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**Australian medical radiation science graduates' experiences of resilience during transition
to professional practice**

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Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

Signature: 

Date: 12 November 2014

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Abstract

Health professionals encounter substantial workplace adversity, from high-stakes critical incidents to the everyday challenges of a constant, competitive healthcare environment. Reports from around the world indicate that health professionals' stress, burnout, and workforce attrition have had significant effects on service delivery, productivity, patient safety and outcomes. New graduate health professionals experience considerable stress, change and growth as they make the transition from student to independent professional.

Some health professions have identified that poor experiences during early professional practice relate directly to poor workforce retention and attrition, job dissatisfaction, and poor role and job engagement. Transition to professional practice for the medical imaging or radiation therapy graduate is virtually unexamined in the evidence base. Additionally, students and new graduates are particularly vulnerable to the stressors of workplace adversity. How educational, employing and professional organisations prepare and support new medical imaging and radiation therapy graduates to respond resiliently to the challenges they face as independent practitioners is poorly appreciated.

A constructivist, Charmazian⁽¹⁾ grounded-theory approach was used to explore the experience of transition to professional practice among 21 newly graduated medical radiation science professionals from Western Australia, South Australia and Victoria. In 30 unstructured interviews, these new professionals provided rich descriptions of the adversity and opportunities of their early practice experience, the strategies and processes they employed to respond adaptively to challenges, and the characteristics and capabilities that supported them.

The gathered data were used to develop a theoretical conceptualisation of medical radiation science graduates' resilience as a process of evolution, with phases of impact, energising, maintaining momentum, achieving equilibrium, and beating inertia. Graduate capabilities such as decision-making, problem-solving, reflection, communication, and critical thinking underpin many of these resilience processes, however few graduates recognised how their education had specifically developed these capacities. Resilience can

be fostered through support from colleagues, employers and professional organisations, yet supportive strategies were commonly lacking or misdirected.

Recommendations from this study may enhance how the professional community acts to foster the capacity for resilience among new medical radiation science professionals. The findings of this study have implications for professionals who work with students and new graduates, for developers of organisational orientation or transition programs, and for medical radiation science educators and employers.

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List of abbreviations

AIR – Australian Institute of Radiography

ANZSNM – Australian and New Zealand Society of Nuclear Medicine

MRI – Magnetic resonance imaging

MRPBA – Medical Radiation Practice Board of Australia

PhD – Doctor of Philosophy

RT – Radiation therapist / radiation therapy

Chapter 1 - Introduction

[1.1 Introduction and purpose](#)

Global and Australian workforce forecasts of the health professional workforce predict that our health system will encounter significant shortages of key personnel.⁽²⁻⁸⁾ Professional education, recruitment and retention are critical to the development and maintenance of an adequate workforce of health professionals with suitable capacities.^(9, 10) The cost of training, selection, appointment and orientation of new staff is significant, particularly for new graduates who are likely to require a greater degree of guidance and support than their more experienced colleagues.^(4, 11-13)

The process by which new graduates adapt from the state of being a student to that of an independent practising professional is loosely termed the transition to professional practice. While the transition to professional practice for newly graduated health professionals has been described to a degree in the literature, there is very little that examines the transition period or experience from the perspective of the graduate. Specifically, there is no known published depiction that describes the transition to professional practice of Australian medical radiation science graduates, the health professionals that use ionising and non-ionising radiations for diagnostic and therapeutic purposes.

During their early practice experiences, new health professional graduates encounter a diverse range of challenges and adversity.⁽¹⁴⁻³⁰⁾ Like their more experienced colleagues, new graduates experience the challenges of working in often busy, unpredictable and under-resourced environments, the risks associated with emotionally engaging work, and the potential for traumatisation from distressing events in which they are observers or participants. Trauma and suffering caused by adverse situations have the potential to influence attitude, satisfaction, engagement and, ultimately, attrition from the workplace and the professional workforce.⁽³¹⁻⁴¹⁾ Encounters with adversity that occur during transition to professional practice may profoundly influence new graduates as, by virtue of their relative inexperience, they are least equipped to access the strategies and resources necessary to respond resiliently. How medical radiation science graduates experience and manifest resilience is poorly understood.

The primary purpose of this study, therefore, was to:

- Determine how beginning medical radiation science professionals experience resilience in encounters with workplace adversity;
- Determine how these new graduates adapt to the confronting and challenging situations that they encounter every day;
- Determine how they are able to persist through the critical incidents that emerge;
- Determine how they heal and rejuvenate themselves so that they remain as practising professionals.

To achieve these goals, I used a Charmazian⁽¹⁾ grounded theory approach to explore how new graduate medical radiation science professionals experience resilience during their transition to professional practice, from the perspective of the graduates themselves. In doing so, I have investigated the experiences of newly graduated Australian medical radiation science professionals and described the nature of their transition to professional practice. With this understanding of the new graduates' practice context, I have explored their experiences of workplace adversity and developed a theoretical conceptualisation that explains that they experience professional resilience as a process of evolution. I have used these findings to derive a number of recommendations for the educational, employing and professional organisations associated with medical radiation science professional entry.

[1.2 Outline of this thesis](#)

To appreciate how new graduates adapt resiliently to the challenges they encounter, it is important to understand who they are professionally, how they are experiencing transition to professional practice, and their working context. In **Chapter 2**, I broadly outline global concerns about health workforce retention and attrition to highlight the importance of retaining new professionals in the workforce. To promote understanding of the people involved in the current study, I provide a description of the medical radiation science professions and their professional entry educational pathways. Transition to professional practice for medical radiation science professionals is poorly examined in the literature so I explore that associated with other caring professions to illuminate the nature, context and challenges common to new graduates engaging in their first experiences of independent

professional practice. Finally, I summarise the gaps in the existing literature that provide justification for the current study.

In **Chapter 3**, I consider how resilience has been demonstrated as a critical process by which people respond adaptively to challenges and manage workplace adversity. To illustrate how notions of resilience may inform understanding of the strategies that new medical radiation science graduates employ to manage the challenges they face during transition to professional practice, I outline the history and development of resilience research and its application in the caring professions. Finally, I summarise gaps in the existing literature that support the justification for my study.

In **Chapter 4**, I position my study within the qualitative research domain and explain my rationale for adopting a Charmazian⁽¹⁾ grounded theory approach. After exploring the general methods for data collection and analysis employed in Charmazian⁽¹⁾ grounded theory, I outline the specific data collection and analysis approach I used in my study. In doing so, I provide insights into my personal research experiences and use an exemplar from my analysis to illustrate the reflective and iterative process I employed. Finally, I examine critical research quality considerations.

In **Chapter 5**, I provide an overview of the substantive theory derived from the data collection and analysis processes. I consider how the overarching process of evolution explains how medical radiation science graduates experience resilience in their encounters with workplace adversity.

Chapters 6 and 7 collectively examine each aspect of the substantive theory: I have separated the two chapters to assist clarity during this detailed exploration. In **Chapter 6**, I consider the transition to professional practice context within which medical radiation science graduates experience workplace adversity. As this context has not been previously described in the literature, I use core findings from my participants' data to provide a rich description of transition to professional practice for medical radiation science professionals, including transitional milestones and timeframes. The important experiences of transition to professional practice are explored using the categories derived from the graduates' own words. These experiences include staking their independence, performing with confidence, finding their place, and feeling.

In **Chapter 7**, I explore the nature of workplace adversity experienced by participants in my study, considering the significant diversity of challenges and confronting events that new graduates encounter, and the resultant impact of these critical incidents. I then examine in turn the remaining aspects of my theory of resilience as evolution, including how new medical radiation science professionals experience energising, maintaining momentum, achieving equilibrium, and beating inertia. Finally, I consider the personal and environmental conditions that influence resilience.

In **Chapter 8**, I consider the theory I have developed in light of the existing literature. Firstly, I compare my substantive theory with other theories of resilience. Secondly, I consider the findings of my study in comparison with other studies of resilience among caring professionals. While there are some similarities, as might be reasonably expected, there are also distinct differences that demonstrate the unique contribution of my study.

In **Chapter 9**, I draw upon all previous chapters to outline the significance and implications of my study. I provide recommendations from my substantive theory of resilience as evolution for educational institutions, employing organisations and professional associations. Finally, I consider the limitations of my study and opportunities for further research.

Chapter 2 – Background and review of the literature: Understanding the people and their context

[2.1 Chapter introduction](#)

To appreciate how new graduates adapt resiliently to the challenges they encounter, it is important to understand who they are professionally, how they are experiencing transition to professional practice, and their working context. In this chapter, I broadly outline global concerns about health workforce retention and attrition to highlight the importance of retaining new professionals in the workforce. To promote understanding of the people involved in the current study, I provide a description of the medical radiation science professions and their professional entry educational pathways. Transition to professional practice for medical radiation science professionals is poorly examined in the literature so I explore that associated with other caring professions to illuminate the nature, context and challenges common to new graduates engaging in their first experiences of independent professional practice. Finally, I summarise the gaps in the existing literature that provide justification for the current study.

[2.2 Attrition in the health workforce](#)

It is now generally accepted that global, including Australian, populations are increasing and ageing. There are multiple impacts of these demographic changes that serve to place the health workforce under pressure.⁽⁴²⁾ Greater numbers of people, including greater numbers of older people, lead to an increased burden of disease.^(42, 43) More people requiring health care services are of an older age or present with more of the chronic co-morbidities prevalent in older age that complicate medical treatment and health care delivery: acuity is increasing.⁽⁴²⁻⁴⁵⁾ Technological advancements contribute to better patient outcomes but frequently make health care delivery more complex.^(42, 44, 45) These factors in combination have resulted in an environment with a very high demand from more people with increasingly complex conditions requiring increasingly complex care.

Just as the general population is ageing, so too is the health workforce.^(2,3) The Australian medical radiation science workforce has not been well examined in the allied health literature, which focuses almost exclusively on the significant worldwide shortages in the nursing workforce, predicted to worsen this decade and beyond as the baby-boomer generation of nursing professionals approaches retirement.⁽⁴⁻⁷⁾ A common strategy to address this shortage has been to increase the number of students and, therefore, graduate nursing professionals.^(9,10) As a result larger numbers of beginning professionals with comparatively limited experience enter workplaces already experiencing staffing shortages, high demands and great complexity, increasing stressors for new graduates and their more experienced colleagues.

In addition to increasing the number of new graduates entering the profession, some health professions have considered strategies, such as transition to professional practice programs, to maximise retention within the profession and within specific workplaces. Predominantly, the associated literature relates to attrition in the nursing workforce, and it indicates that the pressures of the working environment and poor experiences during the initial period of a new graduate's working life lead to dissatisfaction and intent to leave their job and/or their profession.^(4, 6, 11, 44) Attrition of new nursing graduates has been reported widely, with up to 54% of graduates leaving their job or leaving nursing within their first year.^(46, 47)

2.2.1 The cost of attrition

Attrition of health care professionals is costly for the individual, the organisation, the profession and society. In opting to leave their workplace, an individual may experience the financial cost associated with unemployment, seeking a new job or relocating, or the professional cost in terms of a setback to career progression. If the individual leaves the profession entirely, they may face the financial costs of training for a new occupation, the loss of their investment in the costs associated with training for their former profession, and a personal emotional cost.⁽⁴⁸⁾

When an employee leaves a workplace, the organisation may face financial costs and service disruptions associated with vacancy, recruitment and on-boarding of a

replacement staff member,^(4, 13, 49-57) disruptions to quality of care or productivity due to vacancy, excessive workloads or short-staffing,^(4, 55, 58) the loss of investment in the training and development of the former employee,⁽⁴⁹⁾ and the potential damage to organisational reputation that may be associated with high rates of turnover. Thus, turnover represents a high cost to employers and to the health professional concerned. While I could not identify any published Australian data for medical imaging or radiation therapy professionals, estimates of the organisational cost of nursing turnover in the United States of America in 2002 were as high as US\$67,100 per practitioner.⁽⁵⁰⁾

When professionals opt to leave their profession, workforce shortage issues can result, which may redirect the efforts of professional associations to areas related to workforce supply and away from progressing and advancing the profession. Society more broadly is likely to be affected by attrition because of reductions in service quality and access, the indirect costs to the economy of subsidising the education of professionals who do not continue, and the recruitment and productivity costs of the public sector health care environment.

2.2.2 Attrition in the medical radiation sciences

It is important to note that the primary source of information relating to workforce attrition relates to nursing in the United States of America, and that documented evidence for the Australian situation is scant. The situation for the medical radiation science professional workforce is poorly documented. I could identify only one relevant study, Atyeo's⁽⁵⁹⁾ exploration of workforce attrition among Australian radiation therapists. He found that high workload, time pressures, erosion of quality of care and lack of management support were among the stressors that were predictive of participants' thoughts of resigning from their workplace. Notably, however, this study did not examine the experiences of beginning professionals specifically.

The medical radiation sciences constitute a relatively small proportion of the national healthcare workforce,⁽⁶⁰⁾ and in the following section I describe the professions further. Due to these proportionately small numbers, small variations in the medical radiation science workforce numbers in absolute terms can result in

shortages that curtail the availability of medical imaging, radiation therapy and nuclear medicine services. These shortages can be cyclical and influenced by the availability (or not) of staff or by economic considerations and the availability of funding to employ staff. Like many health professions, strategies to remediate workforce shortages in the medical radiation science professions have primarily relied upon increasing the number of enrolled students⁽⁶¹⁾ and, eventually, new graduates entering the profession.

2.3 The medical radiation science professions

Ionising and non-ionising electromagnetic radiations with diagnostic and therapeutic applications in medicine are known as medical radiations. The allied health professionals responsible for the administration of medical radiations are known as medical radiation scientists, medical radiation science professionals, or medical radiation professionals, and include medical imaging professionals, radiation therapy professionals and nuclear medicine professionals. There were 14,387 medical radiation science professionals in Australia in June 2014.⁽⁶²⁾ In the current study, I consider only medical radiation science professionals working in Australia as the nature of the roles, the professional structure and educational preparation vary considerably throughout the world. Medical radiation science professionals are members of the group of professions known as the caring professions, defined as those occupations that look after other people^(63, 64) and including professions such as teaching, nursing, medicine and other health professions.

Medical imaging professionals constitute the largest proportion of the Australian medical radiation science workforce, representing almost 78% of registered professionals.^(62, 65) Medical imaging professionals employ medical radiations to diagnose, investigate and monitor disease and injury.^(66, 67) Examples of the procedures and interventions that might be undertaken by medical imaging professionals include acquisition of x-ray images, computed tomography, fluoroscopy, angiography, magnetic resonance imaging, mammography and ultrasound. Medical imaging professionals are sometimes known as medical imaging technologists, radiographers, diagnostic radiographers or radiologic

technologists.⁽⁶⁶⁾ Medical imaging professionals work in a range of healthcare settings in the public and private sectors⁽⁶⁶⁾ including hospitals, medical centres, standalone clinics, mobile clinics, and triage sites associated with emergency response and military operations. Within these settings, medical imaging professionals provide care in contexts including in outpatient units, patient wards, operating theatres and trauma units.⁽⁶⁶⁾

Radiation therapy professionals represent the second largest group within the Australian medical radiation science workforce, incorporating almost 16% of registered professionals.^(62, 65) Radiation therapy professionals use medical radiations to treat disease, predominantly malignant disease.^(66, 67) Radiation therapy professionals design and deliver treatment to patients through a range of modalities including external beam radiation therapy and brachytherapy.⁽⁶⁸⁾

Radiation therapy professionals are sometimes known as radiotherapists, therapy or therapeutic radiographers, radiologic technologists or medical dosimetrists.⁽⁶⁶⁾

Radiation therapy professionals work in hospitals and standalone clinics in the public and private sectors.⁽⁶⁶⁾ Within these settings, radiation therapy professionals predominantly provide care within a designated radiation oncology unit with pre-treatment (simulation and planning) and treatment services.

Nuclear medicine professionals represent the smallest group within the Australian medical radiation science workforce.^(62, 65) Nuclear medicine professionals use medical radiations, usually in the form of radioactive sources (radiopharmaceuticals), to diagnose and treat particular medical conditions.⁽⁶⁷⁾

Nuclear medicine professionals are sometimes known as nuclear medicine technologists or nuclear medicine scientists. Nuclear medicine professionals work in hospitals and standalone clinics in the private and public sectors, providing services to inpatients and outpatients.

The medical radiation science professions are regulated under the Australian Health Practitioner Regulation National Law (2009) through the Medical Radiation Practice Board of Australia (MRPBA) of the Australian Health Practitioner Regulation Agency.⁽⁶⁹⁾ The MRPBA was first constituted on 1st July 2012.⁽⁶⁹⁾ Medical imaging and radiation therapy professionals are represented professionally by the

Australian Institute of Radiography (AIR).⁽⁷⁰⁾ Nuclear medicine professionals are represented professionally by the Australian and New Zealand Society of Nuclear Medicine (ANZSNM).⁽⁷¹⁾ While practice standards and accreditation of educational programs and practitioners are now the responsibility of the MRPBA,⁽⁷²⁾ prior to 1st July 2012, these were the responsibility of the AIR and the ANZSNM. As a result, the education of graduates of 2012 and 2013, including participants in my study, was primarily influenced by the former standards and accreditation processes of their professional bodies rather than the MRPBA.

My study focuses on the two largest disciplines within the medical radiation science workforce – medical imaging and radiation therapy. This decision was largely a pragmatic one, as the number of new graduate nuclear medicine professionals who might be willing to participate was likely to be extremely small, therefore leading to concerns about protecting their confidentiality.

Health professionals use various terms, such as ‘client’, ‘consumer’ or ‘patient’ to describe the people in their care and for whom they provide health care services. The current convention for Australian medical radiation science professionals is to use the term ‘patient’^(66, 71, 73, 74) and, on that basis, I adopted this term for my study.

2.3.1 Medical radiation science professional entry education

There are two main pathways to professional entry to medical imaging and radiation therapy in Australia - university programs that lead directly to registration (work ready professionals), and those that lead to provisional registration.

Graduates with provisional registration are required to satisfactorily complete a designated program involving 48 weeks of supervised practice in order to obtain full professional status.⁽⁶⁵⁾ As graduates from the two different professional entry pathways experience different academic and professional preparation, and engage in their initial postgraduate practice under distinctly different regulatory, structural and supervisory contexts, considering both groups as participants in my study could be confounding. To eliminate this risk, I have opted to include graduates from only one pathway in my study, specifically those that graduate from university as work ready professionals. The rationale for this choice was simply pragmatic. Since the

mid-2000s, educational institutions have tended to move from programs that prepare graduates for provisional registration toward those that result in work-readiness. In 2000, there was only one radiation therapy or medical imaging educational program in Australia leading directly to registration. At the time I commenced my study, five of the 14 programs in Australia produced work-ready graduates. This proportion had climbed to ten of 16 Australian programs by mid-2014. I reside in Western Australia, where the majority of new medical radiation science appointments are fully, rather than provisionally, registered professionals – during the period of my data collection, only five non-work ready graduates were registered in this State.⁽⁶⁵⁾ I opted to consider work ready graduates simply because it was more likely that I would be able to access an adequate number of participants in my study.

The two recognised program structures in the work ready pathway are a four-year Bachelor degree and a two-year graduate-entry Master degree.^(66, 69) Three Australian universities offer accredited programs: Curtin University (Western Australia) offers a four-year medical imaging program,⁽⁷⁵⁾ Monash University (Victoria) offers a four-year medical imaging program⁽⁷⁶⁾ and a two-year radiation therapy program,⁽⁷⁷⁾ and University of South Australia offers four-year medical imaging and radiation therapy programs.^(78, 79)

Students in these programs engage in clinical practice experiences during their education, including extensive periods of clinical practicum, commonly referred to in the medical radiation sciences as ‘clinical placement’. These experiences allow students to consolidate, apply and extend their knowledge and skills while becoming familiar with the professional environment, professional culture and their future professional role. Medical imaging and radiation therapy students from work ready programs complete approximately 1900 hours of clinical placement during their educational preparation.⁽⁸⁰⁾ This contrasts notably with other health professions, as evidenced by the Australian accreditation requirement for nursing of 800 hours⁽⁸¹⁾ and 1000 hours for podiatry⁽⁸²⁾, psychology⁽⁸³⁾ and occupational therapy.⁽⁸⁴⁾

2.4 Transition to professional practice

New medical radiation science graduates may experience several transitions simultaneously: a transition from university student to beginning professional, a transition from student to employee, and a transition from relatively fewer responsibilities to those of an accountable, independent professional. Additionally, graduates assuming new employment positions may experience transition because they are required to relocate to a new area. These life transitions may present stressors for the new graduate.

It has been well reported in the literature that new health professional graduates encounter challenges in assuming their professional roles. This has been particularly well documented in the nursing literature, which has demonstrated, to a greater or lesser degree, that new professionals experience a wide range of stressors, such as feeling a lack of knowledge,⁽¹⁴⁻¹⁶⁾ poor communication or conflict with colleagues⁽¹⁴⁾ and lack of time.^(14, 16) Often, the literature depicts negative situations, although it should be acknowledged that some positive stressors, such as being challenged to undertake a new procedure or to solve a complex problem, may contribute positively to advancing the professional and personal development of new practitioners.

2.4.1 Defining transition to professional practice

Given the considerable volume of work dealing with transition to professional practice, also known as transition to practice, it is curious that it remains predominantly undefined in the literature. Generally, it is considered to be the period during which a health professional progresses from being a brand new graduate to being a proficient, independent practitioner. In the absence of a denotative definition, I have followed Malouf and West's⁽⁸⁵⁾ example and base my working definition upon the common usage of the term: transition is considered as a process in which an individual moves between two environments or states.^(63, 64) In the case of transition to professional practice, the two environments are the university and the clinical environment, and the two states are student and practising professional.

Transition to professional practice has been widely described in the nursing literature but infrequently in that of medical imaging or radiation therapy. The bulk of the relevant nursing literature for the past three decades has originated from North America. This evidence base indicates that new nursing graduates describe their transition as comprised of elements of gaining experience of the profession, gaining competence and experiencing newness.^(45, 86-89) Experience of the profession^(22, 90) includes learning what it is to be a professional, and how to be a member of a profession and of a professional community. Gaining competence^(22, 23, 90, 91) relates to technical and patient care aspects of the new graduate's clinical responsibilities. Experiencing newness^(22, 23, 91, 92) includes experience of anxiety, uncertainty, a desire to fit in, and the development of confidence and professional resilience.

Although transition to professional practice in nursing has been very thoroughly described in the literature, there exists considerable variation about key characteristics such as duration, milestones, challenges, nature and outcomes. I consider these aspects in the remainder of this chapter.

[2.4.2 Duration of transition to professional practice](#)

Overall, it seems that the nursing profession views transition to professional practice as commencing on the first day of post-graduate employment, and a considerable proportion of the literature related to transition to professional practice focuses upon formal internship or orientation programs provided upon initial employment, and for up to one year following graduation.^(10, 12, 13, 17, 20, 44, 45, 51, 57, 86, 88, 89, 93-109) This makes the question of duration of transition to professional practice somewhat perplexing as the structure of the transition program is most commonly pre-determined by the organisation or relevant regulatory body, rather than being tailored and concluded dependent on the graduates' individual needs and performance. Much of the literature reports on specific internship, registrarship, preceptorship or orientation programs which commonly run for up to 12 months.^(7, 10, 12, 13, 17, 18, 45, 52, 86-89, 93-98, 101, 110-113)

The majority of the nursing transition to professional practice literature takes an organisational, management or supervisory perspective, most commonly describing

the program as a model for other organisations to adopt, reporting the cost-benefit of the program of interest, or presenting some other justification for continuing or extending the program. This results in a tendency within the literature to report outcomes for the organisation or graduate satisfaction^(7, 12, 17, 18, 52, 87, 88, 93, 95, 97, 98, 101, 111-114) as justification for a particular program, rather than reporting the objective evaluation of nursing transition experiences, learning interventions and graduate development as a means of identifying the necessity for, and nature of, the transition program.^(17, 45, 90, 115) Few studies demonstrate how the graduate feedback obtained has been interrogated, considering issues of response veracity given the graduates' relative lack of power, the validity and reliability of the particular survey tool employed, or the actual correlation between graduates' satisfaction with the program and improvement in transition experiences and developmental outcomes. Graduates may like the program, but that does not necessarily mean that it is a necessary, or the optimal, form of transitional support. There is also a critical distinction between graduate development that occurs as a natural result of time and experience during their initial postgraduate practice and that which occurs because of the particular interventions incorporated within a specific transition program: little of the literature seems to consider this distinction or to compellingly demonstrate that the reported outcomes are attributable directly to the transition program. None of the literature I identified employed a control group within a single program context to explore what, if any, additional development or improved outcomes occurred as the result of the program. Given that many of the formal programs developed run for 12 months, it is unsurprising that much of the literature suggests that nursing transition to professional practice lasts for 12 months, and the lack of strong evaluation of progress and outcomes makes it difficult to appreciate whether such a duration is, indeed, an accurate reflection of transition as experienced by the graduates themselves.

