrong it's you. You are the one to go under the bus."* **Participant 3**

4.3.1.4 SUBTHEME 4: Attrition from the profession

When participants were asked about their future career prospects, most of them indicated that they were considering leaving radiography. Others said they would like to study further in another qualification to enable them to leave the profession. They had the following to say regarding their career plans:

"…I am currently maybe thinking of moving out of the field…" **Participant 7**

"I need to study something else" **Participant 6**

Nonetheless, two participants stated that they desired to remain in the radiography field and study further. The following statements illustrated this:

"whatever I do, I would like it to be somehow linked to radiography." **Participant 2**

4.3.2 THEME 2: Work environmental factors

When participants were asked about their experiences as community service radiographers, they said that the work environment played a critical role in shaping the experiences as community service radiographers. They associated the work environment with collegial and departmental environments.

4.3.2.1 SUBTHEME 1: Collegial environment

The majority of respondents identified the collegial environment as a major contributor to overall work satisfaction, thereby strongly impacting transition. They cited collegial environment to be affected by interpersonal relationships with qualified radiographers, fellow community service radiographers, and the broader hospital staff. These sentiments are highlighted in the following statements:

"This department is fairly easy to get used to. I would say the [radiographers] *were welcoming. They treat us so well and I really like it. I haven't encountered anything negative."* **Participant 1**

"…if I was the only comm serve… it would have taken longer to get used to the place… being two comm serves we would like... depend on each other." **Participant 5**

"…we don't relate to the rest of the hospital at all. I don't see anyone else, I don't know who anyone else is." **Participant 6**

4.3.2.2 SUBTHEME 2: Departmental environment

Most interviewees highlighted that the departmental environment elicited mixed feelings. Interviewees placed at a hospital with limited imaging equipment explained how they lacked stimulation, finding their work to be repetitive. They also felt that the limited imaging equipment restricted their professional skills development. The following excerpts are from participants who were at hospitals that had limited modalities:

"I just feel it's like the same thing every day, like there's no screening here." **Participant 1**

"…I'm limited here, and we don't have digital equipment here-you saw the darkroom. We don't [even] *have fluoroscopy."* **Participant 6**

In contrast, the participants placed at a hospital with multiple imaging modalities felt that their environment exposed them to new experiences, which they enjoyed. They enjoyed exposure to the available equipment, and the different imaging procedures performed at the hospital. Participants expressed these sentiments in the following statements:

"[I like that] *I'm getting exposed to everything, all to all the* [imaging] *modalities of radiography… this hospital is like perfect."* **Participant 4**

"…coming to comm serve at…a fully digital hospital, was fairly easy. I didn't have to get used to any systems…" **Participant 5**

It emerged that practical learning was very important for all the participants. They identified learning new skills as a desirable factor in the departmental environment. The environment determined what was learnt by participants, and hence participants in differing environments appreciated and highlighted differing aspects of their learning experience. They highlighted being given professional freedom that encouraged learning, and exposure to different imaging modalities. This is explained by the excerpts that follow:

> *"…what I quite like about being here is that you're given the freedom to learn. Here... you are able to learn, and to do it by yourself."* **Participant 7**

> *"…they have cathlab, they have angio, they have everything. So I like that I'm able to rotate in all these different things and learn…"* **Participant 4**

At the majority of workplace environments, interviewees felt they were not learning anything new, and they expressed their displeasure. It was predominantly due to the lack of functional equipment at some of the hospitals, which in turn meant there were limited modalities in which community service radiographers were rotated. They felt stifled in their professional growth, which they expressed in the following statements:

> *"…we don't have as much rotation as we should be having for experience."* **Participant 6**

> *"… it's like you stuck in one place."* **Participant 3**

4.3.3 THEME 3: Adaptation

Participants were requested to give their opinions on what they thought was required to make their transitions better, and to facilitate smooth adaptation into the workplace. Two subthemes emerged, namely support and prior knowledge of the hospital where to perform community service.

4.3.3.1 SUBTHEME 1: Support

All the participants highlighted the importance of support. They specified mentorship, orientation, technical, and collegial support as important for workplace adaptation. The following statements supported this:

> *"I feel like they maybe should have corrected you or mentored you a bit more, or at least check up on you… you know. I think that would have made settling in a bit easier."* **Participant 7**
>
> *"Everywhere that we've been, we've been* [oriented]*. A senior in that...section has always showed us the ropes."* **Participant 4**
>
> *"…before you do mobiles, before you go to theatre…you are given a week of training. So even though you know the machines, you know what to do in terms of positioning and whatever… they train you."* **Participant 5**
>
> *"*[It was difficult to settle in] *because you have no one to help you here."* **Participant 2**

4.3.3.2 SUBTHEME 2: Familiarity

Most interviewees stated that adaptation to the work environment would have been easier if they were familiar with the hospital, in terms of the technology of imaging modalities. The idea is expressed in the following excerpt:

> *"It's a very digital hospital, it's a very computer-based hospital. So if you are not computer-literate, it's gonna be extremely difficult to be able to function here. Yeah, so I think it's nice if you were trained in a certain way to be put in a… hospital that is the same, 'cause it helps not only you, but the hospital."* **Participant 5**

One respondent had performed their clinical rotation at the same hospital where they were now working as a community service radiographer. The respondent highlighted the prior workplace experience as a major factor facilitating workplace adaptation and integration. The participant had this to say:

“I adapted pretty well, I think because I was a student at this hospital, so that was like an advantage for me.” **Participant 2**

According to Carroll, Booth and Cooper (2011: 4), after the themes have been identified and discussed, the researcher interprets the findings by finding a relationship between the themes. Therefore, in the next chapter the researcher will interpret and discuss the key finding as themes.

4.4 CONCLUSION

This chapter presented the findings of the research. They were presented as main themes, and sub-themes that emerged from interviews with the participants. The next chapter discusses these findings, based on the analysis and interpretation done in the chapter.

CHAPTER 5: DISCUSSION OF FINDINGS

5.1 INTRODUCTION

The previous chapter presented the findings of the study. These findings will now be discussed based on an analysis of the data, and the subsequent interpretation of the experiences of community service radiographers during their transition to the workplace. To analyse the data, the researcher familiarised himself with the interview transcripts, and highlighted significant statements which elaborated aspects of the transition process, a technique known as horizontalisation (Creswell 2013: 241-243). These statements were used to derive an essential invariant structure, which focused on common experiences of the community service radiographers (Creswell 2013: 241-243).

This chapter discusses the demographic profiles of the study participants to provide a contextual background of the community service radiographers interviewed. Demographic information may assist in explaining the perceptions of respondents, and any similarities or differences (Bloomberg and Volpe 2012: 105). Next, the themes that emerged are discussed, as well as the subthemes. To recap, the main themes that emerged were reality shock, work environmental factors, and adaptation.

Lastly, the chapter reconciles the findings with the aim of the study, consolidating it with literature and theory. The aim of the current study was to explore and describe the lived experiences of community service radiographers during their transition into the workplace, to ensure improved transitional experiences for future community service radiographers.

5.2 DEMOGRAPHIC PROFILE OF STUDY PARTICIPANTS

All the study participants were working at hospitals located within the eThekwini District. They had completed their tertiary education at different higher education institutions in the previous year, and were registered with the HPCSA as community service radiographers.

5.2.1 Gender

When the participant sample was considered, approximately 86% (n = 6) of respondents were identified as female and 14% (n = 1) identified as male radiographers. The higher proportion of female to male radiographers noted in the current study is in tandem with national figures as indicated by the Health Systems Trust (2017: 306), who reported that in 2016, there were 573 female, and 93 male radiographers, registered by the HPCSA. It represents an approximate percentage of 84% female, and 16% male registered radiographers. In the U.K., the National Health Services Scotland's Education and Workforce Report (2015: 14) published data pertaining to the demographics of undergraduate radiography students. The report found a similar imbalance of the number female and male radiographers, stating that from 2005 to 2013, around 85% of all enrolled students were female, and the remaining 15% were male.

5.2.2 Race

Approximately 29% (n = 2) of respondents were African, and another 29% (n = 2) were coloured. The remaining race groups, namely Asian, white, and 'other' each contributed 14% (n = 1) of the study respondents. A similar study performed by Ganesh (2017: 105) in Durban had a very different respondent demographic profile, with 7% African, 20% Asian, and 73% white respondents. Nationally Africans make up 80% of the population, the coloured race 9%, whites 8%, and Asians/other, 3% (Statistics South Africa 2017: 2). The racial disparities noted between this study's sample, the study by Ganesh (2017: 105), and the country statistics are reflective of the inequalities in access to higher education prevailing in the country (Council on Higher Education 2016: 38).

5.2.3 Age

About 71% (n = 5) of the study participants were aged between 18 to 22 years, and the remaining 29% (n = 2) were in the 23 to 27 years age bracket. This is a relatively young population when compared to other studies. A similar study

carried out by Govender, Brysiewicz and Bhengu (2015: 4) investigating the perceptions of compulsory community service by nurses, had 71% of respondents in the 21 to 27 years age group and 28.9% between the ages of 28 and 33 years. The study conducted in Durban, South Africa by Ganesh (2017: 105) on first-time registered chiropractic Master's students had 100% of participants falling within the 23 to 27 years age range.

5.2.4 Marital Status

Only about 14% (n = 1) of participants were married, and the remaining 86% (n = 6) were single. Such a finding of a predominantly single respondent population is considered to have been likely, given that all participants in this study were younger than 27 years, and the societal norm of marrying when one is past the age of 30 (Statistics South Africa 2018: para.4 line1).

5.3 DISCUSSION OF THEMES

The themes emerging after community service radiographers were asked to describe their workplace experiences are discussed in more detail next.

5.3.1 Reality shock

When participants were asked to relate their workplace experiences, their responses were suggestive of reality shock. The phenomenon occurs when individuals spend several years learning and preparing for their profession, where once in the field, they suddenly realise they are not prepared (Harwood 2011: 2). It is associated with the feelings of confusion, doubt and anxiety as they transition from being a student, to an autonomous professional (Sparacino 2015: 38).

Reality shock is a multi-faceted phenomenon, and participants expressed differing aspects of their new role for which they did not feel prepared. They highlighted being overwhelmed by the workload, citing feelings of frustration due to being undermined, and describing how the increased responsibility they now had as community service radiographers left them feeling anxious. Such

negative sentiments made some participants feel that leaving the profession would be the best way forward.

Participants explained how, upon exposure to the work environment in their new roles as community service radiographers, they were overwhelmed by the substantial workload. During their periods of exposure to the clinical setting as students, there was always some form of supervision or assistance in dealing with the workload. However, as unassisted community service radiographers, they were newly responsible for ensuring that all patients within the Imaging Department were attended to. They had to work regularly, for longer hours, and attend to more patients, as compared to when they were students. In several cases, they were short-staffed, and it further increased the pressures of work. Toal-Sullivan (2006: 520) carried out a study to understand the lived experiences of newly qualified occupational therapists. The author obtained similar findings, reporting that occupational therapists that were transitioning from student to practitioner felt overwhelmed with their schedules, with limited time to complete their professional duties. Naylor (2014: 47) echoes this finding, and explains that a high patient volume, heavy workload, and staff shortages have been cited as the most prevalent sources of work pressure amongst diagnostic radiographers. Continued feelings of being overwhelmed in the workplace can lead to depersonalisation, and this is associated with feelings of detachment, and dehumanisation (Akroyd, Caison and Adams 2002: 215). In a study by Gam (2015: 10), radiographers suggested shorter working hours and taking time to relax in relaxation rooms as measures that may help to alleviate the overwhelming feelings associated with an increased workload.

In the current study, participants had undertaken the bulk of their training in private healthcare facilities during the student phase. As community service radiographers, they had to work in public hospitals. In South Africa, there exists a large discrepancy between these two types of institution. Public hospitals generally have longer waiting times for patients, where shortages of basic consumables are common, and patient care is frequently compromised due to a high demand for services, and the limited number of available healthcare staff (Young 2016: 4). The private healthcare setting is very different, and on

average, patients are given better quality patient care, they have shorter waiting times, infection control practices are enforced, and the equipment in use is generally of a better standard (Young 2016: 9). Participants exposed to the private healthcare system reported experiencing frustration and confusion, which the researcher associated with reality shock when they were exposed to public hospitals. Some had almost no exposure to the analogue equipment used in some public hospitals, and they were only familiar with modern digital equipment. They were unprepared for the shortages of basic consumables, and a management style that they found to be unsupportive. Most public hospitals within the country are reported to be in a dysfunctional state due to bureaucratic bottlenecks (Edmeston 2012: 43).

Participants felt that they were taken advantage of, because they were viewed as having less personal responsibility due to their relatively young age, as well as being unmarried. As autonomous practitioners, participants expected to be regarded as fully-fledged members of staff by their colleagues, but the reality they encountered was that they were undermined in various aspects, which resulted in reality shock. Their colleagues were older, and many were married, or had family responsibilities. These responsibilities would sometimes necessitate them taking days off from work, and the community service radiographers would be required to take over the duties of the absent members of staff. This made participants feel undervalued, and they perceived that they were regarded as substitute staff.

In addition to the above, the allocation of duties and rotations were unfavourable to the participants. They were assigned to work during hours that no-one else wanted, and to perform duties that the older, qualified staff members preferred not to do. Participants perceived that they were at the very bottom tier in the departmental hierarchy, and they felt they could not protest such treatment, as it was never expressly communicated, but rather, subtly implied. Within the workplace, such hostile behaviour by superiors which is directed at subordinates is described as oppressive, and it is known as vertical violence (Waschgler *et al*. 2013: 2400). Horizontal violence is when the hostility is from peers at the same hierarchical level. It is defined as destructive

behaviours of co-workers against one another (Yoder-Wise 2013: 498). Embree and White (2010: 167) explain horizontal violence as peer-to-peer aggression, which includes non-verbal innuendo, and undermining activities. Such behaviours are found in what are now termed toxic workplaces. Horizontal violence discourages staff retention, and so the affected community service radiographers are likely to seek employment elsewhere once their community service period comes to an end (Yoder-Wise 2013: 498).

With regards to increased responsibility, participants were aware that they would assume more responsibility as community service radiographers, as opposed to when they were students. However, the experience of being immersed in this new scenario brought about reality shock. They expressed the increased responsibility in a negative way, focusing more on the repercussions of what could happen if they made an error that affected a patient, as opposed to embracing their professional independence.

Participants highlighted accepting their own radiographic images as the most significant indicator of their increased level of responsibility. Harvey-Lloyd, Stew and Morris (2012: 9) state that the level of responsibility that is given to practitioners at the outset of their careers is a concern that is acknowledged across the different healthcare professions. The same authors detail how phenomenological research from as early as 1950 describes the anxiety radiographers felt due to the sudden responsibility of accepting their own radiographs (Harvey-Lloyd, Stew and Morris 2012: 10). The anxiety felt by new radiographers may indeed be justified, as their errors may have very serious implications for the patient.

In one instance in Grimsby in the UK, one radiographer committed suicide after a barium enema examination he was performing proved fatal for the patient. He had incorrectly inserted a catheter, which perforated the patient's bowel. Barium from the procedure leaked into the blood stream, and the patient died shortly after the procedure from pulmonary barium micro-embolisation (Anon. 2010). Naylor (2014: 39) documented how repeated studies unanimously found that newly qualified nurses were unprepared for the increased level of responsibility.

However, in one study, although surveyed nurses were anxious about the responsibility they now possessed, they felt it gave them ownership of their practice, which is a positive psychological coping mechanism that may be useful to healthcare practitioners in any discipline (Naylor 2014: 39).

Participants in the current study experienced reality shock from varying factors, and some of them expressed a desire to eventually leave the radiography profession. Attrition from radiography as a profession remains a serious concern in South Africa. A study performed by Thambura (2016: 14,31) shows how the number of radiographers registered by the HPCSA has been steadily declining over the past few years, underscoring that the attrition rate within radiography in South Africa is alarmingly high. Maresse (2014: 12) notes that when new healthcare practitioners are exposed to pressures in the working environment and to adverse events in the workplace, it negatively influences their attitude, satisfaction, and ultimately, increases likelihood of attrition from the both the workplace, and the professional workforce. According to Sparacino (2015: 1), about 30% of new nurses either change jobs, or leave the profession within their first year of employment due to reality shock. In this study, although some participants were still deliberating on leaving radiography, one participant had already taken action to this end, and was awaiting admission to study another programme at a university.

5.3.2 Work environmental factors

In relating their lived experiences, participants narrated how their environment was a major determinant of how they transitioned into the workplace. The environment may be viewed in relation to interpersonal interactions, referred to as the collegial environment in the current study; and additionally, there are departmental policies, culture, machinery, and other aspects of the environment, referred to in this study as the departmental environment.

The collegial environment was viewed by participants as the single most important aspect of their work environment. They felt competent enough to carry out the technical requirements of their work, and hence their main concern

was how their colleagues related to them. The general sentiment expressed was that of positive interpersonal relations between participants and their colleagues from the Imaging Department. Participants elaborated that they felt well received, and they liked the people with whom they worked.

A study conducted in South Africa revealed that radiation therapists needed to develop close personal relationships with colleagues. It was important for teamwork, and ultimately, for improved service delivery (Britton, Pieterse and Lawrence 2017: 30). The same authors elaborate that such positive interpersonal interactions ought to be encouraged, as they are associated with higher levels of job satisfaction, which could result in a stronger desire to stay within an organisation. Research has shown a reciprocal relationship with other healthcare professionals to be one of the key elements to creating a healthy psychosocial work environment (Kyei *et al.* 2016: 1).

However, not all interpersonal interactions within the workplace were found to be positive. Participants reported having very little interaction with colleagues from other departments, and frequently, the communication was formal and impersonal. It made participants feel uncomfortable when they related to the other hospital staff. Some doctors preferred working with the regular, experienced radiographers, and this made the community service radiographers feel that their skill was being doubted before they even had a chance to prove themselves to be competent.

Research has shown that healthcare workers are differentiated from other teams of workers in organisations because they tend to order themselves in a hierarchy. It inhibits effective communication and collaboration between the different levels of this hierarchy, as some members view themselves to be superior (Lee and Doran 2017: 76). Participants reported not being in frequent contact with the broader hospital staff, so these unpleasant interactions were kept to a minimum, and did not strongly impact their overall perception of the collegial environment.

At some institutions, there were two community service radiographers who were employed within the same imaging department. The presence of a peer who was also undergoing transition at the same hospital was a factor that helped participants to integrate better into their workplaces. Azimian, Negarandeh and Fakhr-Movahedi (2014: 93) in their research showed peers and families to be the main sources of emotional support for novice nurses during their transition. As indicated earlier, the hierarchical nature of the healthcare setting may be responsible for the restrictions in communication between novice and qualified practitioners, increasing the importance of having a peer at the same institution, who may offer support.

The departmental environment was generally viewed less enthusiastically by participants. Community service radiographers are expected to work in a public hospital, and the public healthcare system in the country has been described as under-resourced, and dysfunctional (Edmeston 2012: 43). Many state-run healthcare institutions are in a state of crisis, where infrastructure is run-down, there is gross mismanagement, and hospitals are underfunded to efficiently carry out their basic function of healthcare provision (Mayosi and Benatar 2014: 1346). Most participants found this to be the case at their respective places of employment.

The Imaging Department machinery was poorly maintained, or broken down, and it meant only a few imaging modalities could be performed at the hospital. Participants complained of a lack of stimulation and limited scope, where they were repeatedly performing the same, limited imaging modalities. Thambura (2016: 66) interviewed South African radiographers who had left the profession to investigate what could be done to encourage retention, and one of their suggestions was that the professional scope of radiographers needed to be increased.

However, not all the participants felt negatively about their scope of practice, and two participants who worked at a hospital that offered several radiography modalities were satisfied with their work environment. These participants were in the minority, but they expressed that they enjoyed working at a well-run

healthcare facility, where the use of digital imaging equipment was a key positive factor. Participants at this institution reported the least amount of reality shock, and expressed a keen interest in remaining within the radiography field. A study in Taiwan that focused on experiences of newly qualified nurses suggested that managing the stresses associated with transition to autonomous practice encouraged retention (Cheng *et al.* 2014: 9).

Participants highlighted that they enjoyed the learning aspect of their workplace environment. They were working autonomously for the first time, and were eager to expand their skills set so as to acquire as much practical knowledge as possible to complement the theory learnt during the student phase. This sentiment was universal amongst the participants. According to Healy and Reed (2015: 11), transition can only be successful when novice practitioners can work autonomously within their scope of practice. They need to consolidate and enhance their skills, and 'fill in the gaps' in knowledge through practical learning.

Learning as much as they could in different imaging modalities was therefore important to the participants, because it enabled successful transition. The researcher however noted that the perception of learning was highly subjective amongst participants. Participants who were at facilities offering multiple modalities were happy to be learning new techniques and skills in the different areas of radiography, but for those who were at hospitals with limited imaging modalities, their perceptions were dependant on the individual.

Some participants felt that no two patients were alike, and even though they were not performing many modalities, they were afforded the constant opportunity to learn and grow in their knowledge of the different types of pathology with which their patients presented. They also felt that learning occurred when they interacted with their more experienced colleagues and other hospital staff. The importance of learning due to simply being in the workplace should not be underestimated. Informal learning occurs due to everyday interactions at work, when the focus is upon the actual work done, as opposed to education (Burford *et al*. 2013: 394). Others, however, felt that there

was nothing new they were learning, and their work was routine and uninteresting. This was a source of frustration for them and they did not perceive any professional progression.

Participants expected to receive support in their workplace environments. As new employees who were unaware of how the Imaging Department functioned with respect to specific protocols and policies, they expected to receive guidance and be shown how the department operated. However, most departments were understaffed, and the experienced staff reportedly did not have time to attend to the needs of the new employees. There was no departmental policy stipulating how community service radiographers ought to be inducted, and participants found themselves to be at the mercy of whoever decided to be of assistance to them. Riese *et al.* (2013: para. 6 line 3) conducted a survey in at least 35 countries on psychiatrists who were transitioning into professional practice. The authors found that there were no specific support measures for all the respondents surveyed. In the current study, only participants from a single healthcare institution reported the presence of a structured departmental support system. They spoke very positively of the manner in which they were received when they started working in the department, and explained that the support they received gave them confidence in their own ability. The issue of support is multi-faceted and will be discussed again in the section that follows.

5.3.3 Adaptation

In order to facilitate their adaptation and workplace integration, study participants suggested that a support system was essential, and prior knowledge of the institution where they were to perform community service was also required. Participants who received support in the form of mentorship cited this as extremely important, and they explained that it helped them easily adapt to their new roles as community service radiographers. These participants appreciated the value of being mentored and having people that they could refer to when they had questions or needed help. Rather than having a single mentor, the departmental policy was such that the head of department for each

modality mentored participants during the period they were assigned to a given department. That way, they were able to develop interpersonal bonds with several experienced staff members, as well as receive the mentoring they needed. A study conducted in Australia by Thompson and Henwood (2016) on radiographers who were transitioning from one role to another, revealed that they had differing ideas regarding the type support they believed to be essential. They cited a job orientation, clear job descriptions, and being mentored as some of the support measures they desired during their own transition (Thompson and Henwood 2016: 93). Similarly, in South Africa, nurses who were transitioning from students to practitioners also suggested in a study conducted by Govender, Brysiewicz and Bhengu (2015: 4) that they required mentorship. They felt that it was important to be mentored before being given huge responsibilities. Participants in the study who did not receive any form of mentorship cited this as being a factor deleterious to how they adapted to their roles as community service radiographers.

Participants also felt that, upon commencing with their duties as community service radiographers, an orientation to the department was necessary. Their colleagues at the hospitals at which they worked realised the importance of an orientation, but they alluded to being short-staffed, and having busy schedules as their reasons for being unable to orient participants. Without proper orientation, participants felt less confident in their daily duties. They were more prone to making errors, and had to discover workplace protocols for themselves. Sparacino (2015: 39) performed a study in the nursing fraternity and showed that orientation programmes that meet the individuals' specific needs benefit the adaptation process for newly qualified nurses. Such programs empower individuals, which in turn leads to job satisfaction and improved retention. In Iran, Zamanzadeh *et al.* (2014: 286) documented how orientation programmes for nurses are based on their specific learning needs and they result in familiarity, which leads to them validating their existing knowledge, developing technical competency, and improving personal skills. A good orientation programme is based on the learning needs of the individual, and so it can be as short as six weeks, or in some cases, last up to 12 months. Apart

from teaching new personnel clinical skills, an effective programme must also teach interpersonal professional attitudes (Zamanzadeh *et al*. 2014: 289).
Prior knowledge of the institution where an individual performs their community service was suggested to be important for successful workplace adaptation. Participants believed the facilities and equipment they were exposed to during their student phase ought to bear a relationship to the hospital where they performed community service, so as to facilitate smooth workplace adaptation. In particular, the type of imaging equipment at a hospital was important to participants. They felt that individuals with prior exposure to digital equipment during the student phase ought to be preferably employed at a hospital with similar equipment as that of a community service radiographer. Contrary to their suggestions, the researcher noted that although participants who were exposed to analogue equipment for the first time as community service radiographers struggled initially with using the darkroom and other analogue imaging components, they indicated that it did not take long for them to adapt, so it is unlikely that this was an important factor affecting workplace adaptation. It was shown, however, that familiarity with the institution, and its staff was likely to be of more importance. It is because participants who had worked at the same hospital during the student and community service radiographer phases reported that it was easy for them to adapt to the environment. Interestingly, these participants highlighted the need for an orientation, despite their prior knowledge of the institution. They felt that updates to policy and machinery ought to have been highlighted when they returned to the hospital as community service radiographers.

The researcher noted that such participants were not exempt from reality shock, due to the change in professional status resulting in increased responsibility, as discussed earlier in this chapter. Research has found that prior knowledge of a work environment is indeed important, as it fosters familiarity. Maresse (2014: 125) found that Australian radiography graduates needed to feel familiar with, and fit into, their surroundings in order to gain a sense of belonging in the workplace. In her study, she noted that graduates who had prior exposure to an institution during their student clinical placements were at an advantage when it came to fitting in (Maresse 2014: 157). Familiarity is additionally

important for newly hired professionals, because it enables them to perform at a high level of efficiency and competency. However, it is often a challenge for most new employees (Lim 2017: 19). Other participants in the study felt that they should have been provided with detailed descriptions of each hospital before they applied to the institutions for community service placements. They believed such prior knowledge would have led to them making informed decisions, and mitigated the reality shock they experienced when they realised the crisis state of the hospitals in which they were now stationed for the rest of the year.

Participants in the current study related their experiences in relation to their workplace transition. They described both the negative and positive experiences, suggesting what they believed should have been done to make their transition to professional practice smoother. Participants who transitioned easily into their workplaces elaborated on the factors that they believed were facilitators. The findings of this study, based on the participants' responses to factors facilitating a smooth workplace transition, are as follows:

- a decrease in workload is necessary in the initial stages of community service to mitigate the effects of reality shock;
- student clinical placements should include public hospitals where the students will eventually carry out their community service;
- at hospitals gazetted for community service, there ought to be a minimum of at least two community service radiographers;
- managers in the Imaging Department must distribute duties equitably;
- the presence of a mentor for all community service radiographers should be mandatory;
- workplace orientation programmes must be prioritised, and not deemed optional; and
- imaging departments should draft a policy that dictates the mandatory support to be offered to all new staff, so as to help them acclimatise.

Duchscher's (2008) theory on transition shock examines the changing feelings and needs of nurses as they transition into professional practice over a period of 12 months, and the key elements of the theory are described in Section 2.11. Data collection for the current study was conducted after participants had been employed as community service radiographers for eight months. According to the transition shock theory, at eight months, new practitioners will likely be experiencing rapid advancement in their critical thinking, knowledge level, and skill competency (Duchscher 2008: 445). The theory suggests that at the aforementioned stage, participants would have started to challenge their previously held notions of the profession, as they begin to expose the inconsistencies and inadequacies of the healthcare system in which they work (Duchscher 2008: 445-446). The theory was corroborated by the researcher, who noted that some participants felt the public healthcare system was failing the nation, and questioned its ability to cater to the healthcare needs of the poor. Other participants expressed a desire to change profession, which provided evidence of them having changed their perceptions of radiography as a career. They had experienced reality shock, and now questioned whether radiography was indeed the right career choice for them.