[2.4.3 Transition to professional practice programs and experiences](#)

The basis for nursing transition programs is often indicated as the seminal research of Kramer⁽¹⁹⁾ in 1974. Over a period of eight years, Kramer⁽¹⁹⁾ investigated the experiences of young graduate nurses during their early nursing practice. The term

'reality shock' was developed to describe the confronting and often negative experience of transition to nursing practice, where new graduates commence work believing that they have been well-prepared for the realities of practice, only to discover that things are shockingly different. This shock results in a range of emotions and behaviours, such as distress, disengagement, aggression, anxiety, fatigue, cynicism or pain.⁽¹⁹⁾ Other researchers have extended and further developed Kramer's work, suggesting that there is some validity to the notion that new practitioners experience significant challenges upon their entry to professional practice.^(14, 44, 90, 110, 116-121) These experiences can be so negative that new graduates leave the workplace or their profession, resulting in material losses to employers and emotional and financial losses for the graduate.^(4, 48, 52, 110, 122) Effective support during transition to professional practice has been found to increase employee satisfaction and to decrease new graduate attrition.^(9, 12, 95, 123-127)

In response to this workforce attrition, some nursing employers implemented programs intended to support graduates through the transition period, arguably positioning transition to professional practice as a problem to be managed rather than as a normal element of one's professional career.⁽¹²⁸⁾ There are few examples in the literature of programs that have been robustly and methodically evaluated for their effectiveness in improving the transition experiences of graduates and minimising attrition. Some were evaluated for program satisfaction or opinion,^(13, 46, 52, 57, 88, 98, 99, 105, 109, 111, 120, 129) for self-reported perceptions about various attributes of the job or self,^(13, 20, 51, 52, 88, 99, 100, 102, 103, 107, 109, 130, 131) or against specific competency or critical thinking measures,^(20, 57, 99, 100, 104, 106, 108, 112, 132) but I could identify none that compellingly demonstrated that the program improved graduates experience of transition compared with what might have occurred as the natural result of time and experience, controlling for individual variations in proficiency. Similarly, some programs have been determined as successful by comparing attrition rates or intention to leave before the implementation of the program and after.^(7, 9, 13, 52, 55, 57, 88, 98, 99, 107, 113, 133-135) None of the studies using such a measure appears to have actively considered the role of broader organisational,

economic or social factors in influencing these measures – in a period of high demand and low unemployment, for example, professionals may feel more confident to change jobs to something they perceive as better or more appealing, and such attrition may have nothing to do with the culture or their experiences in their former workplace.

Because so much of the available literature examines nursing transition to professional practice within the context of a formal or informal program of some type, it is difficult to determine the nature of graduate experiences of their transition to professional practice as opposed to graduate experiences of the program. Terms such as ‘intern program’, ‘preceptorship’, ‘orientation program’, ‘mentorships’ and ‘induction programs’ are used inconsistently, further complicating appreciation of the nature of graduate transition experiences. In essence, it is difficult to know if one is comparing apples with apples. My study does not aim to examine the merits of particular program types or their variants. Nevertheless, as the majority of literature about transition to professional practice refers to graduates who have undertaken one or more of these transition strategies, it is important to appreciate that transition programs vary considerably.

In some cases, graduates may be directly supervised or precepted in their practice by a more experienced colleague.^(13, 20, 44, 52, 53, 57, 99, 103, 104, 106, 112, 113, 136) In other situations, or as time progresses, or for certain activities, experienced others may monitor, mentor or guide new graduates more indirectly.^(18, 20, 53, 54, 101, 111, 113, 133, 136, 137) The aim of transition programs may be to develop or confirm the graduate’s capability or competence,^(14, 51, 100, 106, 112, 136, 138) to provide more general support and socialisation,^(101, 107, 136, 137, 139, 140) or to maximise satisfaction and retention,^(13, 14, 51, 57, 98, 107, 109, 133, 137). Orientation or induction programs may occur prior to, or in conjunction with, other transition strategies and generally constitute a period of days or weeks when the newly employed graduate engages in activities or tasks that orient them to their new organisation, workplace or role.^(55, 89, 138, 141)

In addition to differences in the nature of these transition strategies, within each strategy type there is considerable variation between and within particular organisations, complicating efforts at evaluation and comparison. Some programs

include elements of didactic content, commonly delivered in the format of lectures and classes.^(9, 11, 13, 17, 18, 44, 52, 93, 98-100, 103, 109, 113, 136, 138, 142) Others incorporate no formal content delivery. Some programs appear to focus on developing the more technical elements of the graduates' knowledge and skills,^(14, 100, 136, 138) others on broader attributes such as decision-making, leadership and critical thinking,^(137, 143) and still others focus on both.^(57, 98, 104, 112, 113)

In some situations, graduates are partnered with a designated more experienced colleague for a period of days, weeks or months. Depending on the program, the intent of this partnership may be for supervision, monitoring and evaluation of practice, or it may be for more general guidance and support, or for some combination of these functions. The designated colleague is variously termed the 'coach',⁽¹⁴⁴⁾ 'mentor',^(21, 22, 26, 43, 51, 52, 88, 90, 95, 106, 111, 115, 117, 121, 144-154) 'preceptor',^(10, 12-14, 21, 22, 26, 44-46, 52, 57, 88, 94, 95, 99, 102-104, 107, 108, 112, 114, 115, 120, 121, 145, 146, 148, 150, 152, 153, 155-157) 'educator',^(10, 26, 46, 52, 88, 112, 145, 146) 'supervisor',^(22, 26, 27, 46, 97, 114, 144, 152, 158, 159) or 'buddy'.^(117, 151) There is little consistency in the literature as to how these terms are used or how the roles are defined. In some programs, the colleague/graduate pairs are determined by the organisation, in others the graduate may choose any colleague or from a pre-determined pool of colleagues. Some programs involve formal evaluation of performance across various dimensions of practice, others involve no formal performance assessment.

In Australia, new medical radiation science graduates experience a range of interventions to support their transition to professional practice. I could identify no literature that examines or compares these interventions, and work ready medical radiation science graduates are not required by either the AIR or the MRPBA to complete a formal period of supervised practice.^(66, 69) Based upon my own observations, some medical radiation science graduates may complete a specialised transition or generic orientation program developed by their employing organisation, some may be provided with a mentor, and others may receive no formal or direct transition support.

2.4.4 Challenges during transition to professional practice

By virtue of their role in health care, health professionals encounter situations that are sometimes confronting, upsetting or emotionally provocative. Such situations may be obviously challenging, such as the care of accident victims presenting for resuscitation, the care of aggressive people affected by drugs or alcohol, the care of people in the end stages of life, or the care of people suffering severe burns. Other situations may be less obviously challenging but nevertheless present potential for distress to the health professional: providing care to a non-compliant person, performing a treatment procedure on an anaesthetised child, or dealing with the overwrought or aggressive families of patients. The effects of the emotional workload of caring have been well documented, and include cynicism,⁽³¹⁻³³⁾ burnout,⁽³²⁻³⁹⁾ compassion fatigue,^(38, 40, 160, 161) job dissatisfaction,^(31, 37, 41) and workplace and workforce attrition.^(31, 37, 41) It could be hypothesised that new professionals, while competent, enter the workforce with relatively fewer resources to manage the stressors they encounter compared with their more experienced colleagues who, by virtue of their experience and familiarity with the workplace, are likely to possess a greater understanding of the resources available to support them in managing the challenging situation directly and in dealing with its after effects.

Additionally, the literature suggests that the period of transition to professional practice is inherently highly stressful and challenging for the new professional.^(14-30, 103, 162) During the initial weeks and months of practice, new professionals must negotiate a range of challenges as they establish their professional identity, come to terms with the realities of practice, and adjust to their workplace and professional culture. Coupled with the stressors that are associated with caring as a profession, new graduates may be particularly susceptible to negative aspects of practice. Several studies suggest that the poor experiences and stress that these graduates encounter upon commencing practice directly contribute to the high rates of dissatisfaction and workplace and professional attrition among new graduates in the nursing profession.^(19, 88, 98, 133)

2.5 Gaps in our understanding

Transition to practice in the health professions has been described extensively in some disciplines, such as nursing, while little, if any, published evidence exists for others. The latter is true of medical imaging and radiation therapy. Some of the insights from the literature may readily be assumed to apply in medical radiation science, particularly those that seem almost self-evident – for example, that graduates benefit from a supportive, welcoming team culture^(14, 18, 102, 136, 163, 164) – however, it is important to remember that the context, work tasks, team dynamic and other aspects of the professional role, culture and community are distinctly different in the medical radiation sciences than those of other health professions.

Little in the literature explores the broader experiences of graduates during their transition to professional practice, capturing graduate voices and their perspectives. While transition programs may address organisational needs and, perhaps, the assumed learning and support needs of the graduate, the lived experience of graduates during transition, the development and support needs they identify as important, and the means by which graduates develop the professional resilience necessary to adapt to the challenges they experience during their initial postgraduate practice are little explored in any health profession besides nursing.

Models for transition to professional practice tend to focus on diagrammatic representations of particular transition programs and the prescribed activities in which graduates engage.^(96, 110, 113, 136) While some indicate that input or feedback has been sought from graduates in developing the programs and, presumably, these models, there is overwhelmingly a sense of organisation-centredness. I have been unable to identify a graduate-centred model for understanding transition to professional practice from the perspective of those experiencing it.

The sparse healthcare literature and the lack of discipline-specific literature highlight that there is very limited understanding of the experiences of transition to professional practice from the graduates' own perspectives. There is a lack of consideration of how medical radiation science graduates manage the transition process, how they develop the professional resilience to adapt to the challenges they face during this critical period when they possess their lowest degree of

capability, and what factors assist their ability to thrive as new professionals during the transition period. It is for this reason that an exploration of the nature and characteristics of medical radiation science transition to professional practice is warranted.

[2.6 Chapter summary](#)

Health workforce retention and attrition is of increasing concern in many parts of the world as we confront the coincidence of a growing and ageing population and workforce, and demands for higher acuity, more complex care. Transition to professional practice is a challenging period for new nursing graduates, and poor transition experiences can lead to attrition from the workforce. Transition to professional practice is poorly described from the perspective of the graduates themselves, and is largely undescribed in any sense for medical radiation science professionals. New professionals experiencing their transition to professional practice are likely to possess their lowest capacity to respond to challenges in the workplace because of their relative inexperience and relative lack of awareness of support and resources, rendering them particularly vulnerable.

Chapter 3 – Background and review of the literature: Understanding resilience

[3.1 Chapter introduction](#)

In the previous chapter, I described the medical radiation science professions and considered the context and nature of their transition to professional practice. The challenges of transition to professional practice have been extensively described in the nursing literature, but with very limited consideration as to how graduates manage those challenges and, ultimately, persist through their initial practice experiences.

In this chapter, I consider how resilience has been demonstrated as a critical process by which people respond adaptively to challenges and manage workplace adversity. To illustrate how notions of resilience may inform understanding of the strategies that new medical radiation science graduates employ to manage the challenges they face during transition to professional practice, I outline the history and development of resilience research and its application in the caring professions. Finally, I summarise gaps in the existing literature that support the justification for my study.

[3.2 Resilience and adversity](#)

Considerable research has been conducted exploring how people react to challenges, how they manage them and how they deal with the effects that their reactions cause them. One of the concepts that has been explored as a moderator of environmental stressors is resilience.

In examining how people respond to challenges and adverse events, some researchers noticed that different individuals often responded very differently to the same stressor.⁽¹⁶⁵⁻¹⁶⁹⁾ Negative life events, such as experiencing trauma or abuse, can result in psychopathologies for some individuals, while others emerge apparently unscathed.⁽¹⁶⁶⁾ In some cases, individuals emerge from adversity with

new or strengthened skills, knowledge or personal characteristics.⁽¹⁷⁰⁾ People who experience stressful life transitions and who use their personal strengths to develop and function better than before are considered resilient.^(169, 171) This outcome represents the paradox of resilience – “that the worst of times can also bring out our best”.⁽¹⁶⁸⁾

The concept of resilience was proposed to explain this difference in response between different people.⁽¹⁶⁷⁾ Broadly, early theories suggested that an individual manifesting resilience may encounter some initial disruption from an adverse encounter, but that they will use strategies to adapt to the situation and gain opportunities to develop as a result.⁽¹⁷²⁾ Normal human existence involves encountering and negotiating challenges with some degree of resilience.⁽¹⁷³⁾ The capacity of individual people to employ adaptive strategies varies widely, and a person’s capacity for resilience varies throughout his or her life and with the specific context.^(169, 171, 174-176)

While much of the research in resilience has been associated with psychology and psychopathology in child development and trauma, it is perhaps unsurprising that more recent explorations have considered resilience as an explanation or factor in understanding the workplace, and how employees experience and manage adversity within it. Workplace adversity may be considered as any “negative, stressful, traumatic, or difficult situation or episode of hardship that is encountered in the occupational setting”.⁽¹⁷⁷⁾ This perspective of adversity readily encapsulates the everyday challenges and problems that a person might encounter at work, not just disasters and emergencies.^(167, 178) It is difficult to imagine a workplace where no such adversity exists. While strategies to minimise the likelihood of adverse situations are important, it has been suggested that fostering people’s resilience may moderate the effect of workplace stressors and improve, among other things, workforce retention⁽¹⁷⁹⁻¹⁸¹⁾ and recruitment.⁽¹⁷⁹⁾ It is this relationship that justifies the consideration of resilience in the context of medical radiation science transition to professional practice.

3.2.1 History and development of resilience research

Resilience research focuses on the positive adaptive processes that people employ in the face of adversity.^(182, 183) This area of research emerged from the fields of psychopathology and child development during the 1950s.^(172, 184) Broadly, resilience research aims to answer the question of why different people demonstrate different responses to the same adversity.⁽¹⁶⁸⁾ The initial focus of resilience research was predominantly on managing risk and risk factors for maladaptation or illness, and it has only been since the mid-1980s that the focus has moved to considering positive health rather than problems.^(172, 185)

Resilience inquiry has developed and progressed in a range of disciplinary contexts including psychology and psychopathology,^(166, 167, 169, 172, 186-194) physics,⁽¹⁸⁶⁾ philosophy,⁽¹⁸⁶⁾ psychoneuroimmunology,⁽¹⁸⁶⁾ Eastern medicine,⁽¹⁸⁶⁾ neuroscience,⁽¹⁸⁶⁾ social work,^(188, 193) education,^(175, 181, 182, 195) and nursing.^(32, 170, 178, 180, 196-201) Resilience was first very extensively studied in children^(166, 167, 184, 187, 189, 190, 194) and, later, in adults - particularly adult survivors of trauma, disasters and illness - and communities.^(167, 184) More recently, research contexts have extended to include the workplace.^(32, 170, 175, 178, 180-182, 184, 195-201)

3.2.2 Phases of resilience research

Resilience research appears to have occurred in three key phases. Firstly, resilience was conceptualised as some combination of individual traits or characteristics that protect a person from harm. Later, research focused on resilience as a process or combination of processes through which individuals respond adaptively to adversity. More recently, some studies have explored resilience as the energy that motivates an individual to grow through adversity.

3.2.2.1 First phase of resilience research

The first phase of resilience research focused on identifying and exploring the qualities possessed by people who displayed resilience and that were absent or diminished in others.^(169, 186) The qualities identified included developmental assets and factors that protected resilient people from the adverse effects of stressors. Such qualities can be likened to a set of internal and external attributes or traits that help people to adapt to adversity.^(186, 197) These qualities are sometimes

perceived as protective factors that modify or ameliorate a person's response to a risk that is likely to lead to a negative outcome.⁽¹⁶⁵⁾

Very large numbers of traits and attributes have been suggested as being associated with resilience.⁽¹⁸⁶⁾ It is difficult to assume a critical perspective in considering any or all of the characteristics associated with resilience in the literature expressly because of its contextual nature: what may be identified as a vital attribute in one context may be unreported or insignificant in another. Nevertheless, it is useful to appreciate the range and diversity of characteristics that have been identified as associated with resilience.

Personal characteristics that, depending on context, may support resilience include factors that have been categorised by Polk⁽¹⁹⁸⁾ as dispositional, relational, situational and philosophical. There is considerable overlap between and within these categories and Polk's⁽¹⁹⁸⁾ lists are far from exhaustive. It should be acknowledged that they depend primarily on studies involving children and adolescents. The categorisations are, however, useful for appreciating that there is a wide range of factors that may support a person's resilience. Resilience research has identified dozens of individual characteristics, so the examples that I provide here are simply indicative. Dispositional characteristics include physical and psychosocial attributes such as personal competence,⁽¹⁹⁸⁾ sense of self,^(190, 202) physical health or constitution,⁽¹⁸⁵⁾ intelligence,^(165, 166) self-esteem,^(165, 166, 202, 203) self-efficacy,^(165, 166, 175, 182, 204) autonomy,⁽¹⁹⁰⁾ and temperament.^(165, 166) Relational attributes represent the characteristics of roles and relationships that influence resilience⁽¹⁹⁸⁾ including positive relationships with other emotionally accessible people,^(182, 188, 202, 205) effective communication skills,⁽²⁰⁵⁾ presence of role models,⁽²⁰⁶⁾ job competence or expertise,^(182, 190, 204) interests and hobbies,⁽¹⁹⁰⁾ social competence,^(39, 182, 202) peer relationships,⁽²⁰⁵⁾ and social ease.⁽¹⁸⁵⁾ Situational factors characterise the person's approach to situations⁽¹⁹⁸⁾ and include attributes such as problem-solving skills,^(165, 166, 168, 182) realism,⁽¹⁷⁸⁾ action-orientation,^(165, 166, 175) responsibility,⁽¹⁹⁰⁾ determination or perseverance,⁽²⁰²⁾ sense of control,⁽²⁰⁴⁾ and flexibility or adaptability.^(165, 166, 168, 178, 190, 202) Philosophical characteristics are those that flow from one's personal beliefs⁽¹⁹⁸⁾ and include assets such as reflectivity,^{(178,}

¹⁹⁰) a mission or sense of purpose,^(168, 175, 188) faith or hope,^(178, 190, 204) optimism,^(39, 168, 178, 184) belief in what one is doing, and a balanced perspective of life.^(202, 205)

Genetic differences were found to influence some variation in resilience in some individuals, but were unlikely to account for all the variation seen empirically.⁽¹⁶⁵⁾

A key criticism of conceptualising resilience as a quality or trait, however, is that despite decades of investigation, no universal quality, process or outcome has been identified that could be consistently considered as resilience.⁽²⁰⁷⁾ Further, even though a person may possess a particular quality associated with resilience, that person may not demonstrate resilience in all situations.⁽²⁰⁸⁾ Nevertheless, the identification of resilient traits prompts consideration of how such characteristics could be nurtured to promote resilient behaviour.⁽¹⁸⁶⁾

3.2.2.2 Second phase of resilience research

The second phase of resilience research moved away from conceptualising resilience as embodied in a set of qualities or characteristics to viewing resilience as the process (or processes) through which a person is able to access these internal and external attributes.^(175, 186, 197) Resilience varies with time and context, therefore it may be illogical to consider it as a fixed trait or characteristic of a person.^(166, 176, 185) Further, individual traits and environmental factors can be assets or liabilities depending on the situation, so it is more helpful to consider resilience processes rather than specific attributes or characteristics.^(166, 169, 176)

The notion of resilience as a process is not necessarily dismissing the role of traits or attributes, rather it implies that these characteristics promote and support adaptive response processes.⁽¹⁸⁹⁾ Protective factors – the specific healthy skills and abilities that a person possesses or can access⁽²⁰²⁾ - can underpin, facilitate or be enacted or accessed in the strategies⁽¹⁸⁹⁾ employed by people in response to challenging situations. The process of resilience has been described as dynamic^(169, 175, 197) because the presence of risk does not necessarily mean that a person will succumb, and protective factors may vary with context and other factors, so the balance between the two may readily change.⁽¹⁶⁹⁾

The strategies that embody resilience processes are wide-ranging and depend upon the context. Help-seeking, problem-solving, caring for oneself, normalising, distancing and avoidance are examples of strategies whereby individuals respond to, manage and recover from the adversity that they encounter. It is important to avoid normative judgements of whether the processes employed are 'positive' or 'negative', and to simply recognise that the processes employed by particular individuals assist their adaptation to adversity in some way that is relevant for them.

3.2.2.3 Third phase of resilience research

The third wave of resilience research is relatively recent – or, arguably, quite ancient. The focus of enquiry is on seeking to understand resilience as the innate force, spirit or energy that drives a person to develop and grow through adversity, rather than succumbing.^(186, 197, 209) There seems to be some resonance between this conception of resilience and the philosophy of some religious, spiritual or life-enrichment movements, and the philosophical positions of a range of disciplines.⁽¹⁸⁶⁾ This third wave of resilience research is very much an emergent field, however Richardson⁽¹⁸⁶⁾ summarised the associated conceptualisation of resilience as the “force within everyone that drives them to seek self-actualization, altruism, wisdom, and harmony with a spiritual source of strength. This force is resilience, and it has a variety of names depending upon the discipline”⁽¹⁸⁶⁾, such as energy, chi or spirit.

Another more recently emerging aspect of resilience research is the exploration of resilience as a characteristic of the individual's broader social group, whether that is their community, their culture or their environment.^(181, 184, 191, 192, 203) This conceptualisation suggests that individual resilience may be enhanced within an appropriately supportive social context and, perhaps, that the group's collective adaptability in the face of adversity may be fostered when individual group members have capacity for resilience. Jordan⁽¹⁹²⁾ uses a relational-cultural view that all psychological growth occurs within relationships, suggesting that resilience is not resident in the individual but in the capacity for connection.

3.2.3 Theoretical conceptualisations of resilience

Numerous models and depictions of resilience exist, commonly developed for use in, or to explain some aspect of, psychological or behavioural therapy. Their applicability to workplaces and workplace adversity is unclear, and I have been unable to identify compelling evidence confirming their generalisability to a context such as medical radiation science practice. I have, therefore, limited consideration of theoretical conceptualisations to three that are cited in the small body of literature related to resilience among caring professionals – Richardson et al.'s⁽¹⁷²⁾ resiliency model, Jordan's⁽²¹⁰⁾ relational-cultural theory, and Grotberg's⁽¹⁹⁴⁾ resilience framework.

3.2.3.1 Richardson et al.'s resiliency model

One of the most commonly cited models of resilience is that of Richardson et al.,⁽¹⁷²⁾ who conceptualised resilience as a process of disruption and reintegration as depicted in Figure 3.1

When a person encounters some life event, challenge or situation, the interaction between that event and the factors that protect the person from risk will determine whether disruption occurs. Protective factors vary enormously and depend upon the context but might include, for example, a sense of self-confidence, physical fitness, or strong self-esteem. Disruptions may be perceived as disorganisation, where the 'pieces' of a person's life become fragmented: in extreme cases, the organisation of a person's life might seem to completely fracture. Disruption can lead to positive or negative outcomes, and even positively anticipated events can lead to disruption. For example, the birth of a child or commencing a new job may be expected and anticipated with excitement and pleasure, yet either is likely to be disruptive. Disruption results in primary emotions, and common emotions in the face of negatively perceived disruptions include hurt, loss, fear, perplexity, confusion, bewilderment and doubt.⁽¹⁷²⁾ This presents an opportunity for other people to listen, sympathise and offer support.