Duchscher (2008: 448-449) proposed that the transitional process needs to be managed according to the position of an individual in the transition continuum. The measures proposed by Duchscher (2008) for newly graduated nurses were adapted to the domains of this study, and they are summarised as follows:

- soon after commencing community service, radiographers should be given a reduced workload;
- a mentor who is given compensation for the mentorship role and educated regarding advanced leadership should be assigned to community service radiographers;
- the imaging department needs to devise and implement a prolonged orientation program which lasts 12-24 weeks;
- exposure of community service radiographers should be restricted to only a few hospital departments for the first four months, so they get familiar with the staff and clinical competencies required of them;

- senior staff must avoid giving too much responsibility to community service radiographers during the initial four months of employment. They should not be put in charge of the department, asked to supervise students, given complex examinations, and so on;
- around six months, the responsibilities of the community service radiographer should be increased. Mentoring and supervision should start being restricted;
- mentors should encourage the personal enhancement of community service radiographers, and their 'settling' in their personal lives, outside of work; and
- in the final eight to twelve months, mentors and managers should help their mentees plan their future career. They should address the immediate needs of the community service radiographers, and help them plan their professional pathway.

5.4 FINDINGS IN RELATION TO THE AIMS OF THE STUDY

The current study was conducted with the aim of exploring and describing the lived experiences of newly graduated community service radiographers during their transition into the workplace, for the purpose of ensuring improved transitional experiences for future new radiographers. The study's aim was achieved, and the themes which emerged from the community service radiographer's descriptions of their experiences regarded the impact of reality shock, how work environmental factors had affected their experience, and elements they believed were necessary for a smooth workplace adaptation. These findings were aligned with Duchscher's transition shock theory, which was found to be complementary, and provided valuable structure to the recommendations and findings obtained. Participants in this study were interviewed and they responded to three research questions, which were based on the study's objectives. The questions, and the findings obtained are given below:

a) What are the experiences of community service radiographers as they settle into the workplace?

The study found that community service radiographers experienced reality shock soon after they commenced full-time work. They received little to no support, and they were overwhelmed by the workload. The increased responsibility of accepting their own radiographic images was an additional source of stress. It found that, although the other radiography staff treated them well, the broader hospital staff did little to welcome them, which made them feel uncomfortable when visiting other hospital departments and wards. According to participants, they were frequently assigned to tasks that the experienced radiographers preferred to avoid. Only two participants reportedly received support and mentorship, and the study found that they adapted easily to their workplace environment, and they were satisfied with their experience as community service radiographers.

b) What are their expectations with regards to transition into the workplace?

The findings obtained in the study indicate that participants expected the technical aspect of their workplace transition to be similar to what they had encountered during the clinical rotations they had performed as students. They desired to broaden their skills, and learn as much as they could during the community service year. The study found that universally, participants expected to be formally oriented in the department, and to be given adequate support. They expected their colleagues to perceive them as equal members of staff, and to have their contribution to the workforce valued.

c) What can be done to help make the transition of community service radiographers a smooth one?

The findings of the study showed that during the student phase, individuals must be exposed to hospitals where they are likely to perform community service to allow them to familiarise with the institution, and members of staff. The study further demonstrated that a formalised departmental protocol, which dictates necessary measures for the induction and support of community service radiographers, is essential. Such a protocol must include

details of an extended orientation and mentorship programme. The workload must be managed to avoid overwhelming the new members of staff in the initial stages of employment, and allocation of duties should be done equitably, so that some staff members do not appear to be marginalised. The minimum number of community service radiographers assigned to a hospital should be at least two, so as to ensure that individuals receive support from peers as well as their new colleagues and mentors.

5.5 SUMMARY OF THE CHAPTER

The chapter began by reviewing the demographic profiles of study participants to foster a contextualisation of the information sources for the study. The chapter then assessed the findings of the research, discussing the various themes that were uncovered in relation to knowledge that exists pertaining to the various subjects discussed. Recommendations for smoother workplace transitions were drawn up as per the study findings, and these were corroborated with existing literature by Duchscher (2008), whose work informed the theoretical framework of the current study. The research questions that were posed at the beginning of the study were revisited, and the responses of participants were used to answer these questions. The following chapter will conclude this research, and outline the limitations, recommendations, and areas for future study.

CHAPTER 6: STUDY LIMITATIONS, RECOMMENDATIONS, AND CONCLUSION

6.1 INTRODUCTION

In this chapter, the findings of the study are summarised, and the limitations as well as recommendations are highlighted. The study was performed to explore and describe the lived experiences of community service radiographer's workplace transition. It was done to uncover factors that might facilitate improved transitional experiences for future radiographers. To obtain the desired information, participants were asked to describe their personal experiences in relation to:

- settling into the workplace;
- expectations during the transitional phase; and
- suggestions for improved transition for future community service radiographers.

The next section will proceed to summarise what was found by the study.

6.2 SUMMARY OF FINDINGS

Thematic analysis of the interview data provided by participants yielded three major themes, namely: reality shock; work environmental factors; and adaptation. Each of these themes are summarized below:

6.2.1 Reality shock

When community service radiographers start work in the hospitals, they are faced with a high workload in an unfamiliar, low-resource environment, where their responsibilities are suddenly increased. They realise their workplace contribution is not assigned its proper value, and it makes them desire to leave the workplace, as well as the profession. Structured orientation programs are necessary to mitigate the effects of reality shock.

6.2.2 Work environmental factors

In the Imaging Department, the existing staff are predominantly friendly and welcoming. Having a peer community service radiographer at the same institution provides additional support, aiding workplace integration. Doctors and the broader hospital staff are generally aloof, and rarely interact with community service radiographers. Most imaging departments offer no structured support to new staff, and the limited modalities hamper learning. Providing professional space and encouraging independent, supported learning is important.

6.2.3 Adaptation

Mentors are required for all community service radiographers to help them navigate and adapt to their new profession and professional surroundings. Orientation programmes must be mandatory, not optional, and technical support offered as per individual need to instil confidence. Clinical rotations for students should ideally include those hospitals in which they will eventually carry out their community service.

6.3 SUMMARY

The workplace transitional experiences of community service radiographers at different hospitals within the eThekwini District are described in the study. The study explored their experiences, expectations, and suggestions for improvement of the transitional experience. Experiences differed widely because they were subjective, and participants were exposed to different environments. However, community service radiographers unanimously experienced reality shock, although it was least severe when a structured institutional support system was in place. The study found orientation programmes and mentors to be essential for all community service radiographers to mitigate the effects of reality shock.

Community service radiographers expect to be treated fairly, and to be valued as equal members of staff within their respective institutions. They desire to

learn practical skills as much as possible, so they can put the theory they have acquired into action. The study found that they draw upon their clinical experience as students and use it to relate to their new environment. However, due to the large discrepancies between the two systems it may become problematic, if they were never exposed to the public healthcare system as students, and only encounter it as community service radiographers.

The findings of the study suggested that students should therefore be exposed to the public healthcare system during their clinical placements. Once they begin their community service, orientation is essential, as is mentoring and structured departmental support. The support framework outlined by Duchscher (2008) may be adapted to the needs of community service radiographers. These measures are important to reduce the effects of reality shock and encourage retention of radiographers at the institution, as well as within the profession.

6.4 STUDY LIMITATIONS

Limitations stipulate the weaknesses of a study, thereby allowing a fair evaluation of the study's contribution with such limitations in mind (Rossman and Rallis 2016: 119). Alternatively, they may be viewed as restrictions of a study, which diminish its generalisability to other similar populations (Grove, Burns and Gray 2013: 598).

This research is qualitative, and thus not immune to the inherent limitations that are present in all such studies. One such limitation is response bias, whereby participants in a self-reporting qualitative study may answer questions in a way they believe is socially acceptable. Additionally, they may be concerned about giving out personal responses that could reveal their identities in the final report, and so withhold information that would have been important to the study (Kim and Elefant 2016: 8). It is possible that study participants in this research withheld information from the researcher owing to concerns about their privacy, and thus may have omitted some important details pertinent to their experiences as community service radiographers. Another limitation of

qualitative enquiry is generalisability. A qualitative research is limited to a particular phenomenon, in a certain population, and within a specific context, hence generalisability is usually not an expected attribute (Leung 2015: para.7 line 1). The study examined subjective descriptions of transitional workplace experiences as described by eThekwini community service radiographers. It is difficult, for example, to transfer the findings of the study to another district or province, because the different setting, language, and customs in another province would affect the effectiveness of any recommendations made. Additionally, the small sample size further limits generalisability.

Data collection in the study was cross-sectional. This was a limitation that was specific to the study, which was based on a theoretical framework that was mainly informed by Duchscher (2008). A longitudinal data collection format would have been better suited to the study, to observe how the perceptions of participants evolved as they settled into their different workplace environments, as undertaken by Duchscher (2008). It was, however, not possible due to time restrictions.

Another limitation specific to the current study exists in the data collection process. The researcher, who performed the interviews, had not received any prior training in participant interviewing skills. Lack of proper training could have led to the researcher influencing the participants, possibly resulting in biased responses. Interviewers can be a source of error when they either give additional information, or explain a misunderstood word. Even the way an interviewer looks and dresses may influence a respondent in an interview (Leeuw, Hox and Dillman 2012: 12).

6.5 RECOMMENDATIONS

The following recommendations are based on the findings of the current study. To facilitate a smooth workplace transition for community service radiographers, these actions and measures are recommended, and they are targeted at different stakeholders.

6.5.1 Recommendations pertaining to the provincial Department of Health

These include:

- policy should stipulate that a minimum of at least two community service radiographers must be assigned to a hospital, to allow for peer-to-peer learning and support during the workplace transitional phase;
- management and senior members of staff at hospitals gazetted for community service should be trained on how to mentor, orient, and encourage retention of new members of staff; and
- the Department ought to compensate members of staff who agree to take up these mentorship roles, and adjust their job descriptions accordingly.

6.5.2 Recommendations for institutions of higher learning and students

Radiographer training institutions and students are encouraged to do the following:

- institutions of higher learning should structure clinical rotations for students such that every individual is exposed to a low-resource public hospital as part of the standard requirements. Such exposure will enable students to familiarise themselves with such clinical settings;
- students must be encouraged to apply for community service posts at hospitals where they have worked before. The familiarity will assist in the workplace transition process; and
- in cases where it is not possible for students to perform community service at a hospital they are familiar with, the student must familiarise themselves with their prospective places of work. Informal visits, asking peers for information, talking to existing staff members at the hospital, and so on, will help them to prepare themselves for the process of acclimatisation.

6.5.3 Recommendations for Imaging Department heads and associated departmental staff

These are as follows:

- heads of the department at the different hospitals gazetted for community service should devise a departmental protocol for the prolonged orientation of community service radiographers. Ideally, it should last for 12-24 weeks. Orientation should include a refresher on the theory learnt as students, and its practical application in the imaging department;
- a senior member of staff should be assigned to each community service radiographer. The staff member must be given a reduced workload, to enable him/her time to mentor, teach, and orient the new member of staff. Preferably, the staff member ought to be compensated for the extra duty such as being awarded extra time off work, a higher professional status within the workplace, flexibility in selecting work duties or working hours, or other staff benefits as may be feasible;
- community service radiographers must be given a reduced workload, which is gradually increased as their competency levels rise. Initially, they should work for less hours, and attend to few patients so that they work at a decreased pace. Over time, their workload ought to then be reviewed depending on individual competency, and the patient load and working hours increased accordingly;
- community service radiographers ought not be given any major responsibilities, such as being in charge of the entire department, or assigned to perform complex examinations, until after at least six months on duty;
- around the six-month period, the community service radiographer may be given complex examinations, assigned to more responsibility, with no supervision or support. However, there should always be a senior member of staff whom can be called upon for support, should an emergency arise;
- role distribution within the imaging department should always be equitable, so that all members of staff feel equally valued. No one should

be regularly assigned to do tasks that the rest of the staff does not want to do, or be given repetitive duties against their will; and

- at eight to twelve months, the mentor ought to help their mentee plan their future career by giving advice with regards to specialisation, further training, and so on. Advice must not be limited to professional decisions but should include personal issues, such as self-improvement, and achieving a good work-life balance.

6.6 STUDY CONCLUSION

Radiographer retention and attrition from the profession continue to be a problem in the country, and it is essential that stakeholders commit to employing measures to curb the phenomenon. The study has described interventions that are targeted at the Department of Health, management and staff at public healthcare institutions, along with radiography tutors and students. These interventions are focused on improving workplace transitions of community service radiographers, because their transition into practice affects their long-term career outlook. Limitations to the study have been identified and discussed. It is hoped that employing the findings and recommendations of this study will result in improved transitional experiences, job satisfaction, and encourage employee retention.

REFERENCES

Akroyd, D., Caison, A. and Adams, R. 2002. Patterns of burnout among U.S. radiographers. *Radiologic Technology*, 73(3): 215-223.

Alaamer, A. A. 2012. Radiography education and training in Saudi Arabia. *Open Journal of Radiology,* 2(4): 134-140. Available: doi:10.4236/ojrad.2012.24025 (Accessed 3 November 2018).

Alsharif, W., McGee, A., Rainford, L., and Davis, M. 2018. A study to explore opinions and attitudes of Saudi Arabian MR professionals on the current status of routine MR scanner quality assurance testing in the Kingdom of Saudi Arabia. *Radiography*, 24(4): e98–e104. https://doi.org/10.1016/j.radi.2018.05.008 (Accessed 31 May 2019).

Anon. 2010. Radiographer commits suicide after blunder during routine procedure kills patient. *Daily Mail*. 3 October. Available: https://www.dailymail.co.uk/news/article-1271026/Radiographer-kills-blunder-routine-procedure-kills-patient.html (Accessed 6 November 2018).

Asamani, J. A., Chebere, M. M., Barton, P. M., D'Almeida, S. A., Odame, E. A. and Oppong, R. 2018. Forecast of Healthcare Facilities and Health Workforce Requirements for the Public Sector in Ghana, 2016–2026. *International Journal of Health Policy and Management*, *7*(11): 1040–1052. https://doi.org/10.15171/ijhpm.2018.64 (Accessed 31 May 2019).

Azimian, J., Negarandeh, R. and Fakhr-Movahedi, A. 2014. Factors affecting nurses' coping with transition: An exploratory qualitative study. *Global Journal of Health Science,* 6(6): 88–95. Available: https://doi.org/10.5539/gjhs.v6n6p88 (Accessed 3 November 2018).

Baddeley, H. 2008. *Physics and the human body: Stories of who discovered what*. Indiana: Author House.