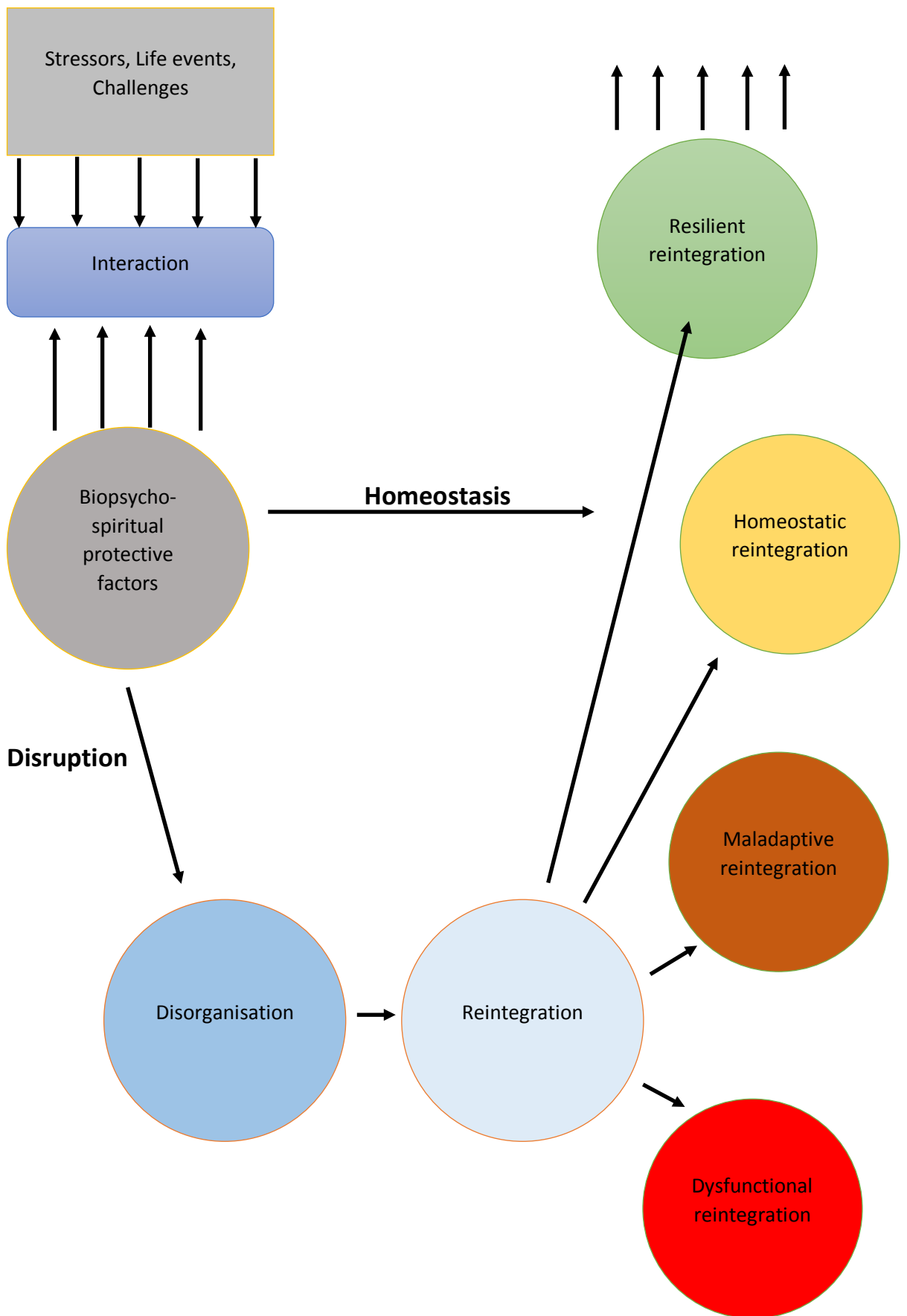


Figure 3.1: Richardson et al.'s⁽¹⁷²⁾ resiliency model - Adapted from 'The Resiliency Model without Facilitating'

As time passes, the individual starts to consider what they will do to adapt or move on from the disruption. They employ coping strategies, and reintegration from the disorganised state commences. Generally, people desire homeostasis – equilibrium - where the pieces of their lives fit together and their worldview remains intact. Richardson et al. ⁽¹⁷²⁾ identified four reintegrative outcomes. Dysfunctional reintegration requires professional psychological intervention, and is represented by outcomes such as withdrawal into psychopathic syndromes. Maladaptive reintegration, or reintegration with loss, occurs when a person's life is sufficiently disrupted that they reintegrate their worldview at a level of function lower than homeostasis – for example, they may have a reduced self-esteem or lower expectations. Homeostatic reintegration occurs when the individual returns to the same level of functioning as before their interaction with the event, without experiencing growth: in effect, the individual 'bounces back' from adversity. Resilient reintegration occurs where the individual emerges from adversity with a higher level of functioning than before and equipped with new skills or a better self-understanding. Upon subsequent encounters with adversity, the resilient individual is better equipped to negotiate the new challenge.

While there have been some criticisms that this model is inappropriately linear and overly simplistic in that it considers particular adverse events in isolation,⁽¹⁸⁶⁾ the structure of the model depicted in Figure 3.1 provides a useful starting conceptualisation of how a person might resiliently engage with adversity.

3.2.3.2 Jordan's relational theory

A relational conceptualisation of resilience strongly reflects the one common finding in much of the research relating to resilience – that resilience is characterised by strong supportive relationships.^(203, 206) Jordan ^(210, 211) applied relational-cultural theory to conceptualise resilience as the capacity for connection rather than as something that resides within the individual.

In this relational theory of resilience, isolation is considered the primary cause of human psychological pain and suffering, and connections with others that foster personal growth are the source of resilience.^(192, 210, 211) Resilience resides in our capacity to move in times of adversity towards connections characterised by mutual

empathy and mutual empowerment, which encourage and motivate us to act. In this conceptualisation of resilience, capacity to adapt is less an individual characteristic possessed by only some people, to a something that everyone can access through supportive connections with others.^(203, 210, 211) When confronted with adversity, people may move towards isolation and dysfunctional patterns of behaviour, or towards relationships that provide support and encouragement. Importantly, Jordan⁽²¹⁰⁾ emphasises mutuality in these connections, suggesting that receiving the benefits of supportive relationships is just as important as giving and contributing to others. Further, these connections may not always be actual relationships, but rather a personal sense of relatedness and mutuality with others. To clarify this somewhat perplexing notion, Jordan⁽²¹⁰⁾ cites the example of an individual – say, a hiker - feeling a sense of connection and relationship with nature even though the experience occurs in solitude. It is important to note that primary application of Jordan's⁽²¹⁰⁾ theory of relational resilience has been in psychotherapy, as the underpinning framework for therapeutic interventions, rather than as an explanatory model for researched phenomena.

Further developing Jordan's⁽²¹⁰⁾ theory, Walsh^(168, 206) elaborated the key processes that underpin relational resilience, grouping them as those that relate to belief systems, organisational patterns, and communication and problem-solving. I have summarised these processes in Figure 3.2. While such categorisations are subjective, the identification of relational resilience processes provides a useful point of comparison for the current study. In a relational conceptualisation, resilience is fostered when a life event is perceived as a shared challenge that is reframed as manageable by the collective of the individual and their supportive others. These key relationships promote confidence and encourage determination and perseverance. Processes such as flexibility, openness, respect and resource-seeking support these connections and relationships. Relational resilience is fostered in these key connections through open, clear communication processes, emotional expression and collaborative problem-solving.



Figure 3.2: Relational resilience - Adapted from 'Key Processes in Family Resilience'⁽¹⁶⁸⁾

3.2.3.3 Grotberg's resilience framework

The International Resilience Project aimed to identify and promote strategies that foster resilience among children living within individual communities.⁽¹⁹⁴⁾ Data were gathered from almost 600 children in 30 countries and Grotberg⁽¹⁹⁴⁾ articulated a resultant theory of the sources of resilience for children, which I have adapted in Figure 3.3.



Figure 3.3: Grotberg's resilience framework⁽¹⁹⁴⁾ (adapted)

Rather than focusing on individual factors or processes, Grotberg's⁽¹⁹⁴⁾ framework considers the dynamic ways in which these factors or processes interact to foster resilient adaptation to adversity. The framework considers the three main sources of resilience as I-have, I-am, and I-can. The I-have dimension relates to the external support and resources that promote resilience. The sources of resilience that I-am relate to individual internal strengths and assets, such as feelings, attitudes and beliefs. I-can sources are social, interpersonal and inter-relating skills.

By exploring what people actually do to promote resilience, teaching strategies were identified that aimed to promote the development of resilience capacity in children. There is little evidence of empirical testing of these strategies.

Nevertheless, Grotberg's⁽¹⁹⁴⁾ framework serves to inform my study by illuminating the value of looking beyond the individual to the broader community and implications for organisations, education and policy.

3.3 Limitations of resilience research

Resilience research is not without limitations or criticisms. In exploring an individual's response to adversity and the outcomes of that response, researchers make a normative judgement about what are desirable or positive outcomes, and

what are maladaptive or negative outcomes.^(191, 202, 212) Such judgements negate the meaning and value that individuals might personally attribute to the outcomes.

The focus of resilience research has been Western, with little validation of findings cross-culturally,⁽¹⁹¹⁾ so it is unclear how relevant or reflective the findings may be for individuals from more diverse backgrounds. This may be of particular concern for those applying resilience research findings in the therapeutic or clinical setting.

Glantz and Sloboda⁽²⁰⁷⁾ argued that the rationale for exploring resilience may be flawed. Resilient outcomes may not be particularly rare and remarkable, as most outcomes of engagement with adversity are not substantially harmful for most people, and are probably the result of the interaction of both positive and negative influences.

While resilience theories and models may assist in better understanding some of the underpinning processes that occur when a person encounters adversity, there is a tendency towards linearity and considering stressors in isolation.⁽¹⁸⁶⁾ In reality, individuals may experience a number of life challenges simultaneously^(168, 186) and their process of adapting is highly variable.⁽²¹³⁾ Similarly, people vary not just in their capacity for resilience but in other ways, including their predisposal for risk: it may be that some of those individuals who are considered resilient may, in fact, have never been vulnerable to risk in the particular situation or may possess some other characteristic or factor that protects them.⁽²¹²⁾

[3.3.1 Defining resilience](#)

At the foundation of criticisms of resilience research is that the concept itself remains unclear. Despite decades of research and the application of resilience concepts and models in practice, it is difficult to identify a denotative definition of resilience.⁽²⁰⁷⁾ Definitions of resilience have been described as unclear,⁽¹⁹⁸⁾ approached from differing perspectives,^(167, 198, 207, 214) difficult,⁽¹⁹⁴⁾ elusive,⁽¹⁷⁷⁾ multiple,^(195, 207, 215, 216) and contradictory.⁽²¹⁶⁾ In common usage, resilience is the ability of an object to return to, or spring back into shape after a disturbance^(63, 64) or the capacity to recover quickly from difficulties.⁽⁶³⁾ Such definitions imply a return to the previous state or recovery of equilibrium following some form of

disruption. Notably absent from these definitions is any sense of personal growth, improvement, strengthening or development emerging from the experience, contradicting the conceptualisation of resilience posited, for example, by Richardson et al.⁽¹⁷²⁾

Numerous authors have defined psychological resilience in terms that reflect this common usage of resilience. Commonly, resilience is defined broadly as a dynamic process where people withstand, persevere through, cope with, adapt to and/or bounce back from adversity and continue with their lives.^(8, 39, 168, 171, 175, 177, 180, 190, 191, 194, 196, 200-202, 217) Carver⁽²¹⁸⁾ employs a similar definition, specifically excluding situations where individuals adopt a higher level of functioning following adversity, and he suggests such outcomes may be better considered as thriving rather than resilience. Turner⁽¹⁸⁸⁾ echoes the notion of resilience as a process of bouncing back and adds that, in resilient outcomes, individuals experience a sense of wellbeing. Other authors have argued that resilience indicates an outcome where a person's encounter with adversity results in their functioning at a higher level than before.^(169, 170, 172, 191, 198, 219) Opinion about the nature of this higher functioning varies and includes the development of additional coping and protective skills and strengths,⁽¹⁷²⁾ or personal growth.^(169, 170, 191, 198, 219)

Further confusing conceptualisation of resilience is the interchangeability of the term 'resilience' with 'thriving'. As I have mentioned, Carver⁽²¹⁸⁾ differentiates between resilience and thriving based upon the degree of post-adversity functioning, effectively placing thriving at a higher level than resilience. This contradicts other authors who suggest that resilience involves surviving and thriving after adversity.^(219, 220) The key difference in opinion seems to be whether one views a resilient outcome as a return to equilibrium following an encounter with adversity, or whether one perceives that a resilient outcome implies personal growth or development.

The substantial inconsistency and lack of agreement as to how resilience should be defined potentially presents an issue for researchers who wish to explore resilience and seek to understand their findings in relationship to the existing literature. For the current study, I will assume a working definition of resilience that aligns with

common usage of the term – that resilience is a dynamic process whereby people cope with and recover promptly from encounters with adversity, and this process is enhanced by a number of personal and environmental characteristics and assets. Initially, this choice of definition may appear to lessen in some way the value of resilience, however I have made this choice for four key reasons. Firstly, the graduates who participated in my study had not necessarily read extensively about resilience, so in responding to my questions about their encounters with workplace adversity, they were likely to recognise resilience in a way that reflects the term’s usage in everyday language. Secondly, the perspective that a resilient outcome is where a person grows, develops or in some way functions at a level that is better than before the adverse event inherently assumes that the person has recovered – in fact, they have exceeded – their initial level of functioning. My working definition does not preclude that a person may gain considerably and develop as the result of encountering adversity,^(168, 193, 194, 218) but it does not require it. Thirdly, my working definition focuses on resilience as a process rather than as an outcome. Not only does this concur with the view of much of the contemporary literature,^(172, 175, 183, 186, 195, 197, 221) it avoids imposing normative judgements about what should or should not be considered a ‘better’ outcome or state by emphasising the process or processes by which a person recovers to their previous state of wellbeing. Finally, this definition acknowledges that the process of resilience is promoted and supported by traits and characteristics of the individual and their environment.^(175, 189, 197) Some of these traits and characteristics may be learnable, accessible or able to be provided by others in support, implying that an individual’s resilience can be developed and bolstered throughout life.^(39, 170, 197, 199, 219)

There is a lack of empirical instruments that reliably measure resilience,⁽²⁰⁷⁾ which may be due to the diversity of definitions and a reliance on predominantly qualitative research approaches.⁽¹⁶⁹⁾ While I acknowledge this concern, my study is qualitative so issues of absolute measurement lack relevance. Few studies take a longitudinal perspective to explore resilience over time, context and throughout the individual’s developmental pathway.⁽²²²⁾ The scope of my study did not accommodate full-scale longitudinal elements, however the employment of a two-

stage interview with the same participants in the data collection allowed some illumination of changes over time and with development.

3.4 Applications of resilience research in the caring professions

Having considered the history, usefulness and limitations of resilience research, I explore in this section the application of resilience research in the caring professions.

Since the late 1990s, resilience has been considered as a feature of organisations and workplaces⁽²²³⁾. Since the early 2000s, studies of resilience among members of the caring professions have occurred, most predominantly in primary and secondary education^(175, 181, 182, 195, 221, 224) and nursing.^{(39, 170, 178, 180, 196, 200, 201, 204, 219,}

²²⁵⁾ Members of the caring professions experience the challenges of working in often busy, unpredictable and under-resourced environments, the risks associated with emotionally engaging work, and the potential for traumatisation from distressing events in which they are observers or participants. Caring for others necessitates self-sacrifice and giving, and while this altruistic behaviour can be satisfying, it can also cause the caring professional to suffer.⁽¹⁸⁴⁾ Notions such as vicarious traumatisation, secondary trauma and compassion fatigue have been used to describe the effect on caring professionals of working with people who have suffered illness, accident or violence.⁽²²⁶⁾ Resilience is important for professionals to cope, survive or thrive in the face of workplace adversity.^(169, 175, 177, 184, 196, 227) Researchers have described the need for student professionals and new graduates to be supported in developing the skills and behaviours that foster resilience so that they are equipped with the assets and strengths necessary for the challenging workplace.^(181, 184)

In considering relevant literature relating to the caring professions, it is necessary to remind oneself that resilience varies with time and context.^(169, 171, 174-176) It could be argued, then, that no previous work can, or should, be applied in any other situation or with any other participant group. While such a position may be strictly true, it is not particularly helpful. In providing an overview of the outcomes of relevant studies exploring resilience in the caring professions, I aim not to

generalise their findings or imply that my study is either similar or dissimilar. Rather, this previous work (summarised in Table 3.1) collectively serves as a useful point of comparison, contrast and reflection for the current study.

While the volume of literature relating to resilience is extensive and extends across several decades, relatively little directly examines resilience and adaptive response among the caring professions. To investigate the existing literature, I conducted database searches of CINAHL, OvidSP, Proquest, Medline, Sociological Abstracts, PsychInfo and ScienceDirect using the terms 'resilience', 'resiliency' and 'graduate'. Collectively, these searches returned 123 results. I read each article completely and excluded them based upon four criteria: (1) duplicate works, (2) studies that did not relate to the caring professions, (3) review articles rather than original research, and (4) articles that did not substantially focus on resilience, adaptive response, workplace stress or coping with adversity. This exclusion process resulted in 18 articles for consideration.

As demonstrated in Table 3.1, this small volume of related literature is diverse in terms of professional group and context and little unites this literature in terms of methodological approach. Common elements associated with resilience in the caring professions include professional competence, efficacy, understanding self, active coping, emotional management, self-care, support and relationships.

Table 3.1: Summary of published resilience research in the caring professions

Author	Publication year	Professional group	Beginning professionals?	Study origin	Study approach
Howard & Johnson ⁽¹⁸²⁾	2004	Teachers	No	Adelaide, South Australia	Qualitative, analysed thematically
Patterson et al. ⁽²²⁴⁾	2004	Teachers	Unknown	United States of America	Qualitative, descriptive
Edward ⁽¹⁹⁰⁾	2005	Crisis care mental health clinicians	Unknown	Melbourne, Australia	Phenomenology
Gillespie et al. ⁽¹⁹⁶⁾	2007	Operating room nurses	Unknown	Australia	Cross-sectional survey, quantitative
Gu & Day ⁽¹⁷⁵⁾	2007	Teachers	Unknown	England, United Kingdom	Mixed methods (interviews, document analysis)
Hodges et al. ⁽²⁰⁰⁾	2008	Acute care nurses	Yes	South-eastern United States of America	Qualitative, hybrid, fieldwork observation
Jensen et al. ⁽²⁰⁵⁾	2008	Family physicians	No	Ontario, Canada	Qualitative, open inquiry
Glass ⁽¹⁷⁸⁾	2009	Nurses & midwives	Unknown	United Kingdom & New Zealand	Ethnography
Le Cornu ⁽¹⁸¹⁾	2009	Teachers	Yes	South Australia, Australia	Unclear
Cameron & Brownie ⁽³⁹⁾	2010	Aged care nurses	No	Queensland, Australia	Phenomenology
Castro et al. ⁽²²¹⁾	2010	Teachers	Yes	United States of America	Qualitative, interpretive
Hodges et al. ⁽²⁰¹⁾	2010	Acute care nurses	Yes	South-eastern United States of America	Straussian grounded theory
Beddoe et al. ⁽²¹⁵⁾	2011	Social workers	No	New Zealand	Qualitative, analysed thematically
Kearns & McArdle ⁽¹⁹³⁾	2011	Social workers	Yes	United Kingdom	Narrative enquiry
Kornhaber & Wilson ⁽¹⁸⁰⁾	2011	Burns unit nurses	No	New South Wales, Australia	Phenomenology
Mansfield et al ⁽¹⁹⁵⁾	2012	Teachers	Yes	Western Australia, Australia	Qualitative, analysed thematically
Mealer et al. ⁽²¹⁹⁾	2012	Intensive care unit nurses	No	United States of America	Quantitative, survey
Mealer et al. ⁽²²⁵⁾	2012	Intensive care unit nurses	No	United States of America	Qualitative, interpretive

3.4.1 Competence and efficacy

Resilient professionals possess a sense of self-efficacy to respond, rather than react, to the challenges they face, grounded in the belief that they are sufficiently competent to perform the actions necessary to resolve the situation. In this way, possessing a sense of competence influences resilience.^(182, 196) Knowing that their knowledge, skills and experience will allow them to manage their work and its challenges provides nurses with the confidence and certainty to act and to persevere.⁽³⁹⁾ For new nursing graduates, the first months of practice involves developing their sense of competence, which then equips them to progress through challenges and to handle the situations that they encountered.⁽²⁰⁰⁾

Empowered by their sense of efficacy to fulfil their roles effectively and to manage the challenges they encounter,^(181, 182, 221) caring professionals use their knowledge and skills to resolve the situation, further fostering their resilience.⁽²²⁴⁾ Self-efficacy has been identified as strongly influencing resilience among both experienced and novice health professionals.^(193, 196)

3.4.2 Understanding self

Possessing insight, self-awareness,^(181, 200, 201, 205, 228) introspection and reflection^(39, 178, 181, 193, 195, 199-201, 215) are related concepts that have been frequently associated with resilience. Perhaps the capacity to critically examine one's situation, to consider alternative courses of action, and to determine a plan for the future, help to support a person's sense of confidence to manage adversity.

Resilience in health professionals is underpinned by their sense of self,⁽¹⁹⁰⁾ or the knowledge and awareness one has about oneself, one's motivations and underpinning philosophies about life. Understanding one's own personal values, moral compass or set of beliefs, and relying upon them to guide decision making is characteristic of resilient caring professionals.^(200, 219, 224) By grounding their actions in personal values that reflect their professional obligations, it may be that caring professionals are more able to reconcile their feelings about the adversity they encounter, gaining confidence and peace of mind. Personal insight allows caring professionals to consider and address their own performance and to reconcile the personal and values conflicts they experience.^(190, 200) This relies upon

reflectivity,⁽²⁰⁰⁾ which has been identified as one of the main sources of resilience for new social workers.⁽¹⁹³⁾

It could be speculated that a misalignment between the personal values of a caring professional and the values of the employing organisation or the profession could, in itself, represent a source of workplace adversity. New graduates, in particular, may experience challenges when their own values and those of the organisation or their colleagues do not align,⁽²⁰⁰⁾ and this was one element of reality shock identified by Kramer.⁽¹⁹⁾ Logically, it seems that the ability to reconcile those value discrepancies might be important for resilient adaptation among new graduates.^(8, 200)

[3.4.3 Active coping](#)

Managing adverse situations requires actions that frequently rely upon accessing support or resources. Active coping strategies support caring professionals to access the resources and support necessary to manage the situations they encounter, fostering their sense of control.^(180, 196) Examples of active coping strategies include help-seeking, asking questions, and problem-solving – by definition, any strategy whereby the individual takes active steps to resolve or remove the stressor.⁽²²⁹⁾ In the early stages of employment, new caring professionals actively seek help from others⁽²²¹⁾ and ask questions⁽²⁰⁰⁾, allowing them to obtain the resources and support they need. This, in turn, contributes to their capacity to resolve the challenges they encounter – in this way, active coping through help-seeking and questioning fosters resilience. Such strategies are problem-focused and contribute to planned actions or behaviours in confronting adversity, and have been associated with resilience in nurses.^(196, 219, 225)

The capacity to act to take control and to solve problems are important resilience strategies⁽²²⁴⁾ that facilitate the resolution of adverse situations. Having a sense of control that they possess the capacity to act and to manage the situations they encounter influences resilience in nurses.⁽¹⁹⁶⁾ This may be because they feel confident that they can influence the outcome, and certainty that their actions will lead to some kind of resolution of the adverse situation. Novice teachers gain a sense of confidence to take control and act, which contributes to their resilience, by

using problem-solving to take charge and resolve the challenging situations they face.⁽²²¹⁾ Similarly, recognising areas for professional development and, importantly, enacting strategies to obtain the necessary development⁽²²⁴⁾ helps caring professionals to develop their sense of capacity to respond to adversity. In this way, commitment to professional development may support resilient response to adversity.

3.4.4 Managing emotions

Resilient caring professionals manage their emotions and view the future positively, fostering a sense of purpose. Managing emotions involves a degree of emotional strength or toughness.⁽¹⁸⁰⁾ Having courage and being adept at facing fear differentiate resilient caring professionals from others.⁽²¹⁹⁾

Faith,^(39, 171) hope^(170, 178, 196, 215, 230) and optimism^(171, 178, 184, 193, 215, 218, 225, 231) support resilience. Faith, hope and optimism all reflect a sense that the future is positive and that things will turn out to be okay. Resilient caring professionals tend to be more optimistic, hopeful, and are able to reframe their experiences positively.⁽²²⁵⁾ Possessing hope positively influences resilience in nurses⁽¹⁹⁶⁾, and optimism has been associated with lower levels of stress disorders.⁽²¹⁹⁾ While hope and optimism are considered critical to resilience, it is important to remain realistic, reflecting a notion that Kearns and McArdle⁽¹⁹³⁾ term 'managed optimism'. In essence, for positive expectations of the future to be useful in fostering effective resilience over time, those expectations need to be realistically achievable.

3.4.5 Caring for the carer

Self-care and looking after oneself are important for caring professionals to respond resiliently,⁽¹⁹⁰⁾ presumably because one must have sufficient capacity – including physical and emotional resources – to manage emerging situations. Resilience is enhanced when personal wellbeing is maintained through strategies such as rest⁽³⁹⁾ and exercise.^(39, 219) The presence of self-care behaviours distinguishes resilient nurses from those experiencing a range of stress disorders.⁽²²⁵⁾

In taking care of themselves, people enact rejuvenation strategies that allow them to refresh and re-establish their emotional and physical resources, contributing to their wellbeing. It might be speculated that the specific strategies employed will

vary between individuals, however activities such as physical exercise, yoga, listening to music or creative hobbies might all be examples of things that people do in an effort to relax. Rejuvenation supports resilience by assisting people to build the resources needed to enact their roles and by restoring their energy.⁽²²¹⁾ Having a way to remove themselves from stressful workplaces, to escape and to de-stress are important for caring professionals to restore equilibrium and to maintain their ability to persevere.⁽¹⁸⁰⁾ This may explain why a balance between work and leisure has been reported to enhance resilience^(39, 168, 175, 205, 215, 217, 221, 225)

3.4.6 Support and relationships

If we accept Jordan's⁽²¹⁰⁾ relational-cultural theory of resilience, it seems likely that support and relationships may influence caring professionals' resilience because of the social group in which they work. Support could be provided by colleagues, peers, managers or others^(39, 165, 181, 190, 202, 205, 213, 215, 218, 221, 228, 230, 232), and could include emotional sharing, caring, and opportunities for discussion, validation and debrief.⁽³⁹⁾ The workplace culture and the nature and strengths of relationships between colleagues has the potential, therefore, to influence resilience. Having a supportive network is one of the attributes that differentiates resilient nurses from those experiencing stress disorders.^(219, 225)

Support from the work team provides a level of protection from the stress of workplace adversity⁽¹⁹⁰⁾ and, in conjunction with broader social support, enhances caring professionals' capacity to be resilient.^(39, 193) Resilience is influenced by collegiality between work colleagues and the support they provide to each other.^(175, 182) As Jordan⁽²¹⁰⁾ indicated, growth-fostering connections between colleagues offer mutual support and further develop sharing relationships within the team.^(181, 203)

As workplace culture influences resilience, leaders and role models may also be important because of their influence on that culture. In shaping and setting the workplace culture, leaders have the capacity to provide (or not) a strong support group for caring professionals,⁽¹⁸²⁾ to role model resilient behaviours,⁽²³³⁾ and to create a working environment that embraces learning and safety. Having access to positive, resilient role models positively influences resilience in caring

professionals.^(193, 219, 225) While these resilient role models are work colleagues, it could be speculated (based on Grotberg's⁽¹⁹⁴⁾ work) that resilient individuals among one's broader social group might also influence one's own resilience – modelling behaviours that foster resilience, such as help-seeking, rejuvenation, problem-solving and so on, is not exclusive to the people in the workplace.

[3.5 Gaps in our understanding](#)

While concepts of resilience have been extensively explored – and debated – as key to understanding how people manage the challenges they face in life, there has been a more limited exploration of the role of resilience in managing workplace adversity. A small volume of literature considers the role of resilience in the context of caring professions. A small portion of this literature considers specifically the experiences of resilience among new graduates during their transition to professional practice. Little of this literature considers an Australian context. I could identify no published literature that examines resilience among new medical radiation science graduates. For this reason, an exploration of resilience in medical imaging and radiation therapy transition to professional practice is warranted.

[3.6 Chapter summary](#)

Resilience is an important concept to understand how people respond to the challenges they encounter in life. Adaptive responses to workplace adversity may allow people to persist and persevere, and remain – even grow - in roles where they encounter adverse challenges. The particularly challenging nature of transition to professional practice necessitates that new graduates employ resilience strategies to survive the adversity they encounter. How this occurs in the medical radiation science professions has not been previously explored.

Chapter 4 – Research methodology

[4.1 Chapter introduction](#)

In the previous chapters, I have outlined the background to, and justification for, exploring how new medical radiation science professionals adaptively manage their experiences of workplace adversity. Currently, there is a distinct lack of published work that details the experiences of medical radiation science professionals from their own perspectives.

In this chapter, I position my study within the qualitative research domain and explain my rationale for adopting a Charmazian⁽¹⁾ grounded theory approach. After exploring the general methods for data collection and analysis employed in Charmazian⁽¹⁾ grounded theory, I outline the specific data collection and analysis approach I used in my study. In doing so, I provide insights into my personal research experiences and use an exemplar from my analysis to illustrate the reflective and iterative process I employed. Finally, I examine critical research quality considerations.

[4.2 Situating the research](#)

The focus of this study was to investigate medical radiation science professionals' experiences of challenge and workplace adversity during their transition to professional practice, and to explain the process by which they employ strategies to move positively through the challenges encountered, from the perspective of the graduates' own viewpoints. Graduates experience their transition to professional practice and encounter workplace adversity within a social environment. While they may complete individual work-related tasks in isolation, the greater majority of new graduates' experiences occur within a complex environment of social interactions with their patients, their colleagues, their work teams (which may be disciplinary, multidisciplinary, interdisciplinary, transdisciplinary, or some or all of these), their disciplinary hierarchy, their organisational hierarchy and their broader professional community.

The focus of my study, therefore, reflects my ontological perspective that reality is not fixed and is constructed by individuals, and my epistemological view that individuals construct knowledge through the meanings they interpret from their own experiences within a social environment. Knowledge is, in my view, subjective. With these perspectives, it is perhaps unsurprising that the philosophy for my study is constructivism. The main tenet of constructivism is that each person constructs his or her own reality through his or her own experiences and interactions, meaning that many realities exist. People create, recreate and continually change their world through their continual experiences, and their interpretation and reinterpretation of those experiences.^(234, 235)

4.3 Methodological selection

One of the main areas I perceive as lacking in the existing research related to transition to professional practice and experiences of workplace adversity is the virtual absence of the graduates' voices. As I have described previously, much of the existing literature takes an organisational perspective. In undertaking this study, I was eager to capture the graduates' own perspectives of their experiences. Qualitative methodologies emphasise, among other elements, a commitment to the truth or reality of the participant's viewpoint^(236, 237) rather than pursuing an absolute, universal truth. A qualitative methodology was, therefore, appropriate for this study.

In determining a methodology that would most effectively reflect both my research perspectives and my desire to consider my participants' realities, I considered those methodologies commonly cited in the existing literature related to transition to professional practice or new graduate resilience. However, few authors in the existing literature had been clear about their research methodology – nevertheless, it appeared that phenomenology^(22, 24, 28, 29, 39, 141, 144, 163, 164, 180, 238-241) and grounded theory^(16, 21, 85, 242) methodologies were among those more commonly employed. Both methodologies were appealing to me because they incorporate in-depth interviews as the core data collection method, and I felt that interacting directly with my research participants and demonstrating my respect for them through my

physical presence and engagement with their perspectives was important to me as the researcher.

Phenomenology and grounded theory differ in the way that they treat the researcher's perspective and in the ultimate purpose of the research. In phenomenology, researchers use techniques such as bracketing to acknowledge their own assumptions and opinions, and use participant confirmation of the researcher's analyses as mechanisms to ensure that the interpretations reflect the participants' original meanings.^(243, 244) Grounded theory acknowledges that the researcher is an integral part of the research and is an active participant in the construction of meaning.^(1, 245) Researchers using grounded theory methods use memo writing to reflect upon their own assumptions and opinions, and use constant comparisons between existing and new data to deliberately test their emerging analyses with previous and subsequent participants.^(1, 234, 236, 245-247)

Phenomenology is purely descriptive and does not seek commonalities, and the researcher takes pains not to generalise.^(235, 237, 244) Grounded theory is richly descriptive and aims to use the gathered data to derive a theory to explain a particular social phenomenon.^(234-237, 246, 247)

As either a phenomenological or a grounded theory approach appeared to be suitable to support my research focus, my rationale for choosing between the two ultimately reflected my own preference and what I perceived as my own limitations as a novice researcher. Firstly, I struggled with the notion of bracketing as an approach to ensure objectivity when social research, by its very nature, is exploring subjectivity. I was also concerned about attesting that I was truly reflecting my participants' interpretations based purely on their confirmation of my written analyses. How could I be sure that their agreement was genuine, and not the result of some perceived power differential, or simply the desire to move my request for confirmation from their list of tasks for that day? I was unable to find any resources outlining solutions that effectively quelled my anxiety. Secondly, I was concerned that my inexperience with the nuances of the phenomenological approach might lead me to make generalisations from my data inappropriately: I had been confounded and frustrated by the number of phenomenological studies that I had

read that declared it inappropriate to make generalisations and then, apparently, proceeded to do so.^(22, 24, 39, 163, 164, 239-241) This seemed, to me, unsuitable application of the phenomenological approach. I found that others had raised similar or other questions about phenomenological methodology.⁽²⁴⁸⁻²⁵¹⁾ Additionally, I had a strong desire to produce something specific from my research, such as a theoretical model or framework, that could readily be applied and explored further to advance the evidence base in my profession. For those reasons, I opted to pursue grounded theory as the methodology for my study.

4.3.1 Overview of grounded theory

Grounded theory, based predominantly upon the discipline of sociology, was developed in the early and mid-1960s and was first described in 1967 by Glaser and Strauss.^(1, 234-237, 245-247) Grounded theory is a type of qualitative research that aims to generate or discover a theory, directly from the gathered data, that underpins a social process or interaction, to derive an explanation for a phenomenon.^(234-237, 246, 247) It is acknowledged as useful when little is known about the topic and where a process is embedded within the phenomenon of interest,⁽²⁴⁵⁾ rendering grounded theory appropriate in the current study. Researchers using a grounded theory approach explore the psychosocial processes that occur within their area of interest, ultimately developing a theory that is firmly grounded in the participants' data to explain these processes.^(1, 235-237, 247) Importantly, grounded theory study explicitly does not begin with a theory to be tested or any preconceived idea about the theory that will be discovered,^(237, 247) as it is the participants' revelations that ultimately lead to generation of the theory underpinning the process.^(236, 237, 246) Grounded theory has been used in health-related research, particularly in nursing research, since the late 1960s.⁽²³⁷⁾

4.3.1.1 Characteristics of grounded theory

It is difficult to identify a definitive explanation of grounded theory. Following the initial development of grounded theory, Glaser and Strauss adopted different positions regarding methodological approach, leading to some controversy as to precisely what grounded theory is.^(234, 252) Despite the differences between Glaserian and Straussian approaches to grounded theory, there are important

common features and terms, which I have summarised in the remainder of this section.

Theoretical sampling

Grounded theory researchers simultaneously collect and analyse data,^(1, 245-247) promoting reflection on the ideas emerging directly from the data and allowing for theoretical sampling. Theoretical sampling as the process of data collection is an important tool of grounded theory,^(234, 236, 245) and is defined as “the process of identifying and pursuing clues that arise during analysis in a grounded theory study”.⁽²⁴⁵⁾ The researcher collects data and immediately commences analysis, searching for ideas to decide what data to collect next, in order to further explore and develop the theory that is emerging.^(1, 234, 236, 245-247) In this way, grounded theory is iterative, as there is a constant relationship and interplay between data collection and data analysis. Theoretical sampling enables the researcher to collect data that will maximise the opportunity to fully develop the concepts identified and their interrelationships.⁽²³⁶⁾

Theoretical saturation

Theoretical saturation is an important notion in grounded theory and applies in two different stages of grounded theory research.⁽²³⁴⁾ Firstly, theoretical saturation occurs during data collection when the researcher reaches a point where new data no longer emerges that might illuminate the particular concept being considered.^(234, 236, 237) During data analysis, theoretical saturation occurs when the researcher identifies that there is no further gain in reviewing the data to see how well they fit with the concepts or categories that have emerged^(234, 245) as the categories are fully developed in terms of their properties and dimensions.⁽²³⁶⁾

Codes, categories and concepts

Grounded theory researchers construct analytic codes and categories directly from the data and not based on a preconceived hypothesis.^(1, 245-247) Coding is an active strategy that enables researchers to identify key themes, patterns, ideas, actions, characteristics, experiences and concepts in the data, providing a basis to extract meaning.^(245, 252) It involves breaking up the data into segments, attaching labels

called 'codes' to them, and grouping the codes according to the concepts represented.^(1, 237, 253)

The specific approach to coding differs with the approach to grounded theory, but all grounded theory approaches involve multiple phases of coding – an initial, intermediate and final stage - that progressively become more abstract, thereby advancing theory development.^(1, 245-247) The fragmentation inherent in coding has been criticised as potentially resulting in the loss of context and narrative flow of the data,⁽²⁵⁴⁾ however it should be recognised that grounded theory coding involves more than simply attaching a label to a fragment of data.⁽²³⁶⁾ Researchers reflect upon each code, its meaning and its interrelationship with other codes, and this frequently occurs through, and in, written records called memos.

Concepts, produced through open coding, are the labels given to discrete phenomena,⁽²³⁴⁾ and they integrate groups of codes.⁽²⁴⁵⁾ A category is a concept that has been developed and elaborated so it is considered as representing a real-world phenomenon.⁽²³⁴⁾ In this way, categories represent a higher level of abstraction than concepts⁽²³⁴⁾ or codes. A category may become a core category around which other categories are organised or arranged.⁽²³⁴⁾

Properties are the attributes, characteristics or aspects of a category.^(234, 245)

Dimensions are the range of variance demonstrated by the property.⁽²⁴⁵⁾ As a very simplistic example, a category of 'cooking the dinner' may have properties of 'time', 'energy' and 'diners'. In dimensionalising 'diners', it may emerge that participants sometimes cook for themselves and sometimes for many guests, that they are influenced in making this decision by their financial resources, and that their perceptions about their guests influences elements such as menu selection.

Constant comparison and memos

Constant comparison is the process in grounded theory of maintaining a close connection between the data and the conceptualisation.^(234, 236) This involves close and repetitive review of the data and codes, writing memos about the categories, and continuously seeking the similarities and differences between emerging codes and categories.^(234, 236, 245) Memos are the records and notes that grounded theory

researchers write themselves or, where collaborative research occurs, to others in the research group. They can take any form that is preferable or useful to the researcher,^(1, 245) and are often informal.⁽²³⁷⁾ Memos might incorporate reminders or emerging explanations about the meanings of codes, concepts or categories⁽²³⁴⁾ and their properties and dimensions,^(1, 246, 247) or they may record the advancement of codes to categories, or categories to theory.⁽¹⁾ They serve as a basis for reflection^(234, 236, 245) about the research process, the data, emerging concepts and categories, the literature or other elements of the research. Memos help the researcher to keep track of their research,⁽²³⁴⁾ to think about and question the data,^(236, 253) to make comparisons and establish relationships,^(1, 236, 237, 246, 247, 253) and to crystallise their ideas.^(234, 237, 253)

Theory development

A grounded theory approach should, ultimately, end in a theory, an abstract theoretical explanation of the process or phenomenon being studied.⁽¹⁾ A theory relates a set of concepts to each other through logical connections.⁽²⁴⁵⁾ A substantive theory is a theory for a certain empirical instance or substantive area.⁽²³⁴⁾ Most grounded theories are substantive theories.⁽²⁴⁵⁾ A formal theory is developed to a higher conceptual level, encompassing a number of substantive areas.⁽²⁴⁵⁾

4.3.2 Divergence of grounded theory

Following the initial development and publication of grounded theory, Glaser and Strauss adopted methodologically distinct perspectives.^(234, 252, 255-257) Glaserian grounded theory is sometimes referred to as orthodox or classic grounded theory, as Glaser remained true to the tenets of the methodology he described with Strauss in 1967, notwithstanding that he continued to develop and advance his approach. Glaserian grounded theory insists researchers approach their data collection and analysis with naiveté, specifying no research questions,⁽²³⁷⁾ relying on researcher's notes rather than audio recordings of the interviews,⁽²⁴⁵⁾ and emphasising that the literature review is conducted after the data collection and analysis. Straussian grounded theory, by contrast, requires that researchers gain insight into their data through review of existing literature in the area⁽²³⁷⁾ and leans toward technical

procedures for, particularly, data analysis rather than emphasising constant comparison.⁽¹⁾

The merits of the Glaserian and Straussian positions have been extensively debated in the literature and each approach has been further developed and amended by subsequent researchers.^(1, 234-237) This has led to criticism of method-slurring,⁽²⁵²⁾ particularly of Glaserian grounded theory, which tends to be less structured. Moreover, grounded theory has been used inconsistently in the literature,^(234, 245) making it sometimes challenging to appreciate the true extent to which the cited approach has, indeed, been implemented within the particular investigation, and leading to hybridised and adapted versions of grounded theory that may be confusing for less experienced researchers.

At the broadest level, Glaserian grounded theory has been criticised as too unstructured and unrealistic, as it is founded upon the idea that the researcher engages in data collection without prior deliberate review of the literature.⁽²³⁴⁾ Institutional or academic researchers generally must justify the resourcing or ethical basis of their intended study through an evidence-based proposal of some sort, a position that does not align with the Glaserian grounded theory approach. It is rarely accepted that neutral observation can realistically occur and, in fact, it may be considered desirable for a researcher to be aware of the existing theories and work in their field to enable them to focus their own research and to build upon the work of others.⁽²³⁴⁾ As a further criticism, the reliance in the Glaserian approach on researcher's notes rather than recordings of the participants' own words risks a one-sided, incomplete view that reflects the researcher's perspective rather than that of the participant.⁽²⁴⁵⁾

The Straussian approach, on the other hand, has been criticised as overly structured and too prescriptive in its coding processes.^(235, 254) Straussian grounded theory has changed over the years and there has been constant addition of analytic devices,⁽²³⁴⁾ so appreciating 'the' Straussian approach is difficult. While it has been argued by Glaser that Straussian devices and procedures force the data into a predetermined framework, thereby contradicting the philosophy of grounded

theory,^(1, 254) it should be acknowledged that the procedures outlined by Strauss and his colleague, Corbin, provide useful scaffolding for less experienced researchers and students.^(1, 236)

4.3.3 Limitations of grounded theory

The arguments for and against any particular perspective notwithstanding, grounded theory approaches present practical difficulties. Transcribing interviews is a time-consuming process⁽²⁵³⁾ and this may limit the researcher's ability to genuinely employ a constant interplay of data collection, coding, analysis and conceptualisation.^(234, 245) The researcher may have other unavoidable commitments that preclude their ability to focus solely on their research, limiting their capacity to immediately commence transcription and data analysis, or to focus solely on these activities without interruption. Where a researcher must enter the field for data collection, practical realities – not least of all limited research funding – may mean the researcher must conduct a series of interviews with participants without the capacity to transcribe, code, and fully reflect on each before embarking on the next.

It is doubtful whether researchers always use a grounded theory approach to actually develop a theory.⁽²³⁴⁾ While grounded theory provides a rigorous approach to data collection and analysis, when reviewing some research publications it can be difficult to identify the theory that is being proposed by the researcher.⁽²³⁴⁾ Additionally, grounded theory is criticised because most of the theories that are developed are substantive theories rather than formal theories that have been demonstrated as applying to broader phenomena albeit that they may, indeed, apply.⁽²³⁴⁾

The very philosophy of grounded theory is confusing. In their original writing, Glaser and Strauss were not clear about their philosophical perspective^(234, 245) and they neglected to fully explain their perspective of the researcher's role in creating meaning and knowledge.⁽²³⁴⁾ Subsequently, it was suggested that grounded theory originated as an apparently objectivist approach, where the aim is to identify reality as something external to the social actors within it.^(1, 234) The validity of this criticism

is unclear, as in later work Strauss indicated that his perspective of grounded theory has always recognised that the researcher is the instrument for development of meaning and, ultimately, theory.⁽²⁴⁷⁾ These differing philosophical perspectives and approaches confound the clarity of grounded theory. Nevertheless, it is important to remember that grounded theory – whatever the approach - provides a rigorous method for data collection, analysis and conceptualisation, and represents possibly the most influential strategy for conducting qualitative data analysis.^(234, 245)

Criticism of grounded theory as apparently positivist resulted, in time, in the development of Charmazian⁽¹⁾ grounded theory. In 1995, Charmaz described her approach⁽²⁴⁵⁾ that, while closely aligned with the foundations of Glaserian and Straussian grounded theory, takes a strongly practical approach, emphasises action and embraces a constructivist view.^(1, 245) This perspective acknowledges that people construct reality and meanings by acting within that reality,⁽²³⁴⁾ so the researcher is inherently part of the reality and those meanings. In this way, Charmazian⁽¹⁾ grounded theory remains true to the core principles of grounded theory while recognising that the researcher cannot realistically approach data collection with no prior knowledge of the subject, and that the researcher is an active participant in constructing meaning and knowledge. Data and theories are not discovered: they are constructed through the researcher's experiences and interactions with people, perspectives and research practices.⁽¹⁾

I have adopted a Charmazian⁽¹⁾ approach to grounded theory in my study, primarily because of its clear acknowledgement of the researcher's role in creating meaning, and its dual focus on flexibility and rigour. In the following section, I outline the general approach to Charmazian⁽¹⁾ grounded theory.

[4.3.4 Approach to Charmazian grounded theory](#)

The Charmazian⁽¹⁾ grounded theory approach commences with data collection through any of several grounded theory strategies, but most commonly through individual in-depth interviews. These interviews are as unstructured as possible to allow participants to reveal their descriptions without risk of being swayed by the researcher's needs or agenda.^(1, 236, 246, 247, 254) The researcher is likely to write

memos about each interview, analogous to field notes, but which may also incorporate personal reflections. Each interview is transcribed, during which more memos may be created as ideas emerge, and the researcher immediately embarks on analysing the transcribed data.^(1, 245)

4.3.4.1 Initial coding

Data analysis commences with initial coding. Charmaz⁽¹⁾ describes a number of initial coding approaches and indicates that line-by-line coding is the first step in coding for many grounded theory researchers as it works well for very detailed data about empirical processes. As the name suggests, line-by-line coding involves reading each individual line of the transcribed interview and then assigning a code or codes to it. Charmaz recommends the use of gerunds⁽¹⁾ as code labels as a mechanism to guide the researcher's focus to the underpinning social processes rather than simple description.

Line-by-line coding prompts close study of the data and its nuances.^(1, 245) The generation of large numbers of codes during line-by-line coding is to be expected.⁽²³⁴⁾ The researcher must question what the codes have in common that enable them to be combined into higher order and more abstract codes. The researcher may create memos about the codes they identify, and subsequent re-readings of the transcriptions may be accompanied by preparation of new memos or the further development of existing memos. This allows for questions raised by the data to be defined and considered, and for critical thinking about the emerging concepts to be facilitated and noted.⁽¹⁾

4.3.4.2 Focused coding

The memos developed during the initial data collection and analysis support analytical thinking through which the researcher elevates some codes to tentative categories. Further data are collected and analysis continues, progressing to focused coding, the intermediate phase of coding.⁽¹⁾ In focused coding, the researcher uses the most significant or frequent initial codes to sift through large amounts of data and to decide which initial codes are most useful analytically to categorise the data.⁽¹⁾ Groups of codes are gathered into tentative categories that may explain some aspect of the phenomenon.⁽²⁴⁵⁾ This is not necessarily a linear

process, and as the tentative analytical categories emerge, it may require the researcher to return to the transcripts or to collect new data to develop and clarify them. It is important during focused coding that the researcher continuously reflects and is willing to return to the data, the participants and to extend initial coding if necessary to minimise the risk of missing important concepts that may only emerge after prolonged reflective engagement with the data.⁽²⁴⁵⁾

4.3.4.3 Theoretical coding

With the support of memos, the researcher refines the tentative categories, interrogating and linking them together. Categories have properties and dimensions that must be identified, developed and explained in order to provide breadth and depth to the emerging concepts.⁽²⁴⁵⁾ The researcher uses theoretical sampling to gather further data that tests whether the categories should be adopted as theoretical concepts, the term that Charmaz adopts to represent what is called a core category in other grounded theory methods.^(1, 245)

Theoretical codes are developed that indicate the relationships between the categories identified in focused coding and progresses the research direction from analytic to theoretical.⁽¹⁾ Theoretical memos develop the theoretical codes into a depiction of a theory. Theoretical saturation is achieved when further analysis of the data provides no new illumination of the theoretical codes. At this point, the researcher can trace connections from the theoretical codes through all the properties and dimensions.⁽²⁴⁵⁾ It is important to note that the testing of the developing grounded theory is quite distinct from the empirical testing that might occur following development of a substantive theory or theoretical model. Grounded theory does not need to be empirically tested to be considered valid.^(236, 237)

Finally, the research and resultant theory is reported. The written transcripts and memos collectively represent a substantial volume of text. This text is highly descriptive in design, reflecting the descriptive nature of qualitative research. Similarly, the reporting of findings from grounded theory studies relies heavily upon the descriptive tradition of qualitative research, presenting research reports that employ rich, detailed, descriptive language.

4.4 Research methodology – this study

In the following sections, I outline how I applied a Charmazian⁽¹⁾ grounded theory approach in my study. I detail how I prepared to undertake data collection and analysis, and how these occurred in practice. For the sake of clarity, I have considered data collection and data analysis largely separately here, but I remain mindful that the two are intrinsically linked in grounded theory and, in fact, occurred largely concurrently.

4.4.1 Study preparation

Ethical approval for my study was obtained under Curtin University's process for research with low risk (Approval Number RD-29-12, see Appendix 1). This process complied with the National Statement on Ethical Conduct in Human Research (Chapter 5.1.7 and Chapters 5.1.18-5.1.21).⁽²⁵⁸⁾

Prior to commencing analysis of my study data, I completed an introductory training workshop in nVivo 9 research software from QSR International, and I undertook some self-directed practice using the sample data set that is included in the software package. This provided a basic understanding of the software and allowed me to establish how I would manage the electronic files that would be generated throughout data collection and analysis.

Due to my previous employment, I have been fortunate to gain considerable training and experience in interviewing for the purposes of employment and for critical incident investigation. I was concerned that the nature of unstructured qualitative research interviews could be quite different, and I wished to equip myself with the necessary skills and knowledge to demonstrate respect for my participants and their time. After reading extensively on the subject, I undertook two practice interviews with a former colleague with several decades of experience in human resources management and organisational behaviour. She provided me with invaluable, structured feedback about the content of the questions I posed and my communication approach. The second of the interviews was video-recorded and I used this for additional personal reflection.

4.4.2 Data collection

4.4.2.1 Research population

The target population were medical imaging and radiation therapy graduates within their first 12 months of postgraduation professional practice. The relevant programs in Western Australia, Victoria and South Australia prepare approximately 150 medical imaging graduates and 40 radiation therapy graduates each year.

4.4.2.2 Recruitment to the study

Data collection occurred between July 2012 and April 2013, allowing for consideration of graduates from different graduating cohorts. When recruitment commenced, there was no single register or database of medical imaging and radiation therapy students or new graduates. As there was no simple way to contact all new graduates, a more complex strategy was necessary involving distribution of invitations to participate through a number of different avenues. Final year medical imaging and radiation therapy students received, via their university, an email invitation to participate in the study. An email invitation to participate was distributed by the AIR to newly accredited graduates. Employer contacts in Victoria, Western Australia and South Australia were sent an email invitation with a request for it to be forwarded to any new graduates at their workplace. Additionally, I extended a verbal invitation during presentations at relevant professional events.