Bagley, J. E., Randall, K. and Anderson, M. 2015. A comparison of sonography and radiography student scores in a cadaver anatomy class before and after

the implementation of synchronous distance education. *Ultrasound,* 23(1): 59–66. Available: doi:10.1177/1742271X14567173 (Accessed 3 November 2018).

Bagnasco A., Ghirotto, L. and Sasso, L. 2014. Theoretical sampling*. Journal of Advanced Nursing,* 70(11): e6–e7. Available: https://doi.org/10.1111/jan.12450 (Accessed 3 November 2018).

Bandio, E. M. P. 2008. Radiography training in Tanzania. *15th ISRRT World Congress.* International Convention Centre, Durban. 24-27 April 2008. Available: https://docplayer.net/20559356-Radiography-training-in-tanzania-tanzania-overview-background-of-training-of-radiographers-in.html (Accessed 6 November 2018).

Bengtson, V. L., Acock, A. C., Allen, K. R., Dilworth-Anderson, P. and Klein, D. M. 2004. *Sourcebook of family theory and research*. Thousand Oaks: SAGE.

Berr, J. 2016. *Employers: New college grads aren't ready for workplace*. Available: https://www.cbsnews.com/news/employers-new-college-grads-arent-ready-for-workplace/ (Accessed 5 September 2017).

Bloomberg, L. D. and Volpe, M. 2012. *Completing your qualitative dissertation: A road map from beginning to end*. Thousand Oaks: SAGE.

Bridges, W. 2004. *Transitions: Making sense of life's changes*. Cambridge: Da Capo Press.

Britton, S., Pieterse, T. and Lawrence, H. 2017. The lived experiences of radiographers in Gauteng. *The South African Radiographer,* 55(1): 28-32. Available: http://www.sar.org.za/index.php/sar/article/view/379/282 (Accessed 3 November 2018).

Burford, B., Morrow, G., Morrison, J., Baldauf, B., Spencer, J., Johnson, N., Rothwell, C., Peile, E., Davies, C., Allen, M. and Illing, J. 2013. Newly qualified doctors' perceptions of informal learning from nurses: Implications for interprofessional education and practice. *Journal of Interprofessional Care*, 27(5): 394–400. Available: http://dutlib.dut.ac.za/login?url=http://search.ebscohost.com.dutlib.dut.ac.za/lo

gin.aspx?direct=true&db=mnh&AN=23659622&site=ehost-live&scope=site (Accessed 23 October 2018).

Burns, N. and Grove, S. K. 2010. *Understanding nursing research - eBook: Building an evidence-based practice*. 5th Ed. Missouri: Elsevier Health Sciences.

Career Vision. 2018. Available: https://careervision.org/transitions-weathering-storms-change/ (Accessed 28 March 2018).

Carlson, R. V., Boyd, K. M. and Webb, D. J. 2004. The revision of the Declaration of Helsinki: past, present and future. *British Journal of Clinical Pharmacology*, 57(6): 695–713. Available: doi: 10.1111/j.1365-2125.2004.02103.x (Accessed 5 November 2018).

Carroll, C., Booth, A. and Cooper, K. 2011. A worked example of "best fit" framework synthesis: A systematic review of views concerning the taking of some potential chemopreventive agents. *BMC Medical Research Methodology* 11(29): 1-9. Available: https://doi.org/10.1186/1471-2288-11-29 (Accessed 14 November 2018).

Cheng, C. Y., Tsai, H. M., Chang, C. H. and Liou, S. R. 2014. New graduate nurses' clinical competence, clinical stress, and intention to leave: A longitudinal study in Taiwan. *Scientific World Journal.* Available: https://doi.org/10.1155/2014/748389 (Accessed 5 November 2018).

Clark, V. L. P. and Ivankova, N. V. 2015. *Mixed methods research: A Guide to the field*. Los Angeles: SAGE Publications.

Council on Higher Education, 2016. South African higher education reviewed: Two decades of democracy. Pretoria. Available: https://www.che.ac.za/sites/default/files/publications/CHE_South%20African%20higher%20education%20reviewed%20-%20electronic.pdf (Accessed 23 May 2019).

Creswell, J. W. 2013. *Qualitative inquiry and research design*. India: SAGE.

Creswell, J.W. 2014. *A concise introduction to mixed methods research*. Los Angeles: SAGE Publications.

Creswell, J. W., & Poth, C. N. 2017. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Los angeles: SAGE Publications.

Crutcher, R., Then, K., Edwards, A., Taylor, K. and Norton, P. 2004. Multi-professional education in diabetes. *Medical Teacher*, 26(5): 435-443. Available: doi:10.1080/01421590410001711607 (Accessed 7 November 2018).

Cunningham, J., Wright, C. and Baird, M. 2015. Managing clinical education through understanding key principles. *Radiologic Technology*, 86(3): 257-273. Available: doi:10.1017/S1460396909006669. 50 (Accessed 5 November 2018)

Curry, L. and Nunez-Smith, M. 2014. *Mixed methods in health sciences research: A practical primer.* Thousand Oaks: SAGE Publications.

Daniel, P. S. and Sam, A. G. 2011. *Research Methodology*. Delhi: Kalpaz Publications.

Denzin, N.K. and Lincoln, Y.S. 2011. *The SAGE handbook of qualitative research*. Thousand Oaks: SAGE.

Dhar, R. L. 2013. Reality shock: Experiences of Indian information technology (IT) professionals. *Work: Journal of Prevention, Assessment & Rehabilitation,* 46(3): 251–262. Available: doi: 10.3233/WOR-2012-1477 (Accessed 5 November 2018).

Du Plessis, J. G., Friedrich-Nel, H., and Van Tonder, F. 2012. A postgraduate qualification in the specialisation fields of diagnostic radiography: A needs assessment. *African Journal of Health Professions Education,* 4(2): 112–117. Available: doi:10.7196/AJHPE.160 (Accessed 5 November 2018).

Duchscher, J. B. 2008. A process of becoming: The stages of new nursing graduate professional role transition. *The Journal of Continuing Education in Nursing*, 39(10): 441-450. Available: doi: 10.3928/00220124-20081001-03 (Accessed 5 November 2018).

Duchscher, J. B. 2009. Transition shock: The initial stage of role adaptation for newly graduated Registered Nurses. *Journal of Advanced Nursing*, 65(5):

1103–1113. Available: doi: 10.1111/j.1365-2648.2008.04898.x (Accessed 5 November 2018).

Durban University of Technology (DUT). 2017. Radiography career information. Available: http://www.dut.ac.za/wp-content/uploads/career_leaflets/HSc%20Radiology.pdf (Accessed 11 October 2017).

Dutton, A. G., Linn-Watson, T. and Torres, L. S. 2012. *Torres' patient care in imaging technology*. Maryland: Lippincott Williams & Wilkins.

Edmeston, M. 2012. Beyond band-aids: Reflections on public and private health care in South Africa. *Focus 67: State and the Nation*. Available: https://hsf.org.za/publications/focus/focus-67/MEdmeston_KFrancis.pdf (Accessed 14 November 2018).

Ehrlich, R. A. and Coakes, D. M. 2016. *Patient care in radiography - E-Book: With an introduction to medical imaging*. 9th Ed. Missouri: Elsevier Health Sciences.

Embree, J. L. and White, A. H. 2010. Concept analysis: Nurse-to-nurse lateral violence. *Nursing Forum,* 45(3): 166-73. Available: doi: http://dx.doi.org/10.1111/j.1744-6198.2010.00185.x (Accessed 5 November 2018.

Enes, J. E. 2011. A patient centred care model. *Radiologic Technology*, 82(3): 212.

Engel-Hills, P. C. 2005. An integrated approach to curriculum. *The South African Radiographer*, 43(02): 24-27.

England A, Geers-van Gemeren S., Henner A., Kukkesa T., Pronk-Larive D., Rainford L. and McNulty J. P. 2015. Clinical radiography education across Europe. *Radiography*, (2015): 1-7 Available: http://dx.doi.org/ 10.1016/j.radi.2015.09.007 (Accessed 5 November 2018).

Evans, N. J., Forney, D. S. and Guido-DiBrito, F. 1998. *Student development in college: Theory, research, and practice*. San Francisco: Jossey-Bass.

Flick, U. 2017. *The SAGE handbook of qualitative data collection*. Los Angeles: SAGE.

Gallagher, S. 2016. *Phenomenology*. London: Springer.

Gam, N. P. 2015. Occupational Stressors in Diagnostic Radiographers Working in Public Health Facilities in The eThekwini District of Kwazulu–Natal. M.Tech., Durban University of Technology.

Ganesh, N. 2017. Clinical experiences of first-time registered Master's chiropractic students during their clinical practicum. M.Tech., Durban University of Technology. Available: https://ir.dut.ac.za/bitstream/10321/2896/1/GANESH_N_2017.pdf (Accessed 6 November 2018).

Gentles, S. J., Charles, C., Ploeg, J. and McKibbon K. A. 2015. Sampling in qualitative research: Insights from an overview of the methods literature. *The Qualitative Report*, 20(11): 1772-1789. Available: http://nsuworks.nova.edu/tqr/vol20/iss11/5 (Accessed 19 October 2017).

Geohealth. n.d. *Mapping GIS Training for Monitoring and Evaluation or Strategic Information Officers and Data Analysts for HIV*. Available: https://www.healthpolicyproject.com/geoHealth/index.cfm?page=52 (Accessed 01 April 2018).

Ghom, A. G. and Ghom, S. A. 2017. *Textbook of oral radiology - E-Book*. 2nd Ed. New Delhi: Elsevier Health Sciences.

Govender, S., Brysiewicz, P. and Bhengu, B. 2015. Perceptions of newly qualified nurses performing compulsory community service in KwaZulu-Natal. *Curationis*, 38(1): 1-8. Available: doi: https://doi.org/10.4102/curationis.v38i1.1474

Grove, S. K., Gray, J. R. and Burns N. 2015. *Understanding nursing research - e-book: Building an evidence-based practice*. 6th Ed. Missouri: Elsevier.

Grove, S.K., Burns, N. and Gray, J. R. 2013. *The practice of nursing research: Appraisal, synthesis, and generation of evidence*. 7th Ed. Missouri: Elsevier.

Gubrium, J. F., Holstein, J. A., Marvasti, A. B. and McKinney, K. D. 2012. *The SAGE handbook of interview research: The complexity of the craft*. Thousand Oaks: SAGE.

Guendalina, G. 2016. *Promoting patient engagement and participation for effective healthcare reform.* Philadelphia: IGI Global.

Gunderman, R. B. and Hill, D. V. 2012. Student concerns and misconceptions about a career in radiology. *Academic Radiology*, 19(3): 366-368. Available: doi:10.1016/j.acra.2011.10.028 (Accessed 5 November 2018).

Gurley, L. V. T. and Callaway, W. J. 2013. *Introduction to radiologic technology - E-book.* Missouri: Elsevier Health Sciences.

Habib, M., Pathik, B. B. and Maryam, H. 2014. *Research methodology – contemporary practices: Guidelines for academic researchers*. Newcastle: Cambridge Scholars Publishing.

Harvey-Lloyd, J., Stew, G. and Morris, J. 2012. Under pressure. *Synergy: Imaging and Therapy Practice*, 9-14. Available: https://search.proquest.com/docview/1324427034?accountid=10612 (Accessed 5 November 2018).

Harwood, M. 2011. Transition shock- Hitting the ground running. *Nuritinga: Electronic Journal of Nursing*, 11: 159-164. Available: http://www.utas.edu.au/__data/assets/pdf_file/0007/156661/M_Harwood.pdf (Accessed 1 April 2018).

Hatcher, A. M., Onah, M., Kornik, S., Peacocke, J. and Reid, S. 2014. Placement, support, and retention of health professionals: National, cross-sectional findings from medical and dental community service officers in South Africa. *Human Resources for Health*, 12(14): 1-13. Available: doi:10.1186/1478-4491-12-14 (Accessed 5 November 2018).

Health Professions Council of South Africa (HPCSA). 2016. *Radiography and Clinical Technology News*. Pretoria: Public Relations and Service Delivery department. Available:

http://www.hpcsa.co.za/uploads/editor/UserFiles/RCTnews%20(2).pdf (Accessed 5 November 2018).

Health Professions Council of South Africa. 2017. *Professional boards: Radiography and clinical technology*. Available: http://www.hpcsa.co.za/PBRadiography (Accessed 11 October 2017).

Health Systems Trust. 2017. *South African Health Review 2017*. Durban: Health Systems Trust. Available: http://www.hst.org.za/publications/South%20African%20Health%20Reviews/HST%20SAHR%202017%20Web%20Version.pdf (Accessed 5 November 2018).

Healy, M. and Reed, C. 2015. *Report on the transition to practice needs of newly graduated enrolled nurses and postgraduate (entry to practice) midwives.* Available: http://www.health.vic.gov.au/__data/assets/pdf_file/0003/911748/Transition-to-Practice_Final-report_March_2015.pdf (Accessed 5 November 2018).

Heppner, P. P., Wampold, B. E., Owen, J., Thompson, M. N. and Wang, K. T. 2015. *Research design in counselling*. 4th Ed. Boston: Cengage Learning.

Hurst, S., Arulogun, O. S., Owolabi, Ayowa, O., Akinyemi, R., Uvere, E., Warth, S. and Ovbiagele, B. 2015. Pretesting qualitative data collection procedures to facilitate methodological adherence and team building in Nigeria. *International Journal of Qualitative Methods*, 14(1): 53–64. Available: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4393011/ (Accessed 5 November 2018).

Hussein, M., Hirst, S., Salyers, V. and Osuji, J. 2014. Using grounded theory as a method of inquiry: Advantages and disadvantages. *The Qualitative Report*, 19(27): 1–15. Available: https://nsuworks.nova.edu/cgi/viewcontent.cgi?article=1209&context=tqr (Accessed 5 November 2018).

Institutional Management in Higher Education. 2012. Fostering quality teaching in higher education: policies and practices. Paris: OECD Publishing. Available:

http://www.oecd.org/edu/imhe/qt%20policies%20and%20practices.pdf (Accessed 5 November 2018).

International Atomic Energy Agency (IAEA). 2005. A syllabus for the education and training of rtts (radiation therapists/ therapy radiographers). Vienna: Applied Radiation Biology and Radiotherapy Section. Available: http://www-pub.iaea.org/MTCD/publications/PDF/TCS-25_web.pdf (Accessed 12 September 2017).