While this recruitment strategy was not optimal because I relied heavily on intermediaries to contact students and graduates, there was little that could be done in the absence of a centralised register or database. The recent establishment of the MRPBA's mandatory register of students and practising professionals will benefit future research recruitment efforts.

4.4.2.3 Selection of participants and sample

The sample was self-selected. Respondents were considered as eligible for the study if they were graduates of the specified programs, were currently employed as professional practitioners, and were willing to provide informed consent to participate.

In keeping with a grounded theory approach, recruitment continued until theoretical saturation was obtained and no new data emerged that further developed the categories identified during data analysis. The literature emphasises that theoretical saturation is the necessary end-point for grounded theory studies rather than a particular sample size, however, this commonly occurs with a sample size of 6-20 participants.^(235, 259-262) I determined that I had achieved theoretical saturation for this study after 30 interviews representing 21 people.

In many cases, data analysis commenced immediately following the first interview. This enabled me to analyse and reflect upon each interview immediately, so that insights from each interview informed those that followed. The concurrence of data collection and data analysis allowed me to explore, confirm or challenge the apparently emerging codes and categories with subsequent participants. Theoretical saturation was achieved over time by exploring these apparent insights with successive people until it became apparent during data analysis that, for the particular code or category, no new information was emerging. Despite the impression I had gained from my preparation for grounded theory research that theoretical saturation would be obvious when it occurred, I found that often I could only make this determination after lengthy reflection and repeated review of the data.

4.4.2.4 Demographic characteristics of the sample

Table 4.1 introduces the people who participated in my study. All participants were allocated a pseudonym to protect their anonymity, and these pseudonyms are used throughout this thesis. These 21 people were all medical radiation science professionals who were, at our first interview discussion, within their first 12 months of practice. There were 13 medical imaging and nine radiation therapy professionals. Seventeen of the participants were female.

Table 4.1: Summary of participants' demographic information

Participant pseudonym	Gender	Discipline	Age (years)	Alma mater	Months of postgraduate experience (interview 1)	Employment sector	Employment location	Number of interviews
Alice	Female	Radiation therapy	24	Monash University	4	Public	Metropolitan	1
Betty	Female	Radiation therapy	24	Monash University	1	Public	Metropolitan	1
Carla	Female	Radiation therapy	23	Monash University	3	Public	Metropolitan	2
Dorothy	Female	Medical imaging	24	Curtin University	6	Private	Metropolitan	2
Emma	Female	Medical imaging	24	Curtin University	4	Private	Metropolitan	1
Fred	Male	Medical imaging	22	Curtin University	7	Public	Metropolitan	2
Gail	Female	Medical imaging	23	Curtin University	6	Public	Metropolitan	2
Hugh	Male	Radiation therapy	25	Monash University	2	Public	Metropolitan	1
Isobel	Female	Medical imaging	28	Curtin University	6	Private	Metropolitan	1
Jane	Female	Medical imaging	23	Curtin University	7	Private	Rural or regional	2
Kylie	Female	Medical imaging	24	Monash University	<1	Public	Metropolitan	1
Lucy	Female	Radiation therapy	24	Monash University	3	Public	Metropolitan	1
Matilda	Female	Medical Imaging	22	Curtin University	7	Public	Metropolitan	2
Nancy	Female	Radiation therapy	25	Monash University	2	Public	Metropolitan	1
Oliver	Male	Radiation therapy	32	Monash University	<1	Public	Metropolitan	2
Phil	Male	Medical imaging	22	Curtin University	2	Private	Metropolitan	1
Remy	Female	Medical imaging	22	University of South Australia	3	Private	Metropolitan	1
Susan	Female	Medical imaging	23	Curtin University	7	Public	Metropolitan	2
Trudy	Female	Medical imaging	23	Curtin University	9	Public	Metropolitan	2
Violet	Female	Medical imaging	22	University of South Australia	3	Private	Rural or regional	1
Wilma	Female	Radiation therapy	22	University of South Australia	1	Public	Metropolitan	1

4.4.2.5 Interview process

People participating in my study took part in one or two in-depth interviews of 45-125 minutes duration. I used a standard qualitative approach to the interviews. In keeping with grounded theory methods, the interviews were unstructured.^(1, 234, 236, 245, 246) I recorded brief written prompts based on the emerging ideas from the ongoing data analysis, and I used these prompts to pose questions or guide the direction of the conversation.

My feelings about taking notes during the interviews were mixed: while I appreciate that some researchers may require or value noting non-verbal cues or impressions, I was concerned that note-taking might distract me from the discussion or cause my participants to feel wary about what I might be writing, or to feel that they were somehow being evaluated. On that basis, I chose to rely on the audio-recordings and limited my note-taking during interviews to noting ideas or questions that I wished to return to later in the conversation. Immediately after each interview, I audio-recorded my observations, impressions, initial reflections and thoughts resulting from the discussion as a supplement to my written field notes.⁽²⁵³⁾ I used these recordings subsequently as points of reflection in preparing memos, which also included a deliberate reflection upon the way I had approached the interview.

As might be anticipated, some people had actively reflected on the research topic included in the information sheet provided to all prospective participants, and they required little prompting throughout the interview. The participant group incorporated a range of different personalities, and interviews with those who were more extroverted or expansive were commonly considerably longer than those with more reserved people. As I was reluctant to miss unexpected insights, I did not place a time limit on the interviews, however some participants were constrained by other commitments. In such cases, I used a countdown timer to ensure that the interviewee could relax during our discussion. All participants granted me permission to follow up with them by telephone or email should clarification or additional questions arise during the data analysis. While this was only very occasionally necessary, the people concerned were universally generous in responding promptly.

Initially, it was planned that all participants would complete two interviews, separated by a time-frame of three months to allow for identification of changes in participants' perceptions of their experiences. It eventuated that some participants were unable or unwilling to complete the second interview, or were unable to complete it within the preferred three-month period due to their recreational leave, workplace roster or personal commitments. Twenty-two people completed the first interview and, of these, 10 completed the second interview. The intervening period ranged from 92 to 201 days, with an average interval of 135 days. I discuss the sequencing and timing of interviews further in the following section dealing with data analysis, again reflecting that data collection and analysis were intimately and intrinsically related.

In order to facilitate a relaxed and candid discussion, each person was invited to nominate the venue for the interview. All participants opted either for a private space at their place of employment or a private space in a location such as the local library. The interviews were audio-recorded, with two incidents of recording equipment malfunction resulting in the exclusion from the study of one participant and of the second interview for another, resulting in a final sample of 21 people and 30 interviews (21 first interviews and nine second interviews). The overall timeframe of data collection spanned just over 10 months.

I personally transcribed each interview recording. This involved significant time commitment, a disadvantage that was considerably outweighed by the benefit of gaining intimacy and familiarity with my participants' narratives.

4.4.2.6 Ethical considerations

Invitations to prospective participants included an information sheet summarising the study. This information sheet (Appendix 2) provided relevant information of the study background, design, details of their expected commitment, ethical considerations including my commitment to confidentiality, and contact information. Additionally, participants were provided with advice that the study represented part of my Doctor of Philosophy (PhD) studies and that elements of the research, including findings, would be submitted as a thesis for examination and that I may submit aspects of the study for professional publication or presentation.

At the commencement of each interview, I reviewed this information with the prospective participant, responded to any questions and obtained their informed consent verbally and in writing (Appendix 3). Participants were advised that their participation was voluntary and that they might withdraw from the study at any time without explanation. At the conclusion of each interview, I reiterated this point to ensure that the participant understood that he or she was free to withdraw from the study if, upon later reflection, he or she felt inclined to do so. No participants opted to withdraw from the study.

Some identifying details for participants and prospective participants were collected to facilitate contact. This information was stored securely and separately from all other materials and information associated with the study. Participants were allocated a pseudonym to be used in the transcripts of the audio-recordings and during data analysis and reporting. Names of organisations or other individuals mentioned in the course of the interview discussions were either omitted in the transcripts or allocated their own pseudonym if I felt it was relevant to the narrative. Occasionally, participants mentioned a fact about themselves or their workplaces that could have led to their identification. In such cases, I omitted the word or phrase from the transcript without loss of meaning.

In the process of discussion about past experiences, participants re-examined aspects of incidents or memories that might have been discomforting. I believed it unlikely that the theme of this study would provoke anything other than transitory emotions of this type, and this was affirmed through the ethics approval review process. As a precaution, participants were provided with contact information for LifeLine Australia and beyondblue, facilitating free, immediate access to counselling should such support prove necessary. I observed each person carefully during the interview, seeking cues to confirm their wellbeing and verbally confirming that they wished to proceed with the discussion when sensitive subjects arose. I contacted each participant in the days immediately following each interview to acknowledge their participation and to confirm that no distress had been experienced. No participant reported any negative emotions resulting from the interview.

4.4.2.7 Data management

nVivo 10 research software from QSR International was used to support the transcription, coding and categorisation of data and the recording of researcher memos. While learning to use the software effectively took some time, using a computer assisted approach was the only realistic option to manage the large volume of data – by the conclusion of data collection and analysis, I had accumulated almost 10,000 lines in interview transcripts, had adopted 343 codes, and created almost 250 memos.

Audio-recordings, transcripts and research notes will be held for seven years following completion of the study, in keeping with Section 14.6.5 of the Western Australia University Sector Disposal Authority.⁽²⁶³⁾ These materials have been placed in secure storage in the Discipline of Medical Imaging Science, Curtin University, and are accessible only by the chief supervisor and researcher.

4.4.3 Data analysis

4.4.3.1 Overview of the analytical process

Data collection and analysis occurred concurrently. This allowed me to employ theoretical sampling as a strategy to explore, investigate and develop the categories and concepts emerging from the data. In the initial preparation I completed at the commencement of my study, I had read extensively about theoretical sampling and its role as a core principle of grounded theory research. In theoretical sampling, the researcher actively seeks opportunities to include participants who confirm the emerging ideas, or who contradict them, focusing the discussion at subsequent interviews on exploring, expanding upon and challenging the notions that emerge from those previous. The aim is to clarify the researcher's understanding of the code or category, to confirm its validity or reject it, to expand upon it, or in some other way to progress the researcher's knowledge about the concept.

Despite reading widely about grounded theory methods, upon commencing the data collection phase, I maintained a misapprehension that theoretical sampling would require me to not only focus subsequent interviews in a particular manner, but to also deliberately target a particular type of participant. Immediately

following the first interview, I recognised that I would not have the luxury of being able to choose successive participants to suit my research needs. The people participating in my study were self-selecting and I was dependent upon their goodwill, scheduling our meetings to suit their requirements rather than what I perceived as the needs of my study. Further, I intended to include people from other locations in Australia, necessitating travel which, practically, had to be limited to specific timeframes. I realised during the coding of this first interview that my initial interpretation of theoretical sampling had been too literal. In employing theoretical sampling for my study, I accepted any person who met the inclusion criteria for the study in the order that they were willing to meet with me, without regard for their particular characteristics or demographics. Theoretical sampling occurred through my direction of each successive interview rather than through my selection of a particular participant. This was an unexpected notion for me, as I had anticipated – incorrectly, as it happened – that theoretical sampling would hinge upon the selection of the participant rather than the direction of the discussion.

4.4.3.2 Timing and sequencing

With this understanding of theoretical sampling in mind, the overall schedule of interviews was dependent upon each participant's availability. The summary at Table 4.2 details the timing of each interview. There were six broad phases of data collection and analysis, and I will discuss each phase further in due course.

There were three breaks or gaps in the timing of the interviews, occurring predominantly by chance rather than design. As my data collection commenced in July 2012 and most graduates had commenced employment in the preceding December or January, I had exhausted the list of initial volunteers by the end of August 2012. Serendipitously, this occurred when my skills in transcribing and using the data analysis software and my understanding of grounded theory research processes and thinking were most limited and most rapidly developing. This first gap enabled me to practice and develop my coding techniques, to become comfortable with my approach to memo writing, and to engage in deliberate and repeated reflection on the data and emerging concepts. This allowed me to prepare for the second wave of data collection, an intensive month-long period that

commenced with my first follow-up interviews, immediately followed by a field visit to Melbourne, Victoria.

Time was a practical, if frustrating, constraint for this visit, during which I conducted interviews with seven people during two days. In each case, the participant was a working professional whose employers had generously allowed me an hour or so of their working time. This visit emphasised to me that, despite the best intentions and plans, researchers must negotiate a range of challenges and obstacles that are not necessarily acknowledged in the methodological literature. In the real world, or my real world at the time, I simply had to make the best of the circumstances that presented themselves. During the field visit, I used the time when I was not involved in meeting with graduate participants to replay their transcripts and write memos, aiming to stimulate reflection and to identify ideas and clues to follow up at my next interview.

This period was followed by a somewhat quieter phase of data collection and analysis, where I completed four second interviews over three months that coincided with Christmas, New Year, and the hiatus between students completing their courses of study and commencing their first employment. This final break allowed me to catch up on the transcribing and coding, to engage in deep review and reflection upon the data and my analysis so far, and to prepare for the final wave of data collection.

While I have indicated that data analysis occurred in six primary phases, in fact I found that the process was both fluid and cyclical and that I would frequently move back and forth between initial coding, focused coding and theoretical coding as the analysis progressed and as I explored each particular code or category. The purpose of providing the visual representation in Table 4.2, then, is to provide a general idea of the chronological progress of my analysis.

In the following sections, I provide an overview of the analytical process I followed and some of the key experiences I encountered. At the conclusion of these sections, I have provided an exemplar of the development of one of the categories I adopted.

Table 4.2: Chronological summary of data collection and analysis

Participant pseudonym	Interview type	Interview date	Phase of data collection, analysis and reflection	
Oliver	First	9 th July 2012	Phase 1	Initial interviews, learning to code
Fred	First	10 th July 2012		
Matilda	First	16 th July 2012	Phase 2	Initial interviews, coding and analysis
Susan	First	23 rd July 2012		
Emma	First	24 th July 2012		
Gail	First	27 th July 2012		
Dorothy	First	3 rd August 2012	Phase 3	Initial coding, analysis and raising codes to tentative categories
Isobel	First	5 th August 2012		
Jane	First	24 th August 2012		
Trudy	First	24 th August 2012		
Matilda	Second	7 th November 2012	Phase 4	Focused coding and analysis
Dorothy	Second	7 th November 2012		
Gail	Second	9 th November 2012		
Betty	First	13 th November 2012		
Carla	First	13 th November 2012		
Hugh	First	13 th November 2012		
Alice	First	14 th November 2012		
Kylie	First	14 th November 2012		
Lucy	First	14 th November 2012		
Nancy	First	14 th November 2012		
Oliver	Second	20 th November 2012	Phase 5	Focused coding and analysis, and refining conceptual categories
Susan	Second	26 th November 2012		
Fred	Second	20 th December 2012		
Trudy	Second	21 st February 2013		
Phil	First	2 nd March 2013	Phase 6	Theoretical sampling, coding and analysis
Jane	Second	13 th March 2013		
Carla	Second	2 nd April 2013		
Remy	First	3 rd April 2013		
Violet	First	22 nd April 2013		
Wilma	First	22 nd April 2013		

4.4.3.3 Initial coding

The first three phases of analysis involved the initial coding stage. I was undecided whether to represent these three periods as a single phase in Table 4.2 as they are so closely interrelated. Ultimately, I have opted to present them as three distinct phases to more truly represent my experience of using grounded theory methods for the first time.

Initial coding – first phase

The first phase represents my first two interviews with Oliver and Fred. These were the first instances ever where I had transcribed my own interviews, coded real data, used line-by-line coding, written memos or used nVivo 10 software. The analysis of these two interviews represented a significant learning experience as I commenced applying the techniques about which, to this point, I had only read.

I was initially frustrated by my slow pace in transcribing and riddled with doubt as to whether I was conducting the initial coding correctly. In the process of articulating my thoughts in a memo, I recognised that my ability to progress with my study was dependent upon reconciling what I perceived as a misalignment between my aspirations and my ability. I enacted a plan that involved re-reading Charmaz's methodological publications,^(1, 252) watching a series of recorded presentations about grounded theory, and seeking advice from two respected colleagues with extensive research experience. These actions allowed me to recognise that I was experiencing a crisis of confidence that is probably common in novice researchers and PhD students. The path to mastery necessitated that I started somewhere and, in all likelihood, I would make mistakes. By consistently applying the grounded theory methods and by routinely checking my analytical activities against the principles of research quality that I had adopted for this study, I could be assured that I would develop adequate analytical skills and that I could identify unintended deviations caused by lack of experience, and consequently reconsider them.

The focus of these first interviews with Oliver and Fred, therefore, reflected both the newness of my investigation and my own newness to grounded theory research. In keeping with the grounded theory method, I had not prepared an

interview guide. I had only two prepared prompts for these first interviews – “tell me about your experience of transition to professional practice” and “tell me about a confronting situation that occurred during your transition”. In transcribing these interviews, I realised that I had allowed the discussion to labour in areas that related to descriptive elements of the participants’ transition experiences rather than concentrating on the primary research focus of resilience. After reflecting on this in memos and, more broadly, after reflecting upon my interviewing technique, I practiced more relevant and targeted questions with a trusted colleague. In acknowledging the initial weakness in my approach, I was reassured that I had not missed the opportunity to understand Oliver’s or Fred’s perspective as each had committed to completing a second interview and I would, therefore, have the chance to redirect my queries to them then.

My first attempts at line-by-line coding of Oliver’s and Fred’s transcripts were instrumental in developing my approach. In fact, I completed line-by-line coding of their transcripts three times in succession. After each coding attempt, I used memoing to record my reflections about my developing ability and to identify where I could improve. During this time, I repeatedly read and re-read sections of Charmaz’s work,^(1, 252, 255) practising line-by-line coding on the example transcripts she provides and comparing my efforts with her expert exemplars – but remaining mindful that no two researchers will code identically, particularly in a constructivist paradigm where the researcher is central in creating meaning. While time-consuming, these activities enabled me to engage in the remaining data collection with the confidence that I could now analyse my data in an adequately effective way to directly inform subsequent interviews and, more broadly, the developing theory.

Initial coding – second phase

In the second phase of analysis, I completed first interviews with Matilda, Susan, Emma and Gail, immediately transcribing and line-by-line coding each. Many initial codes were emerging and, while I had anticipated this, I was surprised that so many were apparently unrelated to my research topic or questions – for example, I had identified codes relating to the graduates’ descriptions of supervising students, and

connections was to write each code on a separate sticky note and then to organise and re-organise them on my kitchen table (Figure 4.1), verbalising my rationale as I went. The notes I jotted while undertaking this process formed the basis of more developed memos once I had reached a point of satisfaction with the arrangement of the codes, notwithstanding that I often decided this arrangement was lacking upon a subsequent cycle of comparison. In this way, my understanding and conceptualisation of the emerging codes gradually developed.

Sometimes the process of constantly comparing the codes resulted in my splitting a code into two (or more) codes. For example, in my earliest interviews, I had identified 'experiencing doubt' as a code to reflect Oliver and Fred's descriptions of times they had doubted their own abilities or decisions, or when they felt that their colleagues had doubted them. Comparing this code with the data I obtained from Matilda and Susan, I realised that 'experiencing doubt' actually had an aspect that related to the culture or atmosphere of the team, and I wondered how a culture of doubt might influence graduates' experiences of transition and resilience. This process of reflection resulted in my splitting the code 'experiencing doubt' into three initial codes – 'doubting yourself', 'feeling doubted by others', 'doubting the team'.

Occasionally I adjusted the code label to better differentiate the code from others, or to better reflect my emerging understanding of the data. For example, I had initially identified a code 'feeling like a radiographer' to reflect descriptions that the graduates had provided of the change from being a student to being a working professional. Over time, I recognised that graduates were consistently using the term 'real' – feeling like a *real* radiographer, or feeling like a *real* part of the team – and this suggested an element beyond simply being a working professional, encompassing a sense of validation, credibility or belonging. To reflect this, I adjusted the label for this code to 'feeling like a real radiographer', and this prompted me to think differently as I coded subsequent data.

As the coding progressed, I noted that some clusters of codes appeared to be emerging. In response, I found that I regularly added several extra, related prompts for subsequent interviews, or I amended and removed redundant prompts.

Initial coding, final phase

In the third and final phase of what I have broadly delineated as the initial coding for my study, I used memoing to raise the clusters of codes to tentative categories. I then used these tentative categories as prompts in first interviews with Gail, Dorothy, Isobel, Jane and Trudy.

Having now completed 10 interviews, I had a strong appreciation of both the huge diversity among, and the distinct similarity between, these 10 graduate professionals. I had now gained considerable confidence and skill in ensuring the interviews focused on the prompts that had emerged from prior initial coding. I had identified a number of tentative categories and pursued these clues in subsequent interviews.

As might be anticipated, some of the tentative categories appeared to be confirmed by the participants and I was able to commence fleshing out the possible properties and dimensions of these categories. For example, a tentative category of 'relaxing and rejuvenating' was readily confirmed by these participants, and these interviews provided support to the tentative properties I had identified of 'reflecting', 'talking about things', and 'relaxation activities'.

In other cases, my tentative categories or properties were rejected or appeared to be heading nowhere. I found it challenging to judge what to do in such cases and, upon reflection, I probably 'hung on' to inappropriate codes and categories for too long, although it is doubtful this was to the detriment of the study. In particular, I found it difficult to cease pursuing a code or tentative category where I had gleaned from the evidence base that the aspect had been recognised as of relevance to transition, adversity or resilience experiences. This situation, perhaps, exemplifies the rationale for Glaser's⁽²⁵⁴⁾ requirement that the researcher should not examine the published literature until after data collection.

Memoing and reflection assisted me to reconcile such differences and to reframe the code or category in a way that better reflected what my data were telling me, rather than what others had found. Further, as the coding process in Charmazian grounded theory^(1, 252, 255) encourages the researcher to return again and again to the data and earlier coding analysis, I felt reassured that I would detect any incidences of an idea re-emerging in data collected later. As an example of my experience: following my interview with Oliver and my reading of the literature, I felt sure that 'practising religion' would be relevant property for 'relaxing and rejuvenating', but subsequent interviews had provided no confirmation. Reflection caused me to reconsider 'practising religion' and reframe how I thought about it. Rather than restricting faith to formal religious practice, I considered faith as the idea of a higher purpose and meaning to life, where the outlook for the future is positive, and I was able to identify aspects from other interviews that confirmed this broader notion.

4.4.3.4 Focused coding

Initial coding was followed by two phases of focused coding. As I have noted previously, in reality the distinction between initial and focused coding, or between the two phases of focused coding, was not so absolute.

Focused coding – first phase

The first phase of focused coding involved the first of the second interviews with members of my participant group, specifically with Matilda, Dorothy and Gail. I had anticipated the second interviews with enthusiasm as an opportunity to further clarify some of my impressions from the first meeting. More importantly, the second interview presented me with the chance to check that I had interpreted their meanings about various aspects effectively, and to test my tentative categories with each of the participants.

This phase of focused coding also incorporated the period of my field visit to Melbourne, Victoria. This was an intensive period of data collection where I could not employ my now comfortably established habit of focusing on one participant and their data set at a time, transcribing, repeatedly playing the recording, line-by-line coding, memoing and constant comparison. This process had served well to

enable me to absorb myself in the data, to observe it, reflect upon it and pose explanations. During the field visit, I completed seven first interviews in a little over 36 hours, precluding my ability to adopt my usual initial approach. Instead, I made the pragmatic decision to focus on repeatedly replaying the recordings (which could be done easily between interviews and while waiting for transport), identifying examples of existing codes and categories that were reinforced or negated by the latest participants, and listening for ideas that I had not noted in previous interviews. I was surprised to find that, without the ability to immediately start narrowing my focus to one recording and one transcript, I naturally thought more broadly about ideas and connections, and focused on integrating the ideas that temporarily seemed overwhelming rather than dissecting and distinguishing them. I had recently been reading on-line articles and blogs relating to qualitative coding methods and, though they were not focused exclusively on grounded theory coding methods, I tried using and adapting some of the diagramming techniques described. This enabled me to consider my categories in different ways and from different perspectives. Not every diagram or map I created was obviously effective – some were simply interesting distractions – however the act of repeatedly sketching and seeking patterns among my categories was a useful mechanism to reflect upon and question my ideas. From this point, sketching (either literally or using sticky notes) became an integral method for me to sort, arrange, trial and constantly compare codes and categories.

Focused coding – final phase

The final phase of focused coding involved second interviews with Oliver, Susan, Fred and Trudy, which occurred sporadically over a three month period. This proved serendipitous as I was able to catch up on transcribing and coding the data from my interviews in Victoria, and to dedicate time to reflect on the now substantial volume of data, expanding on the properties and dimensions of the developed categories. Having the four second interviews interspersed through this period enabled me to address specific questions to my participants, to clarify and confirm (or not) the categories with each person, and to identify how their feelings or thoughts about the concepts had changed over time. The second interviews at

this point were considerably shorter in duration than the respective first interview. I attribute this partly to having an established relationship with each participant allowing us to rapidly re-establish rapport, and partly to the focus that results from focused coding: in essence, we explored many fewer topics, although frequently in much greater depth.