International Atomic Energy Agency and the World Health Organization. 1991. Organization and training in radiotherapy for developing countries in Africa. Austria: IAEA. Available: http://www.iaea.org/inis/collection/NCLCollectionStore/_Public/22/084/22084294.pdf (Accessed 5 November 2018).

Jesson, J., Matheson, L. and Lacey, F.M. 2011. *Doing your literature review: Traditional and systematic techniques*. London: SAGE.

Johnson, G. 2014. *Research methods for public administrators*. 3rd Ed. Oxon: Routledge.

Kabongo, J. M., Nel, S. and Pitcher, R. D. 2015. Analysis of licensed South African diagnostic imaging equipment. *The Pan African Medical Journal,* 22(1)57. Available: doi:10.11604/pamj.2015.22.57.7016 (Accessed 5 November 2018).

Keen, S., Parker, J., Brown, K. and Galpin, D. 2016. *Newly-qualified social workers: A practice guide to the assessed and supported year in employment*. London: Learning Matters.

Kim, S. A. and Elefant, C. 2016. *Music Therapy Research.* 3rd Ed. Texas: Barcelona Publishers. Available: http://digitalcommons.molloy.edu/mustherapy_fac/8 (Accessed 5 November 2018).

Kodama, M. 2017. Functions of career resilience against reality shock, focusing on full-time employees during their first year of work. *Japanese Psychological*

Research, 59(4): 255-265. Available: doi:10.1111/jpr.12161 (Accessed 5 November 2018).

Kralik, D., Visentin, K. and Van Loon, A. 2006. Transition: A literature review. *Journal of Advanced Nursing*, 55(3): 320–329. Available: doi: 10.1111/j.1365-2648.2006.03899.x (Accessed 5 November 2018).

Kumar, A. 2012. Using phenomenological research methods in qualitative health research. *International Journal of Human Sciences,* 9(2): 790-804. Available: https://www.j-humansciences.com/ojs/index.php/IJHS/article/view/2343 (Accessed 5 November 2018).

Kyei, K. A., Amoabeng, K. A., Sule, D., Antwi, W.K. and Anim-Sampong, S. 2016. Psychosocial stress and its predictors among radiographers in Ghana. *OMICS Journal of Radiology,* 2016(5): 245. Available: https://doi.org/10.4172/2167-7964.1000245 (Accessed 5 November 2018).

LeBlanc, A., Légaré, F., Labrecque, M., Godin, G., Thivierge, R., Laurier, C., Côté, L., O'Connor, A.M. and Rousseau, M. 2011. Feasibility of a randomised trial of a continuing medical education program in shared decision-making on the use of antibiotics for acute respiratory infections in primary care: The DECISION+ pilot trial. *Implementation Science,* 2011(6): 5. Available: doi:10.1186/1748-5908-6-5 (Accessed 5 November 2018).

Lee, C. T. S. and Doran, D. M. 2017. The role of interpersonal relations in healthcare team communication and patient safety: A proposed model of interpersonal process in teamwork. *The Canadian Journal of Nursing Research,* 49(2): 75–93. Available: https://doi.org/10.1177/0844562117699349 (Accessed 5 November 2018).

Leeuw, E. D., Hox, J. and Dillman, D. 2012. *International Handbook of Survey Methodology.* New York: Routledge.

Leung, L. 2015. Validity, reliability, and generalizability in qualitative research. *Journal of Family Medicine and Primary Care,* 4(3): 324–327. Available: https://doi.org/10.4103/2249-4863.161306 (Accessed 6 November 2018).

Levers, M. D. 2013. *Philosophical paradigms, grounded theory, and perspectives on emergence*. Qatar: Sage. Available: doi: 10.1177/2158244013517243 (Accessed 6 November 2018).

Lim, B. 2017. Clinical learning and supervision for allied health professionals in Singapore: current framework, facilitators, barriers and the way forward. Masters, University of Canterbury. Available: https://ir.canterbury.ac.nz/bitstream/handle/10092/14669/Lim,%20Brena%20Masters%20thesis.pdf?sequence=1 (Accessed 6 November 2018).

Mackay, S., Anderson, A. and Hogg, P. 2008. Preparedness for clinical practice - perceptions of graduates and their work supervisors. *Radiography,* 14(3): 226-232.

MacLellan L., Higgins I. and Levett-Jones, T. 2015. Medical acceptance of the nurse practitioner role in Australia: A decade on. *Journal of the American Association of Nurse Practitioners,* 27(3): 152-159.

Maresse, S. 2014. Australian medical radiation science graduates' experiences of resilience during transition to professional practice. Ph.D. Curtin University. Australia.

Maxwell, J.A. 2013. Qualitative research design, an interactive approach. 3rd Ed. Thousand Oaks, California, SAGE Publications

Mayosi, B. M. and Benatar, S. R. 2014. Health and health care in South Africa — 20 years after Mandela. *New England Journal of Medicine*, 3(71): 1344–1353. Available: https://doi.org/10.1056/NEJMsr1405012 (Accessed 6 November 2018).

McNulty, J., Brown, P. and Knapp, K. 2017. Radiography education in the spotlight. *Radiography,* 23(1): S1-S2.

Mendy, J. 2017. *Teaching human resources and organizational behavior at the college level*. Philadelphia: IGI Global.

Merriam-Webster Dictionary. 2018. Available: https://www.merriam-webster.com/dictionary/transition (Accessed 7 November 2018).

Møller, L. 2016. Radiography with the patient in the centre. *Journal of Radiology Nursing,* 35(4): 309–314. Available: doi:10.1016/j.jradnu.2016.09.001 (Accessed 6 November 2018).

Monsen, K. A. 2017. *Intervention effectiveness research: quality improvement and program evaluation.* Cham: Springer.

Morris, C. 2014. How much does a university course really prepare you for a career in radiography? Available: http://www.sor.org/ezines/studenttalk/issue-82/how-much-does-university-course-really-prepare-you-career-radiography (Accessed 19 May 2017).

Mubuuke, A. G., Businge, F. and Kiguli-Malwadde, E. 2014. Using graduates as key stakeholders to inform training and policy in health professions: The hidden potential of tracer studies. *African Journal of Health Professions Education,* 6(1): 52–55. Available: doi:10.7196/AJHPE.302 (Accessed 6 November 2018).

Munsanje, F. 2013. Frontline radiographic human capital development – A case of Zambia and way forward. D.Tech. Durban University of Technology.

National Health Research Ethics Council. 2017. Available: http://www.nhrec.org.za/index.php/component/content/article?id=111 (Accessed 18 October 2017).

National Health Services. 2015. Education for Scotland: Allied health professions, education and workforce report. Diagnostic and therapeutic radiography. Available: https://www.nes.scot.nhs.uk/media/3731634/nes-d-t-rad-final-2015.pdf (Accessed 7 November 2018).

Naylor, S. 2014. The expectations and experiences of newly qualified diagnostic radiographers. Ph.D. Sheffield Hallam University. Available: http://shura.shu.ac.uk/9450/ (Accessed 26 February 2017).

Naylor, S. Ferris, C. and Burton, M. 2016. Exploring the transition from student to practitioner in diagnostic radiography. *Radiography,* 22(2): 131–136. Available: doi:10.1016/j.radi.2015.09.006 (Accessed 6 November 2018).

O'Connell, J., Gardner, G. and Coyer, F. 2014. Beyond competencies: Using a capability framework in developing practice standards for advanced practice nursing. *Journal of Advanced Nursing,* 70(12): 2728-2735. Available: doi: 10.1111/jan.12475 (Accessed 6 November 2018).

Ogata, M. 2012. An analysis of the influence of reality shock on young workers' adaptation to organizations: A comparison between young white-collar workers and nurses. *Organizational Science*, 45: 49–66.

Okeji C. M., Ugwuanyi, C. D. and Adejoh T. 2014. Radiographers' willingness to work in rural and underserved areas in Nigeria: a survey of final year radiography students. *Journal of the Association of Radiographers of Nigeria*, 28(1): 6. Available: https://www.researchgate.net/publication/319685293_Radiographers'_willingness_to_work_in_rural_and_underserved_areas_in_Nigeria_a_survey_of_final_year_radiography_students (Accessed 31 May 2019).

Orintunsin, J. 2011. Africa lacks good radiographers. *The Nation*, 25 November 2011. Available: https://issuu.com/thenation/docs/november_25__2011 (Accessed 31 May 2019).

Pandya-Wood, R. 2014. A reflexive account of the trustworthiness and authenticity of data using Lincoln and Guba's (1985) work in a PhD research study: Understanding the impact of public involvement in cancer research. Ph.D. De Montfort University.

Pasieka, E., Lewandowski, J. and Żuk, J. 2014. The role and responsibilities of a radiographer in a cardiac cath-lab. *Journal of Public Health, Nursing and Medical Rescue*, 2014(1): 11-14. Available: http://pzpr.eu/numery/article.php?idissue=201413 (Accessed 6 November 2018).

Paterson, B. L. 2001. The shifting perspectives model of chronic illness. *Journal of Nursing Scholarship,* 33(1): 21-26. Available: doi:10.1111/j.1547-5069.2001.00021.x (Accessed 6 November 2018).

Patton, M. Q. 2001. *Qualitative research and evaluation methods.* 3rd Ed. Thousand Oaks: Sage Publications Inc.

Phillips, R. 2016. *The experience of newly qualified sonographers*: A case study design. DHSC, University of the West of England. Available: http://eprints.uwe.ac.uk/27008 (Accessed 20 May 2017).

Pietkiewicz, I. and Smith, J. A. 2012. A practical guide to using interpretative phenomenological analysis in qualitative research psychology. *Czasopismo Psychologiczne,* 18(2): 361-369.

Polit, D. F. and Beck, C. T. 2008. *Nursing research: Generating and assessing evidence for nursing practice*. 8th Ed. Philadelphia: Lippincott Williams and Wilkins.

Pongnapang, N. n.d. Radiological Technology Education and Training in Thailand. Available: https://docplayer.net/8533277-Radiological-technology-education-and-training-in-thailand.html (Accessed 7 November 2018).

Poronsky, C. B. 2013. Exploring the transition from registered nurse to family nurse practitioner. *Journal of Professional Nursing,* 29(6): 350–358. Available: http://dx.doi.org/10.1016/j.profnurs.2012.10.011 (Accessed 16 Sept 2017).

Public Service Education and Training Authority. 2011. Career guide: A guide to career opportunities in the public service. Pretoria: Public Service Education and Training Authority. http://www.pseta.org.za/wp-content/uploads/documents/PSETA%20Career%20Guide.pdf

Rad-Aid. 2015. International country reports: Zambia https://www.rad-aid.org/resource-center/country-reports (Accessed 26 October 2017).

Rahi S. 2017. Research design and methods: A systematic review of research paradigms, sampling issues and instruments development. *International Journal of Economics and Management Science,* 6(2): 1-5. Available: doi: 10.4172/2162-6359.1000403 (Accessed 6 November 2018).

Ram, K. and Houston, C. 2015. *Phenomenology in anthropology: A sense of perspective.* Indiana: University Press.

Resnik, D. B. 2015. *What is ethics in research and why is it important?* Available:

https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm (Accessed 18 October 2017).

Riese, F., Oakley, C., Bendix, M., Piir, P. and Fiorillo, A. 2013. Transition from psychiatric training to independent practice: A survey on the situation of early career psychiatrists in 35 countries. *World Psychiatry*, 12(1): 82–83. Available: http://doi.org/10.1002/wps.20022 (Accessed 6 November 2018).

Rodgers, D., Beall, J. and Kanbur, R. 2012. *Latin American urban development into the twenty first century: Towards a renewed perspective on the city*. London: Springer.

Roller, M. R. and Lavrakas, P. J. 2015. *Applied qualitative research design: A total quality framework approach*. New York: Guilford Publications.

Rossman, G. B. and Rallis, S. F. 2016. *An introduction to qualitative research: Learning in the field*. 4th Ed. Thousand Oaks: SAGE Publications.

Saldana, J. 2011. *Fundamentals of qualitative research*. New York: Oxford University Press.

Scotland, J. 2012. Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms. *Canadian Center of Science and Education,* 5(9): 9-16. Available: doi:10.5539/elt.v5n9p9 (Accessed 6 November 2018).

Shah, J. J. 2015. The dead bodies of the West African Ebola epidemic: Understanding the importance of traditional burial practices. *Inquiries Journal* 7(11): 1-4. Available: http://www.inquiriesjournal.com/a?id=1300 (Accessed 13 September 2017).

Sloan, A. and Brian, B. 2014. Phenomenology and hermeneutic phenomenology: The philosophy, the methodologies and using hermeneutic phenomenology to investigate lecturers' experiences of curriculum design. *Quality & Quantity,* 48(3): 1291-1303. Available: doi:10.1007/s11135-013-9835-3 (Accessed 6 November 2018).

Smith, J. A., Flowers, P. and Larkin, M. 2009. Interpretative phenomenological analysis: Theory, method and research. London: SAGE.

Society of Radiographers of South Africa. 2017. Available: http://www.sorsa.org.za/ (Accessed 6 November 2018).

South Africa, Department of Health KwaZulu-Natal. 2017. *2016/17 Annual Report*. Pietermaritzburg: Government Printer. Available: http://www.kznhealth.gov.za/2016-2017-Annual-Report.pdf (Accessed 15 October 2017).

South Africa, Department of Health KwaZulu-Natal. 2017. *Annual performance plan 2017/18 – 2019/20*. Pietermaritzburg: Government Printer. Available: http://www.kznhealth.gov.za/app/APP-2017-18.pdf (Accessed 7 November 2018).

South Africa, Department of Health KwaZulu-Natal. 2017. *Referral System - Levels of Care.* Pietermaritzburg: Government Printer. Available: http://www.kznhealth.gov.za/Referral-system.htm (Accessed 21 October 2017).

South Africa, Department of Health. 2004. *National Health Act, 2003.* Government Gazette No.26595. Cape Town: Government Printer. Available: http://www.up.ac.za/media/shared/12/ZP_Files/health-act.zp122778.pdf (Accessed 6 November 2018).

South Africa, Department of Health. 2007. *Health Professions Act 56 Of 1974.* Pretoria: Government Printer. Available: http://www.hpcsa.co.za/Uploads/editor/UserFiles/downloads/legislations/acts/health_professions_ct_56_1974.pdf (Accessed 5 November 2018).

South Africa, Department of Health. 2011. *Government Notice 618.* Pretoria: Government Printer. Available: file:///C:/Users/Tawanda/Downloads/government-gazette-ZA-vol-664-no-34494-dated-2011-08-05.pdf (Accessed 7 November 2018).