4.4.3.5 Theoretical coding

The final phase of analysis incorporated the final wave of data collection, involving first interviews with Phil, Remy, Violet and Wilma, and second interviews with Jane and Carla. My interview prompts in this phase were very specific and related to the categories, dimensions and properties that were, by now, clear and mostly defined. Notwithstanding this, I remained conscious that any of these people might have an insight or experience that could introduce a new perspective or overturn an existing idea. This proved to be the case in the interviews with Phil, Jane and Carla: each of them, in a different way, added elements that expanded my perspective about a category or presented an unexpected negative or confounding case that required me to re-examine other data and to reflect on how my conceptualisation might need to change. My final first-time interviews with Remy, Violet and Wilma presented the opportunity to explore and test these ideas further to check their validity. To ensure I did not make assumptions or unwarrantedly narrow the discussion, I continued to use some of the core prompts that I had employed throughout the initial and focused coding phases during these final three first interviews.

4.4.4 Organising the data

While I have emphasised that data collection and data analysis occurred concurrently, analysis did not cease upon the conclusion of the interviews. I continued to use memos to detail and explore the categories, their properties and dimensions, seeking to refine them and integrate them into a theory.

Writing the memos was inarguably useful, however I found it difficult to commit to a single organising arrangement of the categories and concepts. I found that I could write memos that seemingly drove my thinking in circles, and I struggled to arrange the categories using this strategy. The physical act of writing is a linear process, and

I found that memoing exclusively in traditional writing style meant I could not always keep pace with my thoughts, and sometimes left me feeling that I was writing for the reader rather than to facilitate my thinking and reflections upon the data. I found it frustrating to use constant comparison exclusively through written memoing as I had little to visualise and found this an inflexible approach that did not allow ready response to dynamic thinking. Depending on the particular perspective I assumed at any given time, I could arrange the categories in different ways. While this prompted reflection on the data, it was also confounding and made me question the quality of my data collection and analysis. By returning to the research quality criteria I had determined for this study – which I report in the final section of this chapter - and by reflecting and confirming that I had adequately addressed each one, I was reassured. Nevertheless, my inability to decide upon the ‘correct’ interrelationship of categories and concepts into a theory was perplexing.

Coincidentally, I was watching a recorded presentation featuring Glaser⁽²⁶⁴⁾ where he spoke of the debate over whether or not his classic grounded theory emerged from a positivist paradigm – in that moment, I recognised that my search for a correct interrelationship was anomalous in a constructivist paradigm. The researcher is a participant in creating meaning, and he or she interprets the data based upon his or her own perspective. As Charmaz says, “The theory *depends* on the researcher’s view; it does not and cannot stand outside of it. Granted, different researchers may come up with similar ideas, although how they render them theoretically may differ.”⁽¹⁾ Acknowledging this fostered in me the confidence to organise my categories and concepts into an arrangement that seemed to me to most thoroughly represent *my* perspective of the data. Provided that I used constant comparison to ensure that every code, concept and category fitted logically into my arrangement, and adhered to the research quality criteria I had established, I could be assured of my arrangement’s suitability.

With this in mind, I again adopted the practical strategy that had worked for me in the initial coding stages. I noted each category and concept on a sticky note, and placed them in an arrangement on the wall of my study at home, then slowly worked through each category and its properties, checking their fit within the

arrangement and memoing informally as I went. If all the categories and properties did not fit comfortably in an arrangement, I noted it and then rejected it for the time being. This happened often – it was easy to make arrangements where most of the categories and properties fitted neatly, but where I would have two or three sticky notes remaining that I could not logically incorporate.

For example, at one stage it seemed that an arrangement around a single organising category of resilience by ‘making it happen’ might be suitable. Most of the categories and properties could be organised in this way, but I struggled with making logical and meaningful connections to some of the concepts and properties related to the initial impact of workplace adversity and to rejuvenation. It intrigued me that, in organising the categories and properties, I *could* have forced the data into this organising category, but I would have failed to fulfil the criterion for research quality relating to resonance.

Ultimately, the organising category of resilience by ‘evolution’ was determined through this process of constant comparison, trialling arrangements, checking how each category, concept and property fitted, and reflecting on my developing ideas in memos. This was the only arrangement I had identified where everything fitted, and where the connections between them made intuitive sense. I checked how each individual property, dimension and code fitted in the arrangement, to reassure myself that I had missed nothing. Finally, I was able to generate a visual representation of resilience by evolution that communicates the connections between the categories. This model of resilience as evolution is presented and explored in Chapters 5-8.

Having now detailed the general process I followed for data analysis, I present in the following section an exemplar of the analytical process that occurred in developing the category ‘beating inertia’. This exemplar considers one specific category to provide an insight to the iterative and reflective approach I adopted, and demonstrates how it was necessary to move continually between initial, focused and theoretical coding.

4.5 Exemplar of analytic process – Category ‘Beating inertia’

In considering how people responded resiliently to workplace adversity, I had assumed that there would be activities or strategies in which they would engage to relax and unwind. This assumption was based upon my personal experience, my reading of the literature, and a nebulous certainty I felt that people must ‘do stuff’ to manage stress from their work to allow them to stay healthy and to persist in that work.

In my first interview, Oliver volunteered that his studies had prepared him to manage stress and raised his awareness of the risk of professional burnout. He provided some examples of the strategies he had or would adopt – playing sport, having a massage, and prayer and religious ritual – in order to persist in his work and to stay engaged. At this stage, the concepts of persistence or moving forward were nebulous, but it seemed important to note in a memo the idea that enacting strategies for relaxation and rejuvenation helped to manage the effects of workplace stress. I wondered whether enacting these strategies might also provide a person with the sense of doing something, of being active rather than passive in response to adversity, allowing them to feel a sense of control.

While it was far too early to start postulating tentative categories, the diagram in my initial memo (Figure 4.2) proposed that ‘relaxing and rejuvenating’ somehow supported resilience, and might have elements of ‘physical activities’ and ‘practising religion’. Drawing on my own experience, I wondered whether ‘talking about things’ might also be an element of rejuvenation, in the sense of venting or relieving an emotional burden: I had been a little surprised that Oliver had not mentioned this and wondered whether this was because talking about things was not relevant to his own rejuvenation, or whether perhaps I was perceiving things from my own perspective as a ‘sharer’. I noted these prompts for my subsequent interview with Fred.

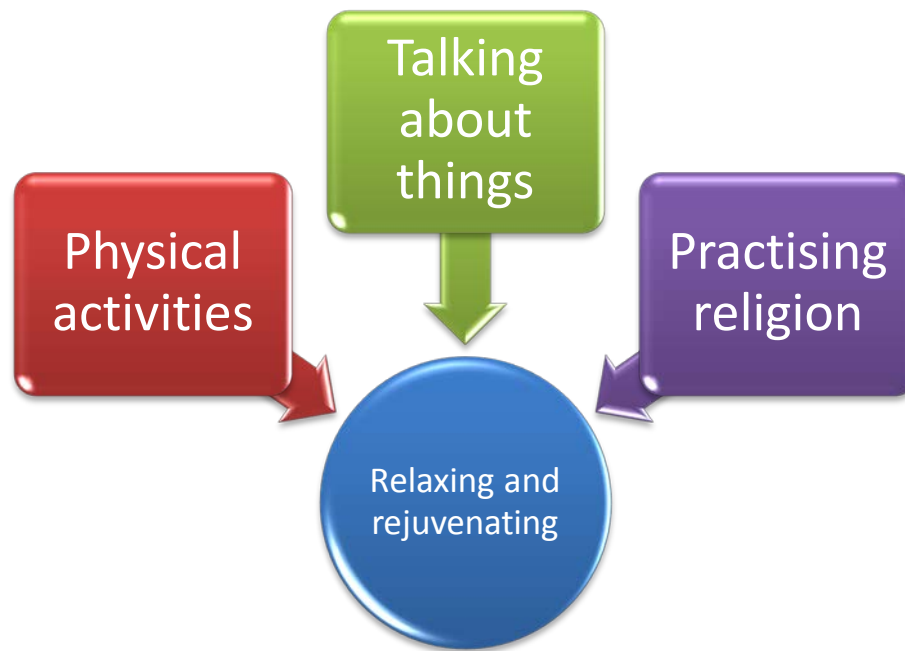


Figure 4.2: Initial diagram for category 'Relaxing and rejuvenating' following one interview

As I was in the very earliest stages of data collection and analysis, I had no idea of the significance or otherwise of this early concept. Being a novice user of grounded theory methodology I was learning, through reflection and trial and error, how to pursue the ideas and clues that emerged from each interview. In my second interview, Fred, it seemed he perceived himself as quite hardy, and that he had little need to specifically rejuvenate or find coping strategies – he simply did the job he was paid to do, and got on with it. During the interview, this led us to discuss a range of notions around responsibility, and I was distracted from pursuing my intended prompts further. Reflecting on my approach to interviewing helped me to identify strategies for my development. For example, I changed the way I wrote my interview prompts, from lengthy sentences to short words or phrases that I could quickly review with minimal distraction during the discussion. Part of the memo I wrote immediately following transcription of the recording reflects my frustration with my ineptitude:

I've been feeling very frustrated as I've been transcribing this part of the interview. It's so obvious now that I should have asked some of those questions differently, and I didn't even get to the bit about rejuvenation because I got side-tracked when Fred mentioned about talking about

technical aspects of the procedure rather than feelings. In the heat of the interview, I don't feel right about reading my notebook rather than looking them in the eye and listening, so my prompts need to change format.

Transcription memo, Fred first interview

Armed with my new strategy, I spoke with Matilda, who presented me with an early experience of variance and diversity. She very readily articulated that she felt quite unemotional about her patients and her work, beyond her extreme interest in the technical and procedural challenges she encountered. Matilda considered herself as socially awkward and lacking in empathy for others, suggesting that this meant she did not really feel she needed to cope with the stressors in her workplace – things just did not really disrupt her emotionally. Despite her insistence that she did not feel the need for, or particularly adopt, strategies to rejuvenate, Matilda volunteered that she actively talked about things to blow off steam:

I just bitch about it to everyone else I can who is not related to it so there's no way anyone can find out. Get everyone's opinion. *Matilda, first interview*

Matilda's comments confirmed to me that 'talking about things' – in some way or other – was a prompt worth pursuing.

Through subsequent interviews with Susan, Emma and Gail, my early conceptualisation of 'relaxing and rejuvenating' was developing. These three participants confirmed that physical activity was important, but each also identified that other deliberate activities – such as hobbies and artistic or creative pursuits – were important to how they relaxed or rejuvenated. In reflecting about this in a memo, I acknowledged that my study was not intending necessarily to identify particular or effective rejuvenation strategies, and that what my participants seemed to be telling me was that most of them engaged deliberately in some particular activities where one of their specific aims was to relax from the stress of their work. I changed the label of this code from 'physical activities' to 'relaxation activities'.

In my interview with Gail, she had spoken of her occasional feelings of uncertainty at work and that she felt great trust for some of her colleagues and not for others. This meant that she sometimes talked about things at work, and sometimes with people at home. I realised that there might be variation in how graduates used 'talking about things' as rejuvenation, and I recalled that Fred had mentioned his experiences of talking about procedural aspects of work with colleagues but never about emotional aspects. I decided to tentatively split 'talking about things' into two codes: 'talking about things at work' and 'talking about things outside work'.

During my discussion with Susan, she identified that she used deliberate reflection as a way to make sense of the adversity she faced at work, to consider her feelings about it, and to identify how she could develop further. I found her comments intriguing, as my own perception was that reflection is undervalued by medical radiation science professionals and that deliberate reflective thinking is often abandoned in postgraduate practice. I had completed a small research study of new radiation therapy graduates in 2007⁽²⁶⁵⁾ where I found that many had ceased the active reflection in which they had engaged as students, and that some perceived lack of support for reflection in their workplaces, so I was surprised that Susan felt so strongly that reflection supported her rejuvenation. In pursuing this idea with Emma and Gail, I discovered that they, too, actively reflected as a strategy to rejuvenate from the emotions caused by workplace adversity.

As the result of the interviews to this point, my conceptualisation of 'relaxing and rejuvenating' was developing and changing, and I adjusted my diagram accordingly (Figure 4.3). It seemed that relaxation activities were important to graduates' rejuvenation both for their direct contribution to physical and emotional wellbeing, and because they allowed people to feel they were active participants in managing stress. Talking about things contributed to rejuvenation, although I recognised that I had not yet actively explored how this helped. There seemed to be a potential distinction about the role or nature of talking about things with colleagues and with people outside work. Reflection was emerging as a potentially important aspect of rejuvenation albeit that, at this stage, I did not have a strong grasp on how new graduates perceived its role. With no further confirmation of my initial code

'religion', I was ready to abandon this property. Figure 4.3 represents my visual conceptualisation of 'relaxing and rejuvenating' at this point, adapted from a memo of the time.

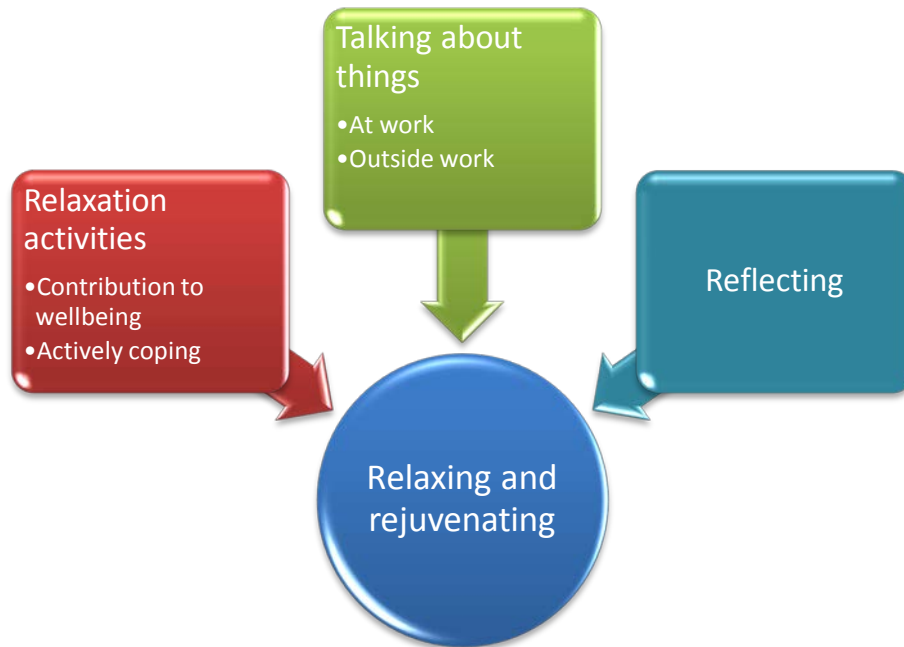


Figure 4.3: Development of category 'Relaxing and rejuvenating' following six interviews

I used the subsequent interviews, with Dorothy, Isobel, Jane and Trudy, to test what I now perceived as a category of 'relaxing and rejuvenating' with properties of 'reflecting', 'talking about things' and 'relaxation activities'. Up until this point, I had encountered participants who remained enthusiastic about their roles as medical radiation science professionals and interested in their work. It was intriguing, therefore, to encounter four participants in succession who had mixed feelings about their roles, and some who struggled to see themselves as remaining in the profession. As a result, they presented quite pragmatic perspectives about how they managed challenges in their workplaces and had strong views about rejuvenating and re-engaging with their work. The memo I wrote after completing Trudy's interview reflects how my ideas were broadening and developing:

I am taking care not to categorise Trudy, Jane, Dorothy as more negative than the previous interviews, because I feel that casts a value judgement that may not be warranted. They do seem to be more realistic, and I get the sense from them that this is a job – sometimes a very interesting one – but

that any other equally (or more) interesting job would do just as well. In the same way, their descriptions of the things they do to recharge and relax seem somehow to resonate more with me. I wonder why – perhaps because I remember what that feels like? The important thing from my project’s perspective is to use some prompts to explore both ‘negative’ and ‘positive’ approaches to rejuvenating, and to be alert to responses about things that *could* contribute to rejuvenation rather than things the person *actually has done* to recharge or rebalance. These last few interviews have presented the first instances where someone has admitted to worrying instead of reflecting in a positive/developmental way, admitted to being selective about whom they talk to at work, admitted to being reluctant to talk with colleagues because of concerns about the impression they’ll make, admitted to using alcohol to relax...it makes me realise that so much of the literature I’ve read feels intrinsically to be judging or condoning particular strategies. Or is that just because I haven’t been alert to it? *Initial memo, Dorothy first interview*

I was a little confounded after my interview with Jane, as she seemed to present contradictory perspectives about her willingness to talk about things with her colleagues – on one hand, she was reluctant to do so for fear of being perceived as weak, and on the other she identified several instances where she had used discussion with her colleagues as a strategy for managing adversity. I returned to the previous interviews to seek clarity, and I realised that ‘talking about things’ served a number of purposes, both for different participants and in different contexts. Colleagues were a useful resource for discussion when graduates wanted to confirm their actions or identify new strategies, and this was commonly achieved through problem-solving conversations about technical or procedural aspects of the situation. This type of ‘talking with’, while certainly supporting development, seemed to align more readily with reflecting for performance improvement than as a specific strategy for rejuvenation.

At the same time, ‘talking with’ provided an opportunity to seek solace and comfort, and was used to vent emotions or seek new perspectives. In these cases,

the person to whom the graduate turned was commonly a friend or a family member. I realised, too, that the properties I had identified for 'talking about things' were not properly reflective of what my participants were saying. The distinction was not so much between discussions 'at work' and 'outside work', but between discussions with people where the relationship was regulated by some defined professional boundary – colleagues – and those with whom the relationship was loving, trusting and affirming (friends and family). Colleagues could certainly be friends, but not always.

In my interview with Trudy, she spoke at length of her use of reflection to rejuvenate. As someone with rapidly waning interest in her role, she had reflected extensively about her rationale for remaining in her job, and her strategies for engaging and re-engaging with her profession. Her comments prompted me to consider further how reflection was used by graduates to rejuvenate. Trudy had identified that reflecting helped her to manage the feelings and emotions prompted by her work and the challenges she encountered as she was able to recognise learning and the positive aspects of her experiences. In comparing this idea with previous interviews, I recognised that my participants had identified two main ways whereby reflection contributes to relaxation and rejuvenation. By facilitating acknowledgement and analysis of feelings, reflection allowed graduates to identify strategies for learning, and to deal with and move on from emotional moments, acknowledging their positive feelings. Reflection also allowed graduates to identify deficiencies in their work practices and to identify more effective approaches for the future, leaving them better prepared for, and more willing to re-engage in, their work tasks.

I now felt very comfortable with how this category had been developed. In the interviews that followed, I remained alert to new ideas and continued to consider the existing categories and properties in light of each new transcript, but there was no substantial change to my conceptualisation of 'relaxing and rejuvenation' beyond an adjustment to the name of the category to 'rejuvenation'. Relaxation activities were one of the category's properties, and a group of strategies through which my participants rejuvenated themselves – while it may merely have been a

case of semantics, it seemed to me that an adjustment to the label of the category was warranted. My memo from this time demonstrates that I now conceptualised 'rejuvenation' as depicted in Figure 4.4.



Figure 4.4: Progression of category 'Rejuvenating' following 24 interviews

During my interview with Phil – the sixth-last interview associated with my study - he described his active Christianity, and that prayer and scripture study were integral aspects of how he managed his feelings. This was a telling lesson for me in the need for grounded theory researchers to remain open about the re-emergence of rejected ideas: twenty-three intervening interviews had failed to confirm my initial code, yet here it had presented itself again. In listening carefully to Phil's words, I realised another important thing, recorded in a memo at the time:

I am reminded of the importance of language and how the words we choose can influence what we see and understand. I had long ago given up on seeing anything new about 'religion', yet here I see it reappear in Phil's discussion of his Christianity. But what's hit me is the language he used – rather than religion or spirituality, he spoke of faith. In one sense, faith could be a formal, organised religion, which is what I've been looking to confirm. In another sense, though, I can consider faith more broadly, as the belief that things have purpose and meaning, and that the future is

ultimately positive. I remember reading something in one of the resilience studies that was about optimism and positive expectations for the future – if I reframe ‘religion’ as ‘faith’, I can think of examples in other interviews where participants have talked about how they employ optimism and positive future orientation to rejuvenate following adversity. *Initial memo, Phil first interview*

Following this realisation, and exemplifying the importance of constant comparison, I reviewed my existing data and confirmed that ‘faith’ was a notion expressed by several participants. The data I had collected so far adequately supported this property, and I included it as a discussion prompt for my remaining interviews.

As a final lesson that a grounded theory researcher should always remain open to new interpretations of the data, several months after the conclusion of my data collection and analysis, when I was working intensively on preparing the written report of my findings, I identified a new perspective on this category. In re-reading Wilma’s transcript while seeking a particular quotation, I was suddenly struck by a comment she had made about rejuvenating by engaging with her friends and family. While she valued talking with them, there were also other aspects of simply being with them, spending time with them, and hearing about their lives and perspectives. I realised that the property I had identified – ‘talking about things’ - was too narrow. I reviewed all of the interview transcripts, this time seeking confirmation of ‘engaging with loved ones’, and I was able to confirm this property seemed to be valid. As my opportunity for further interviews had passed, I attempted to contact my participants by telephone to seek their opinions. I was successful in speaking with six, and all confirmed that ‘engaging with loved ones’ resonated with them as an aspect of rejuvenating, so I felt comfortable to introduce this interpretation.

By the conclusion of my data collection and analysis, I had extensively developed the category of ‘rejuvenating’ based upon my ongoing interpretation and reinterpretation of the emerging ideas. I had also reflected on the category name, considering once again whether the title ‘rejuvenating’ really encapsulated what I

was hearing from my participants. While it was true that rejuvenation was an important aspect and that graduates had spoken of refreshing themselves, rebalancing and restoring themselves, there was also a sense that they employed strategies that propelled them forward, helping them to re-engage and re-enthuse themselves for the future. In a sense, they were healing themselves and energising themselves for tomorrow, and taking steps to move themselves forward. On that basis, I opted to rename the category 'beating inertia'. In Figure 4.5, I present my final diagrammatic conceptualisation of the category to illustrate its overall development.



Figure 4.5: Final representation of the category 'Beating inertia'

4.6 Research quality

In the remainder of this chapter, I explore critical considerations for research quality in Charmazian⁽¹⁾ grounded theory, and outline how I have applied these principles in my study.

4.6.1 Principles of research quality in Charmazian grounded theory

It has been argued that concepts of validity, reliability and generalisability are inappropriate or inadequate for qualitative research, ^(236, 259, 260, 266, 267) where perception, experience and meaning are subjective and highly variable, and therefore it can be expected that findings might not necessarily be reproducible in, or applied to, other contexts and settings. Nevertheless, qualitative researchers should demonstrate high quality and demanding standards in their approach to data collection, analysis and reporting.

There is considerable discussion in the literature as to what these standards should be and how they should be described. ^(236, 246, 259, 260, 266) Charmaz⁽¹⁾ recommends four key criteria for grounded theory studies and, to ensure these were comprehensive, I compared the criteria with those recommended by other experienced grounded theorists and qualitative researchers in Table 4.3.

Table 4.3: Comparison of relevant qualitative research quality criteria

	Analogous or similar criteria		
Charmaz ⁽¹⁾	Corbin & Strauss ⁽²³⁶⁾	Guba & Lincoln ⁽²⁶⁸⁾	Yardley ⁽²⁶⁹⁾
Credibility	Fit Depth Sensitivity Variation Concepts Logic Evidence of memos	Credibility Dependability Confirmability Authenticity	Sensitivity Commitment and rigour Transparency and coherence
Originality	Applicability Creativity	Transferability	Impact and importance
Resonance	Fit Concepts Contextualisation of concepts Depth Variation Logic Sensitivity	Transferability Confirmability Authenticity	Sensitivity Transparency and coherence
Usefulness	Applicability Creativity	Transferability Authenticity	Impact and importance

Upon review, it is apparent that these experts consider very similar concepts or criteria, and it is predominantly the terminology and categorisation of these criteria that differ. It appears that Charmaz's⁽¹⁾ criteria suitably cover all the same areas recommended by other authors. On that basis, I have adopted Charmaz's⁽¹⁾ four criteria of credibility, originality, resonance and usefulness as quality standards for my study. Charmaz⁽¹⁾ suggests that researchers must consider several issues for each criteria and, accordingly, in the following sections I have addressed these issues to demonstrate how I have ensured the quality of my grounded theory research. Considering these criteria and prompts through the complementary perspectives of Corbin and Strauss,⁽²³⁶⁾ Guba and Lincoln⁽²⁶⁸⁾ and Yardley⁽²⁶⁹⁾ is useful to ensure thoroughness.

4.6.1.1 Credibility

To achieve credibility, the researcher must demonstrate intimate familiarity with the data, the context and the topic, and apply rigorous data collection, analysis and reporting approaches.⁽¹⁾

My study was contextualised in the Australian medical radiation science setting. All of my participants were, at the time of my meeting with them, in the first year of their employment in an Australian medical imaging or radiation oncology facility. This ensured that participants in my study were currently experiencing, or had very recently experienced, their transition to professional practice.