South Africa, Department of Health. 2011. *National Health Act of 2003: Policy on the management of public hospitals*. Pretoria: Government Printer.

Available:http://pmg-assets.s3-website-eu-west-1.amazonaws.com/docs/110812hospital-mmanagement.pdf (Accessed 3 November 2018).

South Africa, Department of Health. 2012. *National Health Act, 2003*. Government Gazette No.35101. Pretoria: Government Printer. Available: https://www.gov.za/sites/www.gov.za/files/35101_rg9701_gon186.pdf (Accessed 6 November 2018).

South Africa, Department of Health. 2018. *Internship and community service placement guidelines for 2017/18*. Pretoria: Internship Community Service Placement Unit. Available: http://icspinfo.dhmis.org:81/wp-content/uploads/2017/03/INTERNSHIP-AND-COMMUNITY-SERVICEPLACEMENT-GUIDELINES-FOR-2017-2018-VERSION.pdf (Accessed 13 October 2017).

South Africa. Department of Health: Province of KwaZulu-Natal. *Health intern and community service placements – 2018.* 2018. Available: http://www.kznhealth.gov.za/placements-2018.htm. (Accessed 10 April 2018).

South African Medical Research Council. 2017. Ethics in health research: Principles, structures and processes. Available: http://www.mrc.ac.za/ethics/DOHEthics.pdf (Accessed 1 April 2017).

South African Qualifications Authority. 1995. South African Qualifications Authority Act, 1995. Available: http://www.saqa.org.za/show.php?id=5469 (Accessed 03 November 2018).

South African Qualifications Authority. 2017. Registered qualification: Bachelor of Diagnostic Radiography. Available: http://regqs.saqa.org.za/viewQualification.php?id=66949 (Accessed 03 September 2017).

South Carolina Society of Radiologic Technologists. n.d. Available: http://www.scsrt.org/rthistory.pdf (accessed 3 September 2017).

Sparacino, L. L. 2015. Faculty's role in assisting new graduate nurses' adjustment to practice. *International Journal of Nursing*. 2(2): 37-46. Available: http://dx.doi.org/DOI: 10.15640/ijn.v2n2a5 (Accessed 04 September 2017).

Sreejesh, S. Mohapatra, S. and Anusree, M. R. 2014. Business research methods – An applied orientation, Heidelberg, New York, Dordrecht, London: Springer

Statistics South Africa. 2014. Census 2011 provincial profile: KwaZulu-Natal. Pretoria: Statistics South Africa. Available: http://www.statssa.gov.za/publications/Report-03-01-74/Report-03-01-742011.pdf (Accessed 16 March 2018).

Statistics South Africa. 2017. Mid-year population estimates 2017. Pretoria: Statistics South Africa. Available: https://www.statssa.gov.za/publications/P0302/P03022017.pdf (Accessed 6 November 2018).

Statistics South Africa. 2018. Four out of ten marriages end in divorce before their 10th anniversary. Available: http://www.statssa.gov.za/?p=11192 (Accessed 29 May 2016).

Suresh, S. 2014. *Nursing research and statistics*. 2nd Ed. New Delhi: Elsevier Health Sciences.

Tanner, D., Glasby, J. and McIver, S. 2015. Understanding and improving older people's experiences of service transitions: Implications for social work. *British Journal of Social Work,* 45(7): 2056–2071. Available: doi:10.1093/bjsw/bcu095 (Accessed 6 November 2018).

Thambura, M. J. 2016. An investigation of factors impacting on the retention of radiographers in KwaZulu-Natal. Masters, Durban University of Technology.

Thomas, A. M. K. and Banerjee, A. K. 2013. *The History of Radiology*. Oxford: Oxford University Press.

Thompson, A. M. N. and Henwood, S. M. 2016. From the clinical to the managerial domain: The lived experience of role transition from radiographer to radiology manager in South-East Queensland. *Journal of Medical Radiation*

Sciences, 63(2): 89–95. Available: https://doi.org/10.1002/jmrs.169 (Accessed 6 November 2018).

Toal-Sullivan, D. 2006. New graduates' experiences of learning to practise occupational therapy. *British Journal of Occupational Therapy,* 69 (11): 513-524.

University of Pretoria. 2017. Faculty of Health Sciences: Undergraduate Faculty Brochure 2017/2018. Pretoria: Department of Enrolment and Student Administration. Available: http://www.up.ac.za/media/shared/8/Health%20Sciences/2018/faculty-brochure-fb-health-sciences.zp136394.pdf (Accessed 06 November 2018).

Van Manen, M. 2017. But is it phenomenology? *Qualitative Health Research,* 27(6): 775–779. Available: https://doi.org/10.1177/1049732317699570 (Accessed 6 November 2018).

Wahyuni, D. 2012. The research design maze: Understanding paradigms, cases, methods and methodologies. *Journal of Applied Management Accounting Research,* 10(1): 69-80.

Waschgler, K., Ruiz-Hernández, J. A., Llor-Esteban, B., & Jiménez-Barbero, J. A. 2013. Vertical and lateral workplace bullying in nursing: Development of the hospital aggressive behaviour scale. *Journal of Interpersonal Violence*, 28(12), 2389–2412. https://doi.org/10.1177/0886260513479027

Welman, C., Kruger, F. and Bruce, M. 2009. *Research methodology.* Cape Town: Oxford University Press.

Whitehead, D., LoBiondo-Wood, G., Haber, J., 2012. *Nursing and midwifery research: Methods and critical appraisal for evidence-based practice.* Chatswood: Elsevier Health Sciences.

World Health Organization (WHO). 2016. Education and Training: Technical Series on Safer Primary Care. Geneva: World Health Organisation. Available: http://apps.who.int/iris/bitstream/handle/10665/252271/9789241511605-eng.pdf?sequence=1 (Accessed 7 November 2018).

World Health Organization. 2016. Global Health Observatory data repository. Available: http://apps.who.int/gho/data/view.main.LABS (Accessed 26 October 2017).

World Health Organization. 2017. Diagnostic Imaging Available: http://www.who.int/diagnostic_imaging/en/ (Accessed 11 October 2017).

Yoder-Wise, P. S. 2013. *Leading and managing in nursing - Revised reprint*. 5th Ed. Missouri: Elsevier Health Sciences.

Young, M. 2016. Private vs. public healthcare in South Africa. Honours. Western Michigan University. Available: https://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=3752&context=honors_theses (Accessed 7 November 2018).

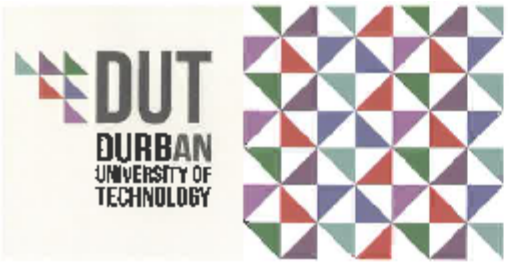
Yuura, H., Miyamoto, T., and Hidaka, K. 2017. An integer programming model for radiographer scheduling considering skills and training. *2017 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*, 889–893. https://doi.org/10.1109/IEEM.2017.8290020

Zamanzadeh, V., Roshangar, F., Fathi-Azar, E., Valizadeh, L. and Kirkwood, J. 2014. Experiences of newly graduated nurses on strategies of gaining self-confidence during their initial work: A qualitative study. *Journal of Nursing Research*, 22(4): 283-291. Available: https://doi.org/10.1097/jnr.0000000000000050 (Accessed 6 November 2018).

Zikmund, W. and Babin, B. 2006. *Exploring marketing research.* Ohio: Cengage Learning.

APPENDICES

Appendix 1a: DUT provisional ethics clearance



Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Berwyn Court
Steve Biko Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2375
Email: irec@dut.ac.za
http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

3 May 2018

IREC Reference Number: **REC 16/18**

Mr T G A Chipere
290 Avondale Road
Morningside
Durban
4001

Dear Mr Chipere

Student radiographers' transition from the classroom to the workplace: A case study from a South African university

I am pleased to inform you that **PROVISIONAL APPROVAL** has been granted to your proposal REC 16/18 subject to:

- Piloting of the data collection tool. *Please note that should there be any changes to the data collection tool, in a letter signed by the researcher and supervisor, list the changes to the documents and submit to IREC with the final data collection tools. Even when there are no changes to the data collection tool, IREC has to be notified.*
- Obtaining and submitting the necessary gatekeeper permission/s to Institutional Research Ethics Committee (IREC).

PLEASE NOTE THAT THIS IS NOT A FINAL APPROVAL LETTER. KINDLY SUBMIT THE ABOVE MENTIONED DOCUMENTS WITHIN THREE MONTHS TO THE IREC OFFICE. DATA COLLECTION CAN ONLY COMMENCE WHEN IREC ISSUES FULL APPROVAL

The Proposal has been allocated the following Ethical Clearance number **IREC 037/18**. Please use this number in all communication with this office.

Approval has been granted for a period of two years, before the expiry of which you are required to apply for safety monitoring and annual recertification. Please use the Safety Monitoring and Annual Recertification Report form which can be found in the Standard Operating Procedures [SOP's] of the IREC. This form must be submitted to the IREC at least 3 months before the ethics approval for the study expires.

Yours Sincerely

Professor J K Adam
Chairperson: IREC

DUT DURBAN UNIVERSITY OF TECHNOLOGY
2018 -05- 03
INSTITUTIONAL REEEARCH ETHICS COMMITTEE
P O BOX 1334 DURBAN 4000 SOUTH AFRICA

Appendix 1b: DUT full ethics clearance

Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Berwyn Court
Gate 1, Steve Biko Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4000

Tel: 031 373 2375
Email: [illegible]@dut.ac.za
http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

14 August 2018

IREC Reference Number: **REC 16/18**

Mr T G A Chipere
290 Avondale Road
Morningside
Durban
4001

Dear Mr Chipere

Student radiographers' transition from the classroom to the workplace: A case study from a South African university

The Institutional Research Ethics Committee acknowledges receipt of your notification regarding the piloting of your data collection tool.

Kindly ensure that participants used for the pilot study are not part of the main study.

In addition, the IREC acknowledges receipt of your gatekeeper permission letters.

Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC SOP's.

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely,

Professor J K Adam
Chairperson: IREC

DUT DURBAN UNIVERSITY OF TECHNOLOGY
2018 -08- 14
INSTITUTIONAL RESEARCH ETHICS COMMITTEE
P O BOX 1334 DURBAN 4000 SOUTH AFRICA

Appendix 2a: Letter of permission to the eThekwini District Manager

Mrs P Dladla

eThekwini District Manager

Mayville

Dear Mrs Dladla

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a Masters student at the Durban University of Technology. My topic is: **Student radiographers' transition from the classroom to the workplace: A case study from a South African university.**

I hereby seek for permission to conduct semi-structured interviews with the community service radiographers in at least five selected hospitals.

I have provided you with a copy of the summary of the proposal which includes copies of the data collection tools and consent and/ or assent forms to be used in the research process, as well as a copy of the approval letter which I received from the Institutional Research Ethics Committee (IREC).

If you require any further information, please do not hesitate to contact me telephonically on 0716704039 or via email address tawatc01@aol.com or my supervisors Dr PB Nkosi on paulinen1@dut.ac.za and Mr T Motaung on ThutoM@dut.ac.za . Thank you for your time and consideration in this matter.

Yours sincerely,

Tawanda Chipere (Mr)
Masters Student at DUT
e-mail : tawatc01@aol.com
Cell: 071 670 4039

Appendix 2b: Approval letter from the eThekwini District Manager

health
Department:
Health
PROVINCE OF KWAZULU-NATAL

DIRECTORATE: CORPORATE SERVICES

83 King Cetshwayo Highway
Mayville, Durban, 4001
Tel: 031 240 5455 Email: avashri.harrichandparsad@kznhealth.gov.za
www.kznhealth.gov.za

ETHEKWINI HEALTH DISTRICT OFFICE

10 May 2018

Dear Mr. T Chipere

Re: Permission To Conduct Research at eThekwini District Facilities.

This letter serves to confirm that your application to conduct the research study titled "Student radiographers' transition from the classroom to the workplace: a case study from a South African university", in the eThekwini district, with recruitment from the following health care facilities, has been recommended:

Wentworth Hospital
Addington Hospital
King Edward VIII Hospital
Inkosi Albert Luthuli Central Hospital
Clairwood Hospital

Kindly upload this letter together with your application as required to the Health Research and Knowledge Unit for the KZN Department of Health for Approval.
Please also note the following:

1. This research project should only commence after final approval by the KwaZulu-Natal Health Research and Knowledge Unit, and full ethical approval, has been granted,
2. That you adhere to all the policies, procedures, protocols and guidelines of the Department of Health with regards to this research.
3. All research activities must be conducted in a manner that does not interrupt clinical care at the health care facility,
4. Ensure that this office is informed before you commence your research
5. The District Office/Facility will not provide any resources for this research
6. All logistical details must be arranged with the CEO/medical manager /operational manager of the facility,
7. You will be expected to provide feedback on your findings to the District Office/Facility

Yours sincerely

Dr. A. Harrichandparsad
pp Ms. T. P. Maimango
Chief Director
eThekwini Health District

Fighting Disease, Fighting Poverty, Giving Hope

Appendix 3: Approval letter from the KZN Department of Health

health
Department:
Health
PROVINCE OF KWAZULU-NATAL

DIRECTORATE:
Health Research & Knowledge Management (HKRM)

Reference: HRKM191/18
KZ_201805_019

31 May 2018

Dear Mr T Chipere
(DUT)

Subject: Approval of a Research Proposal

1. The research proposal titled **'Student radiographers' transition from the classroom to the workplace: A case study from a South African university'** was reviewed by the KwaZulu-Natal Department of Health (KZN-DoH).

   The proposal is hereby **approved** for research to be undertaken at: Clairwood, Inkosi Albert Luthuli Central, King Edward VIII, Addington and Wentworth Hospitals

2. You are requested to take note of the following:
   a. Make the necessary arrangement with the identified facilities before commencing with your research project.
   b. Provide an interim progress report and final report (electronic and hard copies) when your research is complete.

3. Your final report must be posted to **HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200** and e-mail an electronic copy to hrkm@kznhealth.gov.za

For any additional information please contact Ms G Khumalo on 033-395 3189.