As I have worked within the Australian medical radiation science profession, specifically radiation therapy, since 1986, I possess an existing intimate understanding of the working context for medical radiation science professionals. This was useful in allowing me to appreciate my participants' experiences within context. By including medical imaging and radiation therapy, I was able to consider my assumptions and presumptions in a cross-disciplinary context, providing new and deeper insights.

I ensured a suitable range of data by seeking diversity among my participants, who included males and females from two professional disciplines. Some had not been in paid work prior to their employment as a medical radiation science professional, and some had extensive employment histories. Those with previous work experience represented a diverse range of employment backgrounds, including retail, hospitality, healthcare, ministry and administration. My study participants were graduates of three different educational institutions in different Australian states, representing five different educational programs, both undergraduate and postgraduate. The graduates in my study were employed in a range of settings, including public and private hospitals, large private practice groups, small private providers, and metropolitan and rural sites. My participants represented diverse cultural and social backgrounds.

I assumed a reflective stance during interviews with my study participants, and included visual prompts on my notepad to remind myself of those areas I had previously identified as deficient in my interview practice. Where participants expressed particularly strong views about a topic, or where my previous data analysis had identified a particular emerging theme or idea, I encouraged them to consider an alternative perspective to better understand their views and the

meaning they ascribed to their experiences. In reporting my findings I have, where possible, incorporated the demonstrated range of perspectives to reflect variation and diversity.

I used constant comparison as the basis of my data analysis and to support my use of theoretical sampling to determine the direction of subsequent interviews. In practice, this involved coding the transcribed interviews as immediately as practicable, then reviewing every code (and, eventually, each category) and seeking similarities and contrasts within the code, or with respect to other codes. I achieved this review in two main ways. I used memos, often informally structured, to articulate my ideas, to facilitate my reflection and to explore where my thoughts were heading. I also used sketching as a visual way to explore ideas and to look for, or discount, links between ideas and concepts.

4.6.1.2 Originality

To achieve originality, the researcher must demonstrate that the analysis is insightful and fresh, and of significance or importance either socially or theoretically.⁽¹⁾

Transition to professional practice for medical radiation science professionals is unexplored in the existing literature. Similarly, their experience of resilience is little explored, and no specific consideration of resilience among new graduate medical radiation science professionals is evident. As a result, my study presented new insights in a predominantly unexplored topic.

In undertaking coding for data analysis, I used no coding template instead creating codes only in response to the emergence of ideas in the transcripts. This ensured that my data analysis reflected the participants' original words rather than any pre-conceived expectation as to what they might say. Similarly, while I compared and contrasted the emerging codes and categories with previously published literature, I took care to ensure that I adopted different labels for my tentative categories in an effort to preserve in my consciousness the uniqueness of my data and to minimise the risk that I might inadvertently adopt other researchers' interpretations as my own.

Through my data analysis, I developed a description of transition to professional practice for medical radiation science. I was not able to identify a similar alternative description for comparison, suggesting that my study is unique. I developed a conceptual rendering of the manifestation of resilience among medical radiation science professionals and, although no similar alternative model could be identified, I used models and research from other caring professions as a counterpoint for comparison. The findings of my study are, therefore, novel.

I have used the findings as the basis of a number of recommendations for educational institutions, employing organisations, professional bodies and future research. In this way, my study poses significance for the education and professional socialisation of medical radiation science graduates. These recommendations are considered in the final section of this thesis.

4.6.1.3 Resonance

To achieve resonance, the researcher must demonstrate that the analysis portrays the studied phenomena fully, and that it resonates and makes sense to the participants or to people who share their experience.⁽¹⁾

In analysing the data, I identified several hundred codes. Over time, upon reflection and through further exploration through theoretical sampling in interviews, I was able to develop and confirm categories that portrayed the manifestation of resilience as experienced by the medical radiation science professionals in my study, and to richly describe their experience of transition to professional practice. Important strategies to explore these areas fully included constant comparison, deliberately seeking variance or negative cases, and incorporating second interviews with the same participants to consider how and what perspectives and experiences changed over time.

As my data analysis progressed, I regularly shared one of my draft sketches or diagrams with a participant at the conclusion of our interview. In this way, I aimed to confirm and test my emerging ideas without influencing their responses in our interview. These informal conversations were useful in ensuring that I was not misinterpreting their broader meanings, to test my developing ideas, and to prompt

my further reflection. I was often able to gain reassurance about ideas that had emerged from the data, yet were only of relevance for a very small number of participants. In such cases, it would have been easy to discount particular ideas, and it was helpful to gain feedback from my participants that they, or people they knew, had experienced such a situation or emotion.

In the absence of existing medical radiation science literature related to my research area, I have relied upon discussion with my research supervisors, colleagues, and professional acquaintances to confirm that the emerging ideas and concepts make sense to them given their own particular experience and context. This is not to say that they always agreed with the apparent perceptions of my research participants – in fact, my colleagues who were experienced clinical supervisors sometimes strongly argued against certain opinions – but virtually always there was agreement that the emerging findings resonated with their own understandings of what new graduates' perspectives might be. These discussions made useful contributions to my ongoing reflection on the data by encouraging me to seek further confirmation and variety.

4.6.1.4 Usefulness

To achieve usefulness, the researcher must offer interpretations and conceptualisations that people can use, and that contribute to future research and the knowledge.⁽¹⁾

Professionals who develop, manage and deliver medical radiation science educational programs can use this work to develop strategies that support beginning professionals in gaining the skills, knowledge, experience and attributes necessary for resilient response to workplace adversity. Clinical medical radiation science professionals can use my study findings and analysis to consider or reconsider how they, and their organisation, support beginning professionals before, during and after encounters with workplace adversity. Employers and managers can use this work as evidence in their consideration of policies and strategies for employee support, orientation and on-boarding, and development of organisational culture. Professional bodies might consider my study to reflect upon their role in the transition to practice and support of new professionals, to align

their intentions and the services they offer with the actual, rather than perceived, needs of new graduates.

The conceptualisation of resilience that I have developed and the description I provide of transition to professional practice may be useful to researchers who wish to consider their own study contexts by further developing this work or by considering it as a point of comparison for their own work. The record of my experience as a novice grounded theory researcher may be useful or affirming to others in the same situation.

[4.7 Chapter summary](#)

In this chapter, I have positioned my study within a Charmazian⁽¹⁾ grounded theory approach. I have provided details of the data collection and data analysis employed, with reference to the general Charmazian⁽¹⁾ approach, my application of this plan, and my personal experiences of the research process. Finally, I have identified how I have applied relevant principles of quality during the research process.

Chapter 5 – Substantive theory – Resilience as evolution

[5.1 Chapter introduction](#)

In the previous chapter, I have outlined the background to, and justification for, using a Charmazian⁽¹⁾ grounded theory approach to my study. I have described the data collection and analysis process and how, in practice, I ensured research quality.

This chapter provides an overview of the substantive theory derived from the data collection and analysis processes. I discuss how the overarching process of evolution explains how medical radiation science graduates experience resilience in their encounters with workplace adversity. Chapters 6 and 7 explore the various elements of the substantive theory in considerable detail and demonstrate how, in keeping with a grounded theory, the theory I describe has emerged directly from the participants' data.

[5.2 Overview of the substantive theory](#)

Graduates manifest resilience to workplace adversity through an overarching process of evolution, underpinned by the key processes of energising, maintaining momentum, achieving equilibrium, and beating inertia. The relationship between these key processes is depicted in Figure 5.1. Following the initial feelings that are precipitated by a particular adverse event or challenge (the impact) – which occurs in the context of medical radiation science transition to professional practice - people make provisional adjustments, pulling themselves together and acting in the moment. As the situation unfolds and initial – sometimes instinctual – reactions pass, graduates maintain their momentum to push through the event, persevere and get the job done. Throughout and, often, immediately after the event, graduates act to achieve and maintain their equilibrium, managing their emotions and employing protective behaviours. Beyond this, graduates focus on strategies, beliefs and values that allow them to beat inertia by regaining personal balance and moving on. The personal and professional growth that occurs as a result of each

encounter with adversity sometimes equips them with new or enhanced capabilities that can moderate the impact of subsequent challenges, and inform their subsequent actions and responses.

While the model suggests an overall serial relationship between the key processes as a single incident or event unfolds, people employ strategies as needed and as the resources or capacity for the strategies become accessible to them. While I consider the strategies used by the participants in my study at each distinct stage of evolution as resilience, the delimitations between any of the phases I have described are explanatory rather than definitive, and fluid rather than static. Further, the model acknowledges that adverse events and challenges do not occur in isolation, and while the overarching process of evolution is represented as a single cycle, there are likely to be concurrent and overlapping challenges at any given moment. All elements of the process are affected by the personal and environmental conditions prevailing before, during and after the encounter with adversity.

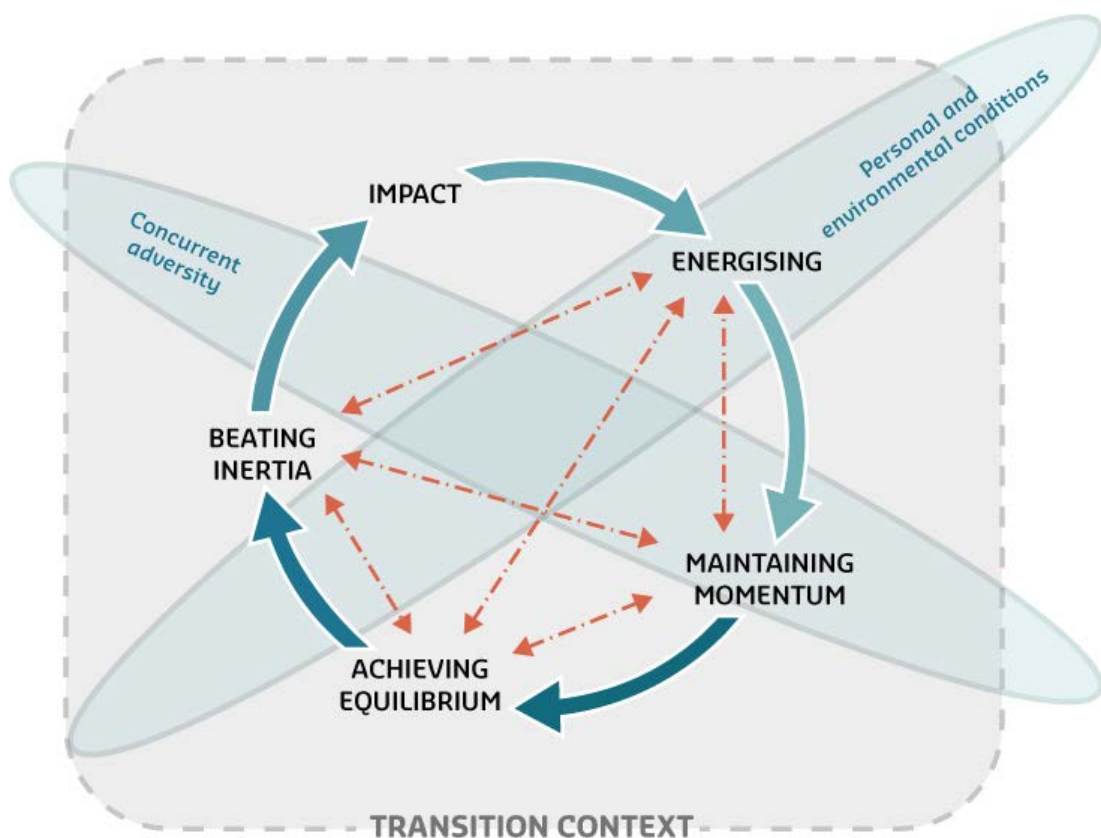


Figure 5.1: Resilience as evolution

5.2.1 Resilience as evolution

In grounded theory, data analysis is used to theorise an organising process that explains the categories and codes identified. In this way, grounded theory is used to develop an overarching process that explains a particular social phenomenon.⁽²⁴⁶⁾

The overarching process by which graduates in my study experienced resilience in the face of workplace adversity was the process of evolution.

The term 'evolution' has multiple definitions, and several are pertinent in understanding resilience as evolution. In common usage, evolution is a gradual development over time,^(63, 64) and to a more complex form,⁽⁶⁴⁾ as in 'the evolution of computing technology'. Participants in my study commonly identified their own growth, development and deepened understandings as independent professionals:

I had my three month meeting with [my manager] to see how I was going, and it was crazy to sit back and look at how far I'd come from when I'd just started. It was amazing, some of the patients I was tackling, had you given me a patient like that when I first started, I would have run away and cried. And now I can do it and get pretty good pictures. *Trudy, first interview*

As their experience grew, including their experience of adversity, my participants sensed themselves growing and evolving. Similarly, where I was able to share a second interview discussion, I was struck on each occasion by how obviously each person had matured and grown and, in particular, by the graduates' increased confidence:

I feel much more confident than the last time we spoke. I think I seem more confident to you. I have my doubts, of course, everyone has their doubts at specific times. In the first week I was very anxious and reminded myself not to make any mistakes, but after that everything was absolutely fine. I started feeling confident, making my own decisions, be able to justify everything that I'm doing. *Oliver, second interview*

I must say, I feel like a right old hand on this linac. I know all the ins and outs of absolutely everything, I'm definitely the expert. It's definitely increased my confidence because all the new staff that come here – and everyone has

been new staff besides me – ask me how we do this, or what’s happened with that. The machine I’m on has a lot of specialised techniques, the TBEs, the TBIs, that sort of thing. So all the qualified staff that come here are, “Carla, show me what to do”, so in that sense it’s been really good. Great for my confidence. *Carla, second interview*

Over time, with repeated exposure to different forms of workplace adversity, graduates grow and develop, sometimes changing and improving the ways in which they respond. In other words, they evolve.

5.2.1.1 Evolution – movement and action

Evolution is a pattern of movements or a series of manoeuvres,^(63, 64) as in ‘the birds performed aerial evolutions as they moved across the sky’. This usage is somewhat similar to the military usage of the term to represent an exercise performed according to a defined plan or procedure.⁽⁶⁴⁾ In my study, graduates frequently described their actions and action-orientation, and how attention to enacting organisational protocols, plans and guidelines allowed them to meet expectations of patients and colleagues in their organisations, and to manage the challenging and problematic situations they confronted. This involved compliance to ensure quality, as well as deliberate, critically justified non-compliance where adaptations were necessary:

...you feel more empowered, you see a request form and you can judge for yourself what views to take rather than just looking at the protocols before, because you...just know more about what is going to be useful to them when they’re looking at the x-ray, and balancing up their condition with what you’re not prepared to put them through...rather than, this is the protocol, you have to make sure that you get these pictures. *Susan, first interview*

Moreover, in high pressure moments requiring immediate action, my participants often described how they managed their initial feelings by focusing on performing their roles according to their training and the local protocols, playing their part in the attending health care team:

...particularly in a team environment, you have to be able to work together because there's stressful situations where you've got to know what each other's thinking, know your role, get on, do the job together. At the end of the day, we're exposing a patient to radiation, you don't want to get that wrong. *Trudy, first interview*

In energising, graduates reminded themselves of their personal professional role – analogous to their movements – in fulfilling the team's goal, and then enacted these roles as part of maintaining momentum. Reflecting upon their actions – their part in the team's manoeuvres – helped my participants to beat inertia. Evolution in the sense of movement and action is, therefore, a useful organising process for resilience.

5.2.1.2 Evolution – throwing off

In chemistry, the term evolution means to give off or throw off.^(63, 64) The graduates in my study described their pervading need to prove their status as new professionals, acting and enacting their own decisions, and throwing off their previous role of student and staking their independence:

When I started working independently...there wasn't just one moment, but when I started making decisions and just being like anyone else in the room, not an extra, and when we were short-staffed I was actually relied upon, that was really nice. *Carla, first interview*

This evolution was as much about proving something to themselves as to others:

So it's proving to myself that I can do my job competently and professionally and to the highest quality possible. It's fun, it's a challenge. *Emma, first interview*

In energising, graduates threw off their fears and concerns about the adverse situation and gained control of their emotions. In maintaining momentum, my participants threw off their previous sense of dependence to make and enact decisions to solve problems and move forward. Strategies to release, vent and relieve themselves of the feelings and stress caused by adverse situations allowed

graduates to achieve equilibrium and beat inertia. Evolution in the sense of giving or throwing off is, therefore, a useful organising process for resilience.

5.2.1.3 Evolution – survival of the fittest

Darwin and Wallace independently developed the theory of evolution by means of natural selection based upon their observations of the natural world and, in common usage, it is sometimes termed 'survival of the fittest'.⁽²⁷⁰⁾ A key assumption of my study is that the graduates who participated were able to persist and adapt to 'survive' their transition to professional practice and to manage the workplace adversity that they so richly described. A number of people alluded to the notion that students or graduates without the necessary characteristics, abilities or behaviours would simply not make it through the transition to professional practice:

It was the little, snappy, answering back, and I'm thinking, "This kid can take okay x-rays, but he's never going to get a job because he can't get along with anyone". They're more likely to employ someone that they get along with who doesn't take as good pictures than somebody that has a terrible attitude. That's more what's going to get you a job than your skill because you can always perfect your skills and get better, but the attitude makes a huge difference. *Trudy, first interview*

They're not passionate about their studies or what they've become, what they're qualified to do...The other thing is, people who don't succeed, perhaps they like to be told what to do, or perhaps they don't, which is just as difficult. It's a paradox – being told what to do isn't enough in radiography, but sometimes you have to accept being told what to do....But the only reason I can think of...is because they can't be bothered, or they can't be bothered taking the initiative to show that they're able to take on more responsibility, or they don't want more responsibility *Emma, first interview*

While this is clearly speculation, this perspective must be acknowledged as valid as it represents a common aspect of the worldviews of the participants in my study,

subsequently informing their actions and thoughts: it is their experience and voice that matters, as it is from this frame of reference that they create meaning and understanding upon which they base their actions. Whether it is objectively true that only the 'fittest' graduates successfully complete their transition to professional practice is a moot point. This conceptualisation of evolution involving survival of the fittest adds an interesting perspective in explaining resilience.

[5.3 Chapter summary](#)

In this brief chapter, I have introduced the substantive theory derived from the data collected and analysed in my study. I have provided a theoretical model based on evolution as the organising process to explain how new medical radiation science professionals experience resilience in the face of workplace adversity. The substantive theory is explored in detail in Chapters 6 and 7.

Chapter 6 – Exploring resilience as evolution: Part 1

[6.1 Chapter introduction](#)

In the previous chapter, I presented a theoretical model for explaining resilience among new medical radiation science graduates, using evolution as an explanatory process.

This and the following chapter collectively examine in detail each aspect of the substantive theory. This theory has been derived directly from my participants' data, in accordance with Charmazian⁽¹⁾ grounded theory. The final coding concept diagram that was developed is presented in Figure 6.1. This diagram is complex, comprehensive and detailed, and it is for that reason that I have separated the following detailed exploration into two chapters (Chapters 6 and 7) to assist in clarity.

In this chapter, Part 1, I consider the transition to professional practice context within which graduates experience workplace adversity. As this context has not been previously described in the literature, I use core findings from my participants' data to provide a rich description of transition to professional practice for medical radiation science professionals, including transitional milestones and timeframes. The important experiences of transition to professional practice are explored using categories derived from the graduates' own words. These experiences include staking their independence, performing with confidence, finding their place, and feeling.

In the subsequent chapter, Part 2, I explore the nature of workplace adversity experienced by my participants, and the impact it had upon them. I examine in turn how new medical radiation science professionals experienced energising, maintaining momentum, achieving equilibrium, and beating inertia. Finally, to conclude the detailed examination of my substantive theory, I consider the personal and environmental conditions that influence resilience.

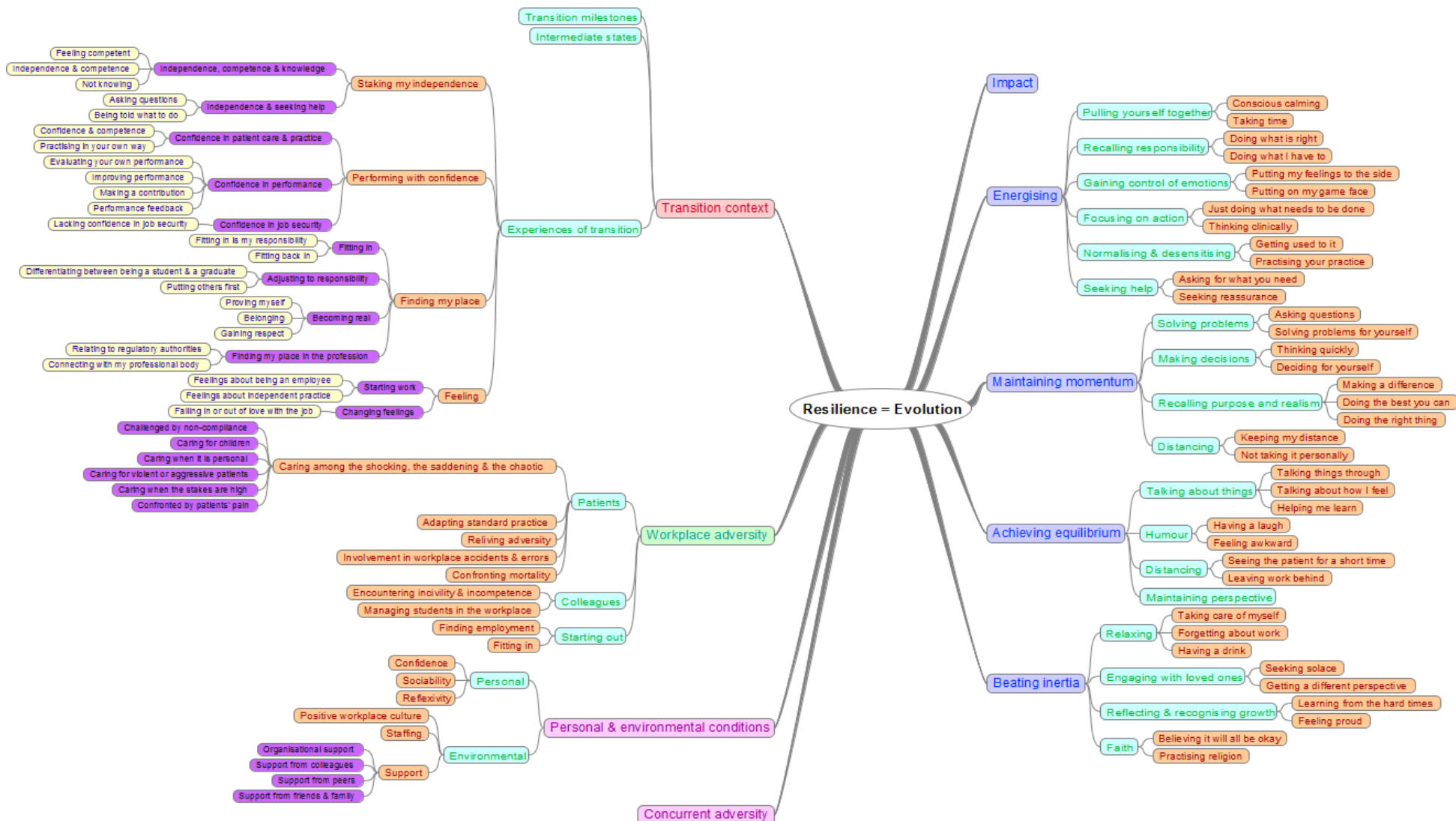


Figure 6.1: Coding concept diagram –Resilience as evolution

6.2 The context of resilience as evolution

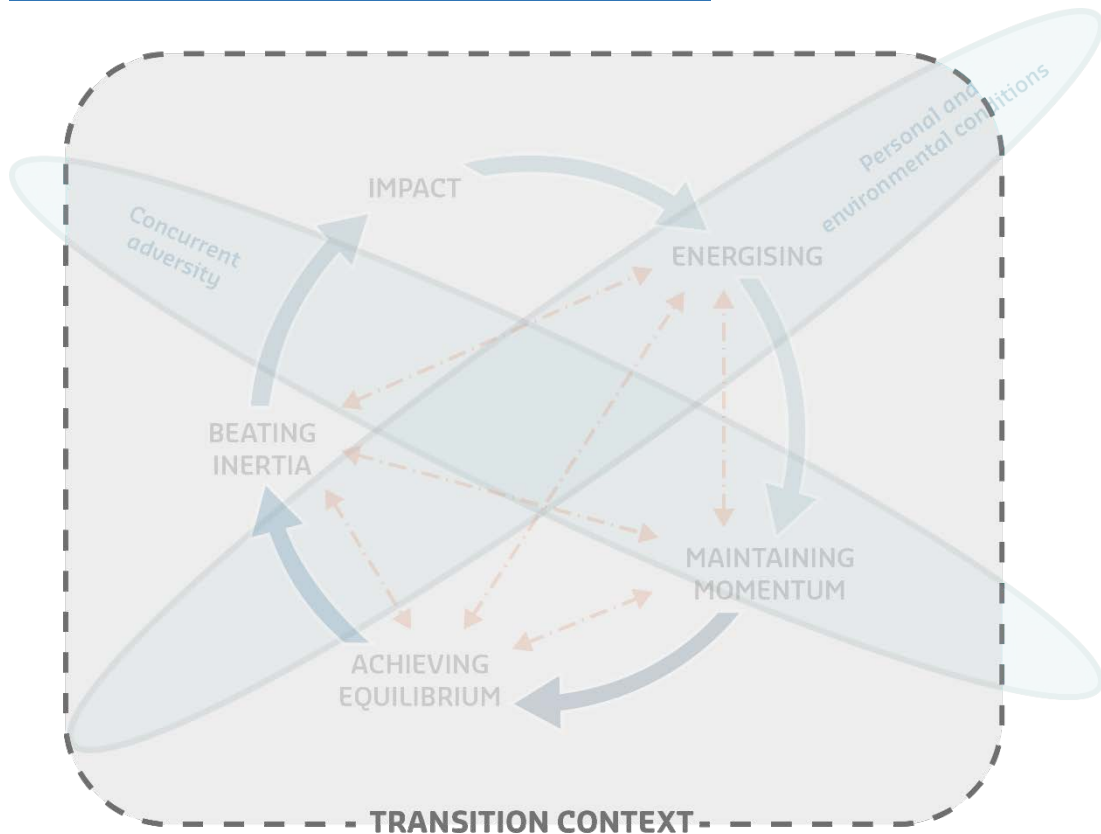


Figure 6.2: Resilience as evolution - Context

While the primary focus of my study was to examine the graduates' experience of adversity in their first workplaces during their transition to professional practice, there is a lack of published literature that confirms the context for, and nature of, that transition period. To understand medical radiation science graduates' experiences of workplace adversity, it is important to appreciate their work context, particularly given that they are experiencing transition to professional practice which may, itself, be inherently challenging. Rather than representing a divergence from the primary research focus, consideration of the context in which graduates manifest resilience serves to inform our understanding, and represents a key element of the substantive theory of resilience as evolution, as depicted in Figure 6.2. In the remainder of this section, I consider the key aspects of medical radiation science transition to professional practice.