Yours Sincerely

Dr E Lutge
Chairperson, Health Research Committee
Date: 01/06/18

Fighting Disease, Fighting Poverty, Giving Hope

Appendix 4a: Letter of permission to the CEO of the selected district hospital

05 June 2018

The Chief Executive Officer
Wentworth Hospital
Sidmouth Avenue
Wentworth

Dear Dr. Kader,

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a Master's student at the Durban University of Technology. My topic is: **Student radiographers' transition from the classroom to the workplace: A case study from a South African university.**

I hereby seek for permission to conduct semi-structured interviews with the community service radiographers at your institution.

I have provided you with a copy of the summary of the proposal, and included copies of the approval letters, which I received from the Institutional Research Ethics Committee (IREC), the KZN Department of Health, and the eThekwini Health District Manager.

If you require any further information, please do not hesitate to contact me telephonically on 0716704039 or via email address tawatc01@aol.com or my supervisors Dr PB Nkosi on paulinen1@dut.ac.za and Mr T Motaung on

ThutoM@dut.ac.za . Thank you for your time and consideration in this matter.

Yours sincerely,

_____

Tawanda Chipere (Mr.)
Master's Student at DUT
email: tawatc01@aol.com
Cell: 071 670 4039

Appendix 4b: Approval letter from the CEO of the selected district hospital

health
Department:
Health
PROVINCE OF KWAZULU-NATAL

1 Boston Road, Jacobs, 4026
Private Bag, Jacobs 4026
Tel: 031-460 5000 Fax: 031-4689654
www.kznhealth.gov.za

DIRECTORATE:
WENTWORTH HOSPITAL
PRIVATE BAG
JACOBS 4026

Reference : Research Protocol
Enquiries: Dr. S. Zulu
Telephone: 031- 460 5006/7

E Mail: Sizwe.Zulu3@kznhealth.gov.za

Date: 18TH JULY 2018

Mr. Tawanda Chipere
Masters Student at DUT

Tawatc01@aol.com

Dear Mr. Umar

RE: Student Radiographers' transition from the classroom to the workplace : A case study from a South African university.

I have pleasure informing you that permission has been granted to you to conduct the above research.

Kindly take note of the following information before you continue:-

1. Please adhere to all the policies, procedures, protocols and guidelines of the Department of Health with regards to this research.
2. This research will only commence once this office has received confirmation from the Provincial Health Research Committee in the Kwazulu Natal Department of Health.
3. Kindly ensure that this office is informed before you commence your research.
4. The hospital will not provide any resources for this research.
5. You will be expected to provide feedback once your research is complete to the Chief Executive Officer.

Yours faithfully

DR. S. ZULU
MEDICAL MANAGER

Appendix 5a: Letter of permission to the CEO of the selected regional hospital

05 June 2018

The Chief Executive Officer
Addington Hospital
16 Erskine Terrace
South Beach,
Durban

Dear Dr. Ndlangisa,

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a Master's student at the Durban University of Technology. My topic is: **Student radiographers' transition from the classroom to the workplace: A case study from a South African university.**

I hereby seek for permission to conduct semi-structured interviews with the community service radiographers at your institution.

I have provided you with a copy of the summary of the proposal, and included copies of the approval letters which I received from the Institutional Research Ethics Committee (IREC), the KZN Department of Health, and the eThekwini Health District Manager.

If you require any further information, please do not hesitate to contact me telephonically on 0716704039 or via my email address tawatc01@aol.com; or my supervisors Dr. P.B. Nkosi on paulinen1@dut.ac.za and Mr T

Motaung on ThutoM@dut.ac.za. Thank you for your time and consideration in this matter.

Yours sincerely,

_____

Tawanda Chipere (Mr)
Master's Student at DUT
email: tawatc01@aol.com
Cell: 071 670 4039

Appendix 5b: Approval letter from the CEO of the selected regional hospital

health
Department:
Health
PROVINCE OF KWAZULU-NATAL

ADDINGTON HOSPITAL

P.O. BOX 977
DURBAN
4000
Tel: 031 327-2970 Email: reehma.boodhai@kznhealth.gov.za
www.kznhealth.gov.za

OFFICE OF THE CHIEF EXECUTIVE OFFICER

Reference: *9/2/3/R*

Date: 11th July 2018

Principal Investigator:
- **Mr T Chipere**

PERMISSION TO CONDUCT RESEARCH AT ADDINGTON HOSPITAL: "STUDENT RADIOGRAPHERS' TRANSITION FROM THE CLASSROOM TO THE WORKPLACE: A CASE STUDY FROM A SOUTH AFRICAN UNIVERSITY"

I have pleasure in informing you that permission has been granted to you by Addington Hospital Management to conduct the above research.

Please note the following:

1. Please ensure that you adhere to all the policies, procedures, protocols and guidelines of the Department of Health with regards to this research.
2. This research will only commence once this office has received confirmation from the Provincial Health Research Committee in the KZN Department of Health.
3. Please ensure this office is informed before you commence your research.
4. Addington Hospital will not provide any resources for this research.
5. You will be expected to provide feedback on your findings to Addington Hospital.

DR M NDLANGISA
HOSPITAL MANAGER
ADDINGTON HOSPITAL

Appendix 6a: Letter of permission to the CEO of the selected tertiary hospital

05 June 2018

The Chief Executive Officer
King Edward VIII Hospital
P/Bag Congella
Congella
4013

Dear Dr. Mazizi,

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a Master's student at the Durban University of Technology. My topic is: **Student radiographers' transition from the classroom to the workplace: A case study from a South African university.**

I hereby seek for permission to conduct semi-structured interviews with the community service radiographers at your institution.

I have provided you with a copy of the summary of the proposal, and included copies of the approval letters which I received from the Institutional Research Ethics Committee (IREC), the KZN department of Health, and the eThekwini Health District manager.

If you require any further information, please do not hesitate to contact me telephonically on 0716704039, or via my email address tawatc01@aol.com; or my supervisors Dr. P.B. Nkosi on paulinen1@dut.ac.za and Mr. T.

Motaung on ThutoM@dut.ac.za. Thank you for your time and consideration in this matter.

Yours sincerely,

_____

Tawanda Chipere (Mr.)
Master's Student at DUT
email: tawatc01@aol.com
Cell: 071 670 4039

Appendix 6b: Approval letter from the CEO of the selected tertiary hospital

health
Department:
Health
PROVINCE OF KWAZULU-NATAL

OFFICE OF THE HOSPITAL CEO
KING EDWARD VIII HOSPITAL

Private Bag X02, CONCELLA, 4013
Corner of Bob Tumer (Cannons Road) & Sydney Road
Tel: 031-3605653, Fax 031-2061497, Email: regina.khuzwayo@kznhealth.gov.za
www.kznhealth.gov.za

Ref.: KE 2/7/1/(36/2018
Enq.: Mrs. R. Sibiya

3 July 2018

Mr. TGA Chipere
290 Avondale Road
Morningside
DURBAN
4001

Dear Mr. Chipere

Protocol: "Student Radiographer's transition from the classroom to the workplace: A case study from a South African University"

Your request to conduct research at King Edward VIII Hospital has been approved.

Please ensure the following:

- That King Edward VIII Hospital receives full acknowledgment in the study on all publications and reports and also kindly present a copy of the publication or report on completion.

Before commencement:

- Discuss your research project with our relevant Clinical Head/Assistant Nursing Manager
- Sign an indemnity form at Room8, CEO's Complex, Admin. Block.

The Management of King Edward VIII Hospital reserves the right to terminate the permission for the study should circumstances so dictate.

Yours faithfully

SUPPORTED/~~NOT SUPPORTED~~

DR. SA MOODLEY
ACTING SENIOR MEDICAL MANAGER

05/07/2018
DATE

Appendix 7a: Letter of permission to the HOD of the selected central hospital

The Head of Department (Imaging Department)
Inkosi Albert Luthuli Hospital
800 Vusi Mzimela Road
Cato Manor
Durban

Dear Ms. P. Mfeka,

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a Master's student at the Durban University of Technology. My topic is: **Student radiographers' transition from the classroom to the workplace: A case study from a South African university.**

I hereby seek permission to conduct semi-structured interviews with the community service radiographers at your hospital.

I have provided you with a copy of the summary of the proposal which includes copies of the data collection tool to be used in the research process, as well as the approval letter which I received from the Institutional Research Ethics Committee (IREC).

If you require any further information, please do not hesitate to contact me telephonically on 0716704039 or via my email address tawatc01@aol.com; or my supervisors Dr. P.B. Nkosi on paulinen1@dut.ac.za and Mr. T. Motaung on ThutoM@dut.ac.za. Thank you for your time and consideration in this matter.

Yours sincerely,

_____

Tawanda Chipere (Mr)
Masters Student at DUT
e-mail: tawatc01@aol.com
Cell: 071 670 4039

Appendix 7b: Approval letter from the CEO of the selected central hospital

health
Department:
Health
PROVINCE OF KWAZULU-NATAL

DIRECTORATE:
Office of the Medical Manager
IALCH

Physical Address: 200 Edith Road, Mayville, 4058
Postal Address: Private Bag X30, Mayville, 4058
Tel: (031) 460 [illegible] Fax: 0[illegible] Email: [illegible]@kznhealth.gov.za
www.kznhealth.gov.za

12 July 2018

Mr T G A Chipere
290 Avondale Road
Morningside
Durban
4001

Dear Mr Chipere

Re: Approved Research: Ref No: RLC 16/18: Student radiographers transition from the classroom to the workplace: A case study from a South African university.

As per the policy of the Provincial Health Research Committee (PHRC), you are hereby granted permission to conduct the above mentioned research once all relevant documentation has been submitted to PHRC inclusive of Full Ethical Approval.

Kindly note the following.

1. The research should adhere to all policies, procedures, protocols and guidelines of the KwaZulu-Natal Department of Health.
2. Research will only commence once the PHRC has granted approval to the researcher.
3. The researcher must ensure that the Medical Manager is informed before the commencement of the research by means of the approval letter by the chairperson of the PHRC.
4. The Medical Manager expects to be provided feedback on the findings of the research.
5. Kindly submit your research to:

   The Secretariat
   Health Research & Knowledge Management
   330 Langalibalele Street, Pietermaritzburg, 3200
   Private Bag X9051, Pietermaritzburg, 3201
   Tel: 033395-3123, Fax 033394-3782
   Email: hrkm@kznhealth.gov.za

Yours faithfully

Dr N Tathuali

Dr L P Mtshali pp
Medical Manager

Fighting Disease, Fighting Poverty, Giving Hope

Appendix 8a: Letter of permission to the CEO of the selected specialised hospital

05 June 2018

The Hospital Manager
Clairwood Hospital
1 Higginson Highway
Durban
4060

Dear Dr. Gwala,

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a Masters student at the Durban University of Technology. My topic is: **Student radiographers' transition from the classroom to the workplace: A case study from a South African university.**

I hereby seek for permission to conduct semi-structured interviews with the community service radiographers at your institution.

I have provided you with a copy of the summary of the proposal, and included copies of the approval letters which I received from the Institutional Research Ethics Committee (IREC), the KZN department of Health, and the eThekwini Health District manager.

If you require any further information, please do not hesitate to contact me telephonically on 0716704039 or via my email address tawatc01@aol.com; or my supervisors Dr. P.B. Nkosi on paulinen1@dut.ac.za and Mr. T.

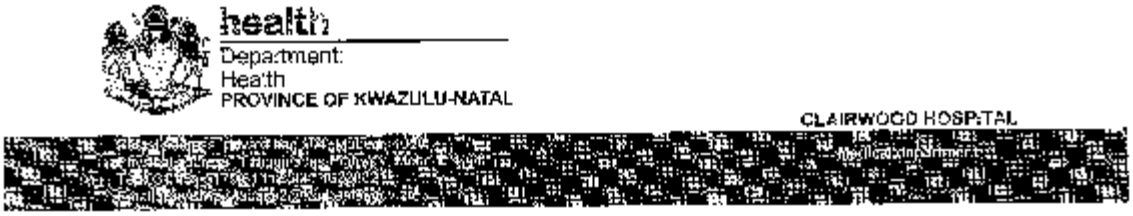
Motaung on ThutoM@dut.ac.za. Thank you for your time and consideration in this matter.

Yours sincerely,

_____

Tawanda Chipere (Mr)
Master's Student at DUT
email: tawatc01@aol.com
Cell: 071 670 4039

Appendix 8b: Approval letter from the CEO of the selected specialised hospital



health
Department:
Health
PROVINCE OF KWAZULU-NATAL

CLAIRWOOD HOSPITAL

Reference: Research
Enquiries: Dr BG Mabaso

Date: 02 August 2018

Mr Tawanda Chipere
Durban University of Technology
Institution of research and Ethics Committee
Durban

Re: Permission to conduct research at Clairwood hospital

Dear Mr Chipere

Clairwood hospital is hereby granting you authority to conduct research with a title **"Student radiographers' transition from the classroom to the workplace"**. This permission is subject to approval by ethics committee prior to commencement of your study.

Kind Regards

Dr Mabaso BG
Manager: Medical Services
Clairwood Hospital

Fighting Disease, Fighting Poverty, Giving Hope

Appendix 9: Letter of information for participants

LETTER OF INFORMATION

Dear Participant

Thank you for agreeing to participate in the study. The information about the study is as follows:

Title of the Research Study: Student Radiographers' Transition from the Classroom to the Workplace: A Case Study from A South African University.

Principal Investigator/s/researcher: Mr. Tawanda Alfred G. Chipere, M.Tech: Radiography (Diagnostic).

Co-Investigator/s/supervisor/s: Mr. T. Motaung, MBA and Dr PB Nkosi, PhD: Health Sciences.

Brief Introduction and Purpose of the Study: Newly qualified graduates from any university frequently struggle to assimilate into their new work environments. This is due to the unpredictable nature of the challenges which arise in the workplace, which contrasts the relatively stable world of academia. Challenges faced during the first few months of employment tend to have the greatest negative impact on an individual's career, and may negatively impact future job satisfaction. The purpose of this study is to explore the experiences of newly qualified radiographers in their early periods of employment in order to identify issues which affect them, so that recommendations can be made on how best to cater to the needs of radiographers at this stage of their career. For this reason, I require your assistance to participate in this study. The study is a requirement for completion of my Master's degree in Health Sciences.

Outline of the Procedures: Should you agree to participate in this study, you will be required to sign a consent form and participate in an interview. The interview will take an hour. The interview consists of two sections: the first requests demographic information, and second comprises of questions relating to your experiences as newly graduated radiographer. It is important that you answer the questions as openly and honestly as possible. Your responses will form the basis of some of the questions, which may be asked by the researcher. At the end of the interview, the signed consent page must be handed to the researcher. Should you wish to be informed of what your information contributed, and/or the results of this study, note that this will be provided at the end of the last interview.

There are no foreseeable risks or harm that can be imposed by the research study to you. Also, you will not incur any research related injury or adverse reaction in this study. Participation involves an interview where you will be asked to relate your professional experiences, and no names of people or sensitive information will be required of you. Participation in the study is voluntary. Should you decide not to be in the study any more, you can withdraw at any time.

Reason/s why the Participant May Be Withdrawn from the Study: You are free to withdraw from the study at any time and there is no penalty that will be imposed on you.

Benefits: The results of this study will benefit future radiographers who will be undergoing community service. The researcher will benefit by obtaining a Master's degree, publishing in peer reviewed journals, and possibly present results at conferences.

Remuneration: You will not receive any remuneration of any kind for participation in this study.

Costs of the Study: You do not pay anything to participate in the study.

Confidentiality: All information and data will be kept strictly confidential. The interview guide will be coded; no names will be written on the guide. The list of names and corresponding research numbers will be stored on a password-protected computer. Only the supervisors will have access to this data. Upon completion of the study, the research material will be kept for five years; thereafter it will be deleted by the researcher.

Persons to Contact in the Event of Any Problems or Queries: If you have any questions, concerns or problems at any time about the study or the procedures feel free to contact the researcher, Tawanda Chipere at 071 670 4039 or via email at tawatc01@aol.com or my supervisors Dr. B.P. Nkosi may be reached at 031 373 2509 and Mr. T. Motaung at 031 373 2510; or the Institutional Research Ethics Administrator on 031-373 2375. Complaints can be reported to the Director: Research and Postgraduate Support, Prof. C.E. Napier on 031-373 2577 or carinn@dut.ac.za

Appendix 10: Consent form

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Mr. Tawanda Chipere, about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: IREC 037/18.
- I have also received, read and understood the above written information regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

Full Name of Participant	**Date**	**Time**	**Signature/ Right Thumbprint**

I, Tawanda Chipere herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Full Name of Researcher	**Date**	**Signature**

Full Name of Witness (If applicable)	**Date**	**Signature**

Appendix 11: Interview Guide

Interview guide

Introduction:

- Self-introduction and welcome participant.
- Inform participant about the use of audio recording device during the discussion.
- Participant is informed about confidentiality and anonymity during the interview and that their names will not be reflected in the transcribed text.
- Consent forms discussed and signed by participants.
- Participant is reminded of their free will to participate or terminate the interview at any point without repercussion.

SECTION 1: DEMOGRAPHIC DATA

PLEASE TICK THE APPROPRIATE BOX

1. GENDER

Male		Bigender	
Female		Third gender	
Non-gendered		Transgender	

2. RACE

African	
Asian	
Coloured	
White	
Other	

3. AGE (years)

18-22		23-27		28-32	
33-37		38-42		43+	

4. MARITAL STATUS

Married	
Divorced	
Widowed	
Single	
Engaged	

Section 2: Interview Session

Session starts:

Good day, and welcome to this interview. Thank you for giving me your time and agreeing to participate. In this interview, we shall discuss issues pertaining to your experiences as a newly qualified healthcare practitioner. The information will be used for research purposes only.

There are no right or wrong answers to the questions. Feel free to express yourself as you feel comfortable.

No names will be written in the research transcripts as well as report. You are assured of complete **confidentiality.**

I would like to inform you once again that this interview is being audio recorded, and your participation is voluntary. We may stop at any point if you wish to discontinue.

Grand Tour Question:
How would you describe your experiences as a qualified radiographer in their first year of professional practice?

Probing questions will be based on the responses by participants
Please relate to me your perceptions regarding your preparedness for full-time employment.

How does your student experience relate to your professional experience?
Are there any differences or similarities?
What aspects of your current job do you like or dislike?
What do you think should have been done to help you assimilate better into your current workplace?

Closing the interview:

1. Is there anything else that you would like to add that you think may help me get a clearer picture of your experiences?
2. Thank the participant once more for their time and end the interview session.

Appendix 12: A sample of the transcript

Participant Number: 06

Interview Date: 21/08/2018

Section A: Demographic Data

Data not shown due to ethical reasons.

Section B: Interview

Interviewer: Greeted participant and introduced self as well as explaining the purpose of the interview.

Interviewer: May I begin with the interview?

Participant: ***Okay.***

Main research question:

Interviewer: How would you describe your experiences as a qualified radiographer in their first year of professional practice?

Participant: ***Experiences? Erm… ok there's experiences?*** **[Laugh]** ***It's just…very...as your first year out of university it's very different to how they prepare you, let me put it that way… it's a lot more in-depth, because you're here every day, whereas as a student, you're not here every day. As a student you are here some nights, some days, but now you're hands-on, and yeah… it's a lot more intense I would say, because now you… you actually have to take everything you've learnt to practice it every single day, different situations that you weren't exposed to as a student.***

Interviewer: And personally, would you say it's been an enjoyable experience, are you on the fence, or has it been more of a negative experience?

Participant: ***Errm, I'm on the fence*** **[laughs].** ***I would say, you enjoy some aspects, but some aspects you don't. Particularly in hospitals like this one, where we're not prepared for the lack of equipment, the lack of money to fix anything, the lack of staffing is just a general-there's just a lack of everything actually. So your experience it sometimes is enjoyable 'cause you do nice work, but at other times it's very difficult when you don't have things to work with.***

Interviewer: Right, and how is the lack of like equipment and staffing, how does it impact your overall experience here?

Participant: It definitely leaves a negative taste on the government healthcare system, let's put it that way. That the government healthcare system is definitely failing the population, to put it that way. Erm, as opposed to… we used to work in private as students, so you can see why things work in private, and why things don't work in government.

Interviewer: Alright, and as a comm serve, what do you feel should have been done to make your comm serve experience a better one?

Participant***: Better experience? Err… I think before applying for hospitals, erm… when you do the application process, you just get a name that you just apply to. You don't get a full idea of what's… you're actually going for. And I do think all the government hospitals should actually have an assessment before they are put up as training facilities… for students, for comm serves, for anything.***

Interviewer: So during your, erm… student phase, you said you trained in a private hospital?

Participant: ***Erm, mixed so… some… there were eight different ones but… so some private, some government.***

Interviewer: Oh… okay. And how about your technical skill? How do you feel your student experience technically relates to your comm serve experience?

Participant: ***Erm… as a student, I was lucky in that technically I had to practice more than I can here, because I'm limited here, and we don't have digital equipment here-you saw the darkroom. We don't have fluoroscopy, we don't have… we only have CT and general. Those are the only two things you can practice here, whereas as a student I still got to practice everything.***

Interviewer: And in terms of rotations, how are those as a comm serve?

Participant: ***Rotations, we don't rotate much, there's not much to rotate to*** **[laugh].**

Interviewer: What do you do?

Participant: ***There's literally… we have CT, general, orthopaedics, er… orthopaedics just happens to be digital, but it's not fully digital, er… but we don't have screening, we don't have… oh we have theatre, but not here – at XXXX hospital, but we don't have as much rotation as we should be having for experience.***

Interviewer: Right, and how about stuff like public holidays and nights, do you have to work those as well as a comm serve?

Participant: ***Yes. You are bottom of the log*** **[laughs],** ***you work everything… you… they wait seven years here for Christmas leave so…you're not gonna get public holidays… yeah***.

Interviewer: Alright… and workload? How would you describe that relative to being a student? I know you did kinda touch on it but maybe just elaborate…

Participant: ***Workload is… it actually just depends here… that's strange because you sit some days and you do nothing, and other days we… depending on the staffing situation, we run around all day. So actually yeah, it's very dependant.***

Interviewer: Alright, so what would you say... What are the key aspects of your job that you'd say you like?

Participant: ***I like? Erm… I like the fact that we get a lot of different cases here, it's actually trauma cases and that kinda thing, we never see the same thing twice, we really do see interesting things here*** **[laughs].**

Er…and I do like that we have some… it's not always a good thing, but particularly as a comm serve here you can make decisions that you probably couldn't make as a comm serve anywhere else. Er…because of the lack of… sort of… management. So you very much have to be hands-on here, which is quite enjoyable in a way… it's not necessarily a good thing.

Interviewer: So, are you saying it's like increased responsibility?

Participant: ***Yes, because you have no one to help you here*** **[laughs].**

Interviewer: Alright, and the key things that you dislike?

Participant: ***Dislike? On that note, I don't like that there's no one to help you when you actually do need it… management-wise it's very inefficiently run here. If something breaks, or something needs to be moved, or a patient can't be done, you make that decision as a radiographer, whereas that actually should be a management thing.***

Interviewer: And this is you, as a comm serve?

Participant: ***As a comm serve, yeah. I do think management… but I think in most of the hospitals that is a problem.***

Interviewer: How about your relationships with other… with the broader hospital staff. How do you find those, between you as a comm serve radiographer and all others, like doctors, nurses, everyone else?

Participant: ***Ermm I find certain departments – orthopaedics you deal with the doctors quite a lot, and theatre obviously with the doctors, and trauma. But besides that, we don't relate to the rest of the hospital at all. I don't see anyone else, I don't know who anyone else is…*** **[laughs].**

Interviewer: So you probably… if you met them on the street you probably wouldn't have any…

Participant: ***No, I would have no idea, no. Unless I'd seen them… maybe trauma we see the same doctors, but…***

Interviewer: And how about in terms of support, how would you rate the level of support that you've received as a comm serve?

Participant: ***From co-workers? A lot…the staff that have been here you know, ten, twenty years. They've really…in the beginning of the year they do…they try and explain things and help you out. In terms of management and things – nothing. We get no support, erm… we don't even do orientation at the beginning of the year…. we don't do any of that.***

Interviewer: So you just jump right into it?

Participant: ***Yeah, on your first day it's like no we'll do orientation later, and they never do it.***

Interviewer: Alright, and how about five years from now. Where do you see yourself?

Participant: ***Five years from now I need to study something else [laugh] sounds terrible.***

Interviewer: Within radiography-within the health field….?

Participant: ***No, within radiography, but I don't know about diagnostic radiography…. I don't...yeah. Within, but definitely something…I actually don't know yet…but something different.***

Interviewer: Is there anything else that you'd like to add that you think…maybe that we didn't touch on that you think might help me get a clearer picture of your experiences at…as a comm serv.

Participant: ***Ermmm… I'm trying to think… experiences as a comm serve erm… it's very… it's very difficult… yeah yeah… I'm not too sure what you're… what kinda information you're looking for…***

Interviewer: No, no… just general… like I said, no right or wrong answers… it's an individual thing.

Participant: ***I do think overall a comm serve experience is important, if I can put it that way. However, in this particular institution being a comm serve doesn't mean you're a comm serve, it means you're a qualified ten years, that you have to behave like you've been qualified for ten years. You… you have to… whereas I think… other people, a comm serve experience is more… you should be a junior still. But just in this particular case we very much kinda have to… sort yourself out.***

Interviewer: Thanked the participant once more for their time, and ended the interview session.

Appendix 13: Researcher's experience with the phenomenon (Epoché)

After completing my studies at university, I entered radiography professional practice, and worked at a hospital which had the capacity to accommodate eight radiographers. However, at the time when I joined this hospital they were short staffed, and there was only one radiographer who was stationed within the imaging department. This radiographer went on a three-month leave shortly after I started work, and I was left to run the entire imaging department single-handedly, and this included working overtime and night duties. Additionally, I was not exempted from attending inter-departmental meetings despite the demands on my time. This meant that on some days I was required to represent the imaging department at meetings, whilst the workload in my department increased as there was no radiographer attending to patients. I therefore would describe my early radiography career experience as negative, and I felt unfairly treated by the hospital management whom I felt expected too much of me.

Several years later, I am now undertaking research to find out how community service radiographers enter the workplace. Drawing upon my own prior experiences, I expect to hear similarly negative stories recounted in the different hospitals, because related literature has revealed that there is a shortage of radiographers in the South African public sector. My assumption is therefore that community service radiographers are likely to have experiences similar to my own negative early career experiences.

Another assumption I make is that study participants will be happy to speak to me candidly and honestly regarding their experiences, without fear of any repercussions, because I will assure them of complete anonymity, and of my ethical responsibilities to ensure confidentiality.

Through this reflective account of my own experiences with early career transition, I believe I will be able to bracket out my own preconceived ideas and personal biases which I have discussed, and adopt a neutral stance as I interview participants and analyze data. I will use an interview guide which has been reviewed by academic supervisors, and an institutional ethics committee,

and this will help to ensure that participants are not biased towards my personal views on early transition experiences. I do, however, acknowledge the inherent difficulty in assuming a position of complete neutrality as an interviewer and researcher, and realise that despite the controls used to ensure the rigour of my research, some level of bias will filter through. This however is not peculiar to this specific research, and so I believe my findings will reflect a true account of the individuals' perceptions of their experiences.

Before interviewing each participant, I shall make a quick mental note of my views and remind myself not to presume anything with regards to what the participants will say, so that I can probe for information which reflects a deep understanding of the lived experiences of each community service radiographer.

My long-term career outlook has no doubt been shaped by my early experiences which were negative. I have developed a preference towards non-clinical roles, and I have no intention of ever working in a hospital environment again, even if it were to be adequately staffed.

Appendix 14: Language editing certificates

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GENEVIEVE WOOD
P.O.!BOX!511!WITS!2050!!|!!0616387159!

EDITING CERTIFICATE

LANGUAGE!EDITING!SERVICES!

!

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Date: 2018/11/13

This serves to confirm that the document entitled:

EXPERIENCES OF COMMUNITY SERVICE RADIOGRAPHERS DURING THEIR TRANSITION INTO THE WORKPLACE WITHIN THE ETHEKWINI DISTRICT

Has been edited on behalf of its author

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EDITING CERTIFICATE

LANGUAGE EDITING SERVICES

Date: 2019/6/10

This serves to confirm that the document entitled:

EXPERIENCES OF COMMUNITY SERVICE RADIOGRAPHERS DURING THEIR TRANSITION INTO THE WORKPLACE WITHIN THE ETHEKWINI DISTRICT OF DURBAN, SOUTH AFRICA

by

Tawanda Alfred Gilbert Chipere

has been language reedited on behalf of its author according to examiner guidelines.

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