6.2.1 Depicting medical radiation science transition to professional practice

Overall, the period of transition to professional practice is predominantly linear for medical radiation science graduates, reflecting the progressive idea of development and evolution. Over time, graduates develop in what they perceive as a largely linear progression through the period of transition, experiencing resilience in overlapping evolutions. For my participants, transition to professional practice involved a gradual evolution from being a student to feeling like a 'real' medical imaging or radiation therapy professional. This period aligned with a stage of simultaneously believing in one's competence to practice effectively, while remaining uncertain about one's confidence to do so. Some medical radiation science graduates experienced an intermediate phase during which they considered themselves as 'new grads' or as being something nebulous that was not quite the same as a 'real' medical radiation science professional, yet was still considered by my participants as functionally independent. These graduates did not feel that 'real' professionals would feel uncertain, and that their own genuine independence did not occur until such feelings passed.

Figure 6.3 summarises the progression from student to independent professional that was described by participants in my study.

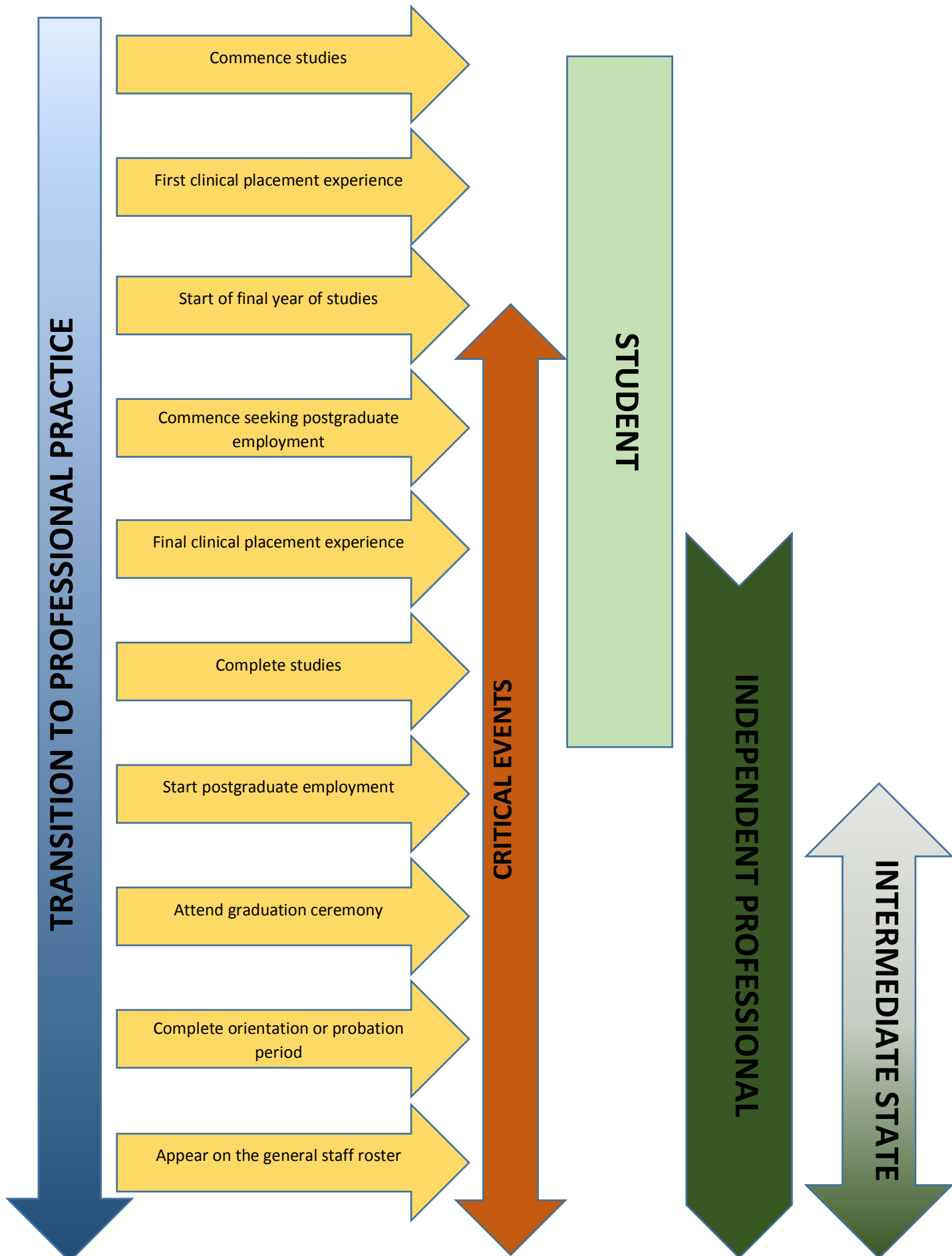


Figure 6.3: Depicting major events in the transition to professional practice

6.2.1.1 Transition milestones

The people who participated in my study demonstrated substantial variation in how they perceived the progress of their transition to professional practice, albeit that they universally described a largely linear pathway. There was a range of milestones that occurred during their transition to professional practice, and each was significant for participants in symbolising some aspect of their progress toward independence.

The value that participants ascribed to the milestones they identified varied, and did not necessarily align with what might be commonly thought of as the significant or important events. Some milestones were seemingly minor but nonetheless significant to the individual, such as finally discarding their student uniform. Many participants had a mental checklist of the milestones that were of personal value to them, and to which they looked forward to achieving as a sign that they had finally 'arrived'.

Commonly identified milestones included commencing their final year of studies, completing their studies, and appearing on the general staff roster at work. Some, such as commencing postgraduate employment, were universal:

I guess it's when I started to stop feeling entirely like a student and started to feel like I was on the way to being a radiographer...really on the way. For me, I think that really hit home when I started working and became fully accountable for my own work. I think it might be different for other people, but being fully accountable was the point for me. I think I had to feel accountable before I could really feel like I made the leap from student to qualified. *Matilda, second interview*

Like the new nurse practitioners in Duke's⁽²²⁾ study, new medical radiation science professionals felt that obtaining registration and other credentials was an important transitional milestone, even when delays or bureaucracy made the process frustrating. Other milestones, such as attending their graduation ceremony, were identified by only a few graduates. Graduation was identified as a significant milestone that demarcates nursing transition to professional practice,⁽¹⁴⁵⁾ however

this contrasts with the perspectives of many of my participants. Predominantly, medical radiation science graduates seemed disinterested or ambivalent about their graduation. This may be because most participants in my study considered that their transition to professional practice commenced many months before graduation and so, by the time the ceremony occurred, it was no longer afforded great significance. In many cases, formal graduation occurred up to six months following completion of their studies – upon completion, medical radiation professionals were able to gain registration and commence working, whereas formal graduation did not really affect them in a material way. While the reason for ambivalence about graduation was not a focus of my study, my personal reflection – as someone who has not attended any of my university graduation ceremonies – is that the personally meaningful milestone was reaching my goal of completing my studies with a specific level of performance, not the external acknowledgement of a ceremony held many months later.

Graduates indicated that critical events, often unique to their own experience, triggered in them some level of acknowledgement about their progress and represented personal milestones. Frequently, although not always, these events were challenges that engendered fear or anxiety, for example, making an error, being abused by a patient, working alone for the first time in a particular location, or experiencing bullying from a colleague:

When I was the theatre staff, that was one of the massive [milestones] because that was my biggest fear. Being in theatre on my own, because I hated theatre. So once I started doing that completely on my own, then I was happy. *Dorothy, first interview*

Perhaps these critical events triggered introspection and thinking that encouraged participants to reflect on their personal and professional development. The notion that experiences of critical events can prompt recognition of development or progression is not unusual, and critical incident techniques have been previously used to explore Australian graduate health professionals perceptions.⁽²⁷¹⁾ I will further explore the experience of workplace adversity among my participants in the following chapter.

Sometimes the critical events graduates identified as being symbolic in some way of their progress were neutral or positive, for example, working a night shift for the first time, having a new colleague join the team, or being complimented by a colleague:

We're not the new people anymore, we get new people all the time who might have done radiography for a while...you feel new, then new people come and that feeling passes. When the new people came, I could think, "Okay, I know a bit more than you", even if it wasn't radiography and was a bit more about the place. *Matilda, second interview*

Findings from Halfer's⁽¹¹³⁾ study of new nurses in Chicago identified similar critical events relating to 'becoming real', such as obtaining licensure as a registered nurse and selecting a first employer. Unlike participants in my study, selecting areas of practice specialisation was seen as a milestone by Halfer's participants. It may be that medical radiation science professionals perceive specialisation differently, perhaps as something that occurs after a lengthier period of postgraduate experience. Such a notion aligns with the view of specialisation defined by the AIR as being progression beyond the scope of practice for entry-level medical radiation science professionals.⁽⁷³⁾ Closer examination of specialisation was beyond the scope of my study, although the graduates' perspectives of specialisation and their career progression emerges again later in this chapter.

While the graduates' identification of critical events differed, this does not diminish the importance of any of these milestones to the particular person's perception of their transition to professional practice. The order of the common milestones for each individual also varied somewhat, for example, some graduates indicated that they started seeking postgraduate employment earlier or later than others. For the most part, however, the participants in my study described a very similar sequence of events or milestones during their transition to professional practice, as depicted in Figure 6.3.

6.2.1.2 Commencement of transition to professional practice

Transition to professional practice commenced, for most participants, at some stage in their final year of education, and well before the start of their postgraduate employment. For many, the commencement coincided with the start of their final year of studies, the start of their final period of clinical placement as a student or the point in their final year where they started seeking postgraduate employment. It seems that these points prompted my participants to acknowledge that their life as a student was drawing to an end and that things were, in a sense, now serious:

I think the start of the [final] year. You've only got that year to consolidate so much knowledge and skills, and you start recognising that change then. A bit over halfway through that year, you start thinking "Wow, I've only got a few months to go, and I've got to be like these guys", so you step it up a notch. *Carla, first interview*

In the case of those who recognised their transition to professional practice as commencing at the time when they started considering postgraduate employment, the trigger was commonly when they were reflecting on how they could address selection criteria for employment applications. The process of actively reflecting upon their accumulated knowledge and capabilities caused these people to acknowledge how far they had come and question whether they were, indeed, suitably prepared to commence professional practice:

I think my transition started when we had this lady talk to us at uni, telling us we should be writing our selection criteria before the job applications had even come out. I think it started then, because you had to start thinking about answering the selection criteria, and what you had done that made you good enough for a job and start preparing for interviews. That's when your transition starts because you're no longer really thinking about being a student and what assignment have I got to do next. You're actually thinking, "Well, if I don't do this properly, I'm not going to have a job". So I think it starts then, because it makes you realise, one, that it's sad that it's coming to an end but, two, it's exciting because it's the next chapter. *Trudy, first interview*

Isobel was the only person who believed that her transition to professional practice had commenced when she first began her studies to become a medical radiation science professional. A very small number of participants felt that transition commenced for them when they started their postgraduate employment as a medical radiation science professional:

I guess it's when I started to stop feeling entirely like a student and started to feel like I was on the way to being a radiographer...really on the way. For me, I think that really hit home when I started working and became fully accountable for my own work. *Matilda, second interview*

Broadly, then, for most medical radiation science professionals, their sense of transitioning to professional practice commenced during their studies, commonly about four to 12 months prior to the completion of their studies. This is unsurprising given that Australian medical radiation science programmes incorporate substantial periods of clinical placement from the earliest stages,^(75-77, 272-276) allowing students to be immersed for extended periods in their practice and their professional community. While Hoffart et al.'s⁽¹¹⁰⁾ proposed model for nursing transition that commences during education concurs to some extent, the dominant theme in the literature is contradictory - that transition to professional practice commences upon graduation or certification and the commencement of postgraduate employment. Herein lies the difficulty with the evidence relating to transition to professional practice: the literature is dominated by studies contextualised in specific employment-based transition programs. As a result, it appears commonly presumed or assumed that transition commenced at the point when the program commenced, rather than at the point when the new professional perceived their own changing state. For the purposes of my study, the published literature has not proven especially useful in considering the starting point of transition to professional practice for medical radiation science professionals. The findings of my study differ considerably from published studies relating to formal graduate transition programs, which may be expected as my participants were not enrolled in such programs.

6.2.1.3 Completing transition to professional practice

There was variation in how participants in my study perceived the end of their transition to professional practice, however most identified a point within the first few weeks or months of their postgraduate employment. Most commonly, graduates identified that they felt their transition to professional practice concluded at the point when they first appeared in an allocated staff position on the general workplace roster:

...you count as a number, whereas as students we're supernumerary so it doesn't matter whether we're here or not, but when you're counted as a number, you're officially a staff member. *Nancy, first interview*

This point was commonly described in terms of being recognised by the organisation as a 'real person' or as a 'real number'. At face value, this sort of term seems somewhat cold, but my participants universally considered this a very positive moment when their managers and colleagues acknowledged that they were equally productive and useful in the workplace as any other of their colleagues:

Yes, it's a really good feeling because you know that you're valued just as much as any other team member, and that they're sure that you're responsible enough to be placed anywhere and deal with any situation...but yeah, you're part of the team, just like everyone else. *Susan, first interview*

Frequently, participants indicated that being recognised on the roster coincided with their successful fulfilment of an organisational orientation or probation period, so this stage symbolised an obstacle to ongoing employment that they had successfully negotiated:

So at that time, I think, I kind of relaxed after the performance review. And I think there's also a sign in the back of your head, at three months if they don't like me they can still get rid of me, it's part of your contract...after that stage they can't get rid of you, but at least then you had a feel that they were happy with what you were doing, they weren't getting angry, they didn't have any major criticisms. *Jane, first interview*

The conclusion of their employment probation served to reinforce the graduates' own feelings of capability, affirm their sense of growth and evolution, as well as providing a sense of certainty, job security and acceptance.

6.2.1.4 Duration of transition to professional practice

Depending on the start and end points that the particular graduate considered relevant to their experience, the duration of transition to professional practice varied enormously among my participant group. Isobel believed that her transition to professional practice commenced at the start of her course of study and ceased at what, for her, was a critical event: she was left alone to manage an entire work area workload as there was no other radiographer present with the necessary skills. This occurred just three days into her employment, and Isobel indicated that from this point she felt completely independent and equal – even superior to – her colleagues. Isobel's depiction represents a transition period of approximately four and a half years.

At the other end of the scale, Betty felt that her transition to professional practice commenced at the start of employment and lasted for just a week or two until she had re-familiarised with their workplaces:

It was a bit of a wakeup call but a good wakeup call in that now I'm a better RT after those two weeks. It was a bit stressful, and it was probably...really the first couple of weeks was that transition period. *Betty, first interview*

Such a range is confounding and suggests that the commencement, conclusion and duration of transition to professional practice are highly subjective. If one accepts that people learn and develop in different ways, it is not a disconcerting notion that transition to professional practice – an intense period of learning and development – will be experienced differently by different people, however this raises questions about the suitability of fixed-term transition programs. For my participants, the most commonly cited start- and end-points were, respectively, the commencement of the final student clinical placement, and appearing on the general workplace roster, indicating that a transition period of six months in total is representative for many participants. This represents a substantially shorter period than that

commonly described in the literature, however comparison is difficult because the literature largely reflects the predetermined duration of organisational transition programs rather than graduates' own perceptions. (7, 10, 17, 45, 87-89, 93, 96, 98, 110)

A very small number of my participants indicated that they did not believe that their transition to professional practice had concluded, and they were uncertain when they would cease to feel this way:

It's difficult to answer, because I still feel like I'm learning. I think an important part of radiography is that you're never complacent and that you think you know how to do everything. There's always a new way to do something, there's always a better way, a safer way, there's always a different way to do it...I wouldn't say I'm a fully-fledged radiographer yet, I'm just still getting training for a few things, but I'm becoming more confident in my skills, and on my way. *Emma, first interview*

While Emma is a medical imaging professional, it was predominantly radiation therapists who felt this way, and their perception most likely reflects common rostering practices in this discipline. Unlike the medical imaging context where new employees very commonly are rostered to a range of different work units in rapid succession, presumably for familiarisation or to confirm that they can work effectively in any rostered position, new radiation therapist employees – new graduates and more experienced professionals who are newly employed - frequently commence in a new workplace with a lengthy period rostered to the treatment delivery units. This initial period is perhaps intended to allow them to become familiar with local protocols and equipment before they find themselves in pre-treatment areas, which are anecdotally considered as more complex and demanding of local knowledge. Most of the radiation therapists who participated in my study had either not yet commenced, or had very recently commenced, a rostered period in pre-treatment, and these participants tended to make a clear distinction between their 'transition to treatment practice' and their 'transition to planning practice':

No, not yet. I think my transition in treatment is over, but I go up to planning so it'll be like starting over again. And then, when you come back there'll be another responsibility and something else that you take on. Each time you build into more of an RT. I'm nervous about going to planning, but I'm looking forward to it. It's like those feelings that I had back when I started, but a bit less I suppose. *Betty, first interview*

Such a phased or cyclic transition to professional practice is undescribed in the existing literature, so this may reflect the particular nature of the radiation therapy discipline. It is interesting, however, to note that this apparent expectation for a secondary transition is similar to the experiences described in the literature for graduates who undertake rotations through different wards or work areas during their transition programs. Broadly, these studies^(24, 27, 85, 94, 155, 162, 242, 277, 278) suggest that, often, graduates are initially keen to complete multiple rotations during their initial practice experience, yet after their first rotation they are reluctant to move on to a new area where they will experience again feelings of newness, the anxiety of fitting in, lack of familiarity, and feeling different – all of the same emotions and anxieties that they experienced upon commencing their employment, albeit that their growing capabilities might support them in adjusting more quickly. My study supports the idea that, in addition to practice competence, feelings of familiarity and fitting in are important for medical radiation science graduates to have a sense of belonging in their workplace and the specific work area. Further examination of phased or secondary transition in the medical radiation sciences, and radiation therapy specifically, represents an opportunity for future research.

6.2.1.5 Intermediate states

Much of the literature addresses transition to professional practice as a period where graduates are supervised, monitored or guided in some way toward independent practice, suggesting an intermediate state of 'new graduate professional' that is distinct from 'independent professional'. It is challenging to conceptualise transition to professional practice for medical radiation science professionals in a similar way. They are legally considered as independent practitioners – the regulatory framework does not cater for an intermediate state

for registered professionals who are considered work ready yet, somehow, not independent. The findings from my study indicate that, irrespective of how their independence is recognised in a legal sense, graduates perceive an intermediate period where their personal sense of independence varies.

A student or independent practitioner?

The demarcation for perceiving oneself as a student was very clear for my participants - when they assumed legal responsibility as registered practitioners, they viewed themselves as medical radiation science professionals rather than as students:

...when I started working full-time because you are working independently...you haven't got that person who is, at the end of the day, supervising so it's their responsibility when you're a student. They can't just come in and take control, you have to because it's your responsibility. *Gail, first interview*

I think it might be different for other people, but being fully accountable was the point for me. I think I had to feel accountable before I could really feel like I made the leap from student to qualified. There were lots of times in fourth year that I was doing stuff and I was really happy with it, but I still had to get it checked by other people. And back then, even if I wanted to do an examination in a particular way, if the other person wanted to do it their way, that's what happened because it was under their name and they were accountable for it, so no matter how good I was or how close to being independent, I wasn't actually fully accountable. Whereas when I graduated, I was, and it didn't take long to feel responsible and accountable, which was good. *Matilda, second interview*

Nevertheless, some participants felt that their role as a final year student had not precluded them from being an independent professional. These participants commonly added a caveat that they were entirely independent as a student except for the legal requirement that there must be a final check on their work from a qualified professional:

Other than the pay packet, it's just a piece of paper. Just a piece of paper. I felt competent and confident enough to be a qualified...The only real difference is that you're able to sign off on things. Other than that, you're practising the same, the knowledge and skills are the same. *Carla, first interview*

While appreciating that such a perception is valid because it is these graduates' own truth, it is difficult to accept that a professional could be truly independent in a supervised practice situation, where their professional decisions are not, in fact, final and nor are they legally accountable for those decisions. This suggests that the very definition of independence varies, perhaps between individuals and with context, supporting the idea that what characterises independence in a legal, regulatory sense may be quite distinct from the graduates' personal sense of independence in practice.

Somewhere in between

For most of the graduates in my study, independence was symbolised both by the milestones that indicated the conclusion of their transition to professional practice and by a general feeling of confidence in their competence and practice:

I feel competent. I feel I could step into any situation and, with the background knowledge that I have, apply it...I feel independent. I feel like a real RT. I think that I pull my own weight. On the machine, people can come to me if they have questions or problems. *Betty, first interview*

While several people attested to feeling generally independent in their practice, some participants described themselves as in an intermediate state somewhere between being a student and having achieved independence:

Not completely confident, and not completely competent. In terms of confidence, there's still a little bit to go because I have high expectations for myself, to do a bit better than I do. They're probably related. *Dorothy, first interview*

For the most part, graduates possessed confidence in their capabilities, but some felt that there was an ill-defined something that prevented them from completely

acknowledging themselves as independent professionals. Some explained this as being a state limited by their perception of themselves as beginning professionals who were not at the same level of proficiency as their more experienced colleagues:

...speed seems important because you're a bit slower and you're trying to improve and be more like the experienced radiographers. *Gail, second interview*

Graduates expressed a sense of frustration at their relative inefficiency, which has been noted as a common aspect of new graduate transition for nurses.^(44, 103) It was not unusual for the participants in my study who expressed these views to acknowledge that, while it was illogical to think a new graduate could possibly have the same degree of proficiency as someone who had been working for many years, they nevertheless felt that their lack of experience in some way contributed to a state of 'not quite being' independent:

Day-to-day, things happen when I feel more or less like a real radiographer. I tend to feel less like it when things get very busy and I need to let my colleagues who have more experience take over for that exam because they're a lot faster. So if I can get to their level, I'll feel better. But, being realistic - there's a huge difference between my two months of experience and my colleague's thirty-eight years, so I have to remind myself to keep my expectations realistic. *Phil, first interview*

In some cases, graduates who described experiencing an intermediate state during their transition to professional practice perceived a factor outside their control as precluding them from feeling truly independent. These people frequently anticipated that specific points or events would mark the commencement of their feelings of independence, for example reaching their probation review milestone, being added to the general staff roster, or gaining their first independent experience in planning (for radiation therapists) or on-call (for medical imaging professionals):

On-call is the next thing. I haven't done any on-call yet...and I think once I start doing on-call then I'll be like, "Yep, I'm ready. I'm a fully-fledged radiographer now". Because I'm not doing those things, I'm a bit...well, I don't feel like I am, because I'm not part of it yet. *Dorothy, first interview*

In many cases, graduates who were employed on casual or short-term contracts rather than as permanent staff indicated that this lack of permanency precluded their feeling independent as they felt they were constantly being observed or evaluated: I will further explore participants' perceptions about job security in due course.

6.2.1.6 Section summary

Medical radiation science professionals experience transition to professional practice as a largely linear process lasting, for most, for about six months, commencing during their final year of studies. Graduates denote the evolution of their transition to professional practice with a number of milestones – some, such as commencing postgraduate employment are universal while others are unique to individuals. The graduates' sense of independence is strong, albeit variable, and 'independence' may be perceived differently as transition to professional practice evolves.

6.3 Experiences of transition to professional practice

The experiences of transition to professional practice described by graduates in my study were identified around four categories: staking my independence, performing with confidence, finding my place, and feeling. These categories and their properties are depicted in Figure 6.4 and are explored further in the remainder of this chapter.



Figure 6.4: Categories and properties associated with experiences of transition to professional practice

6.3.1 Staking my independence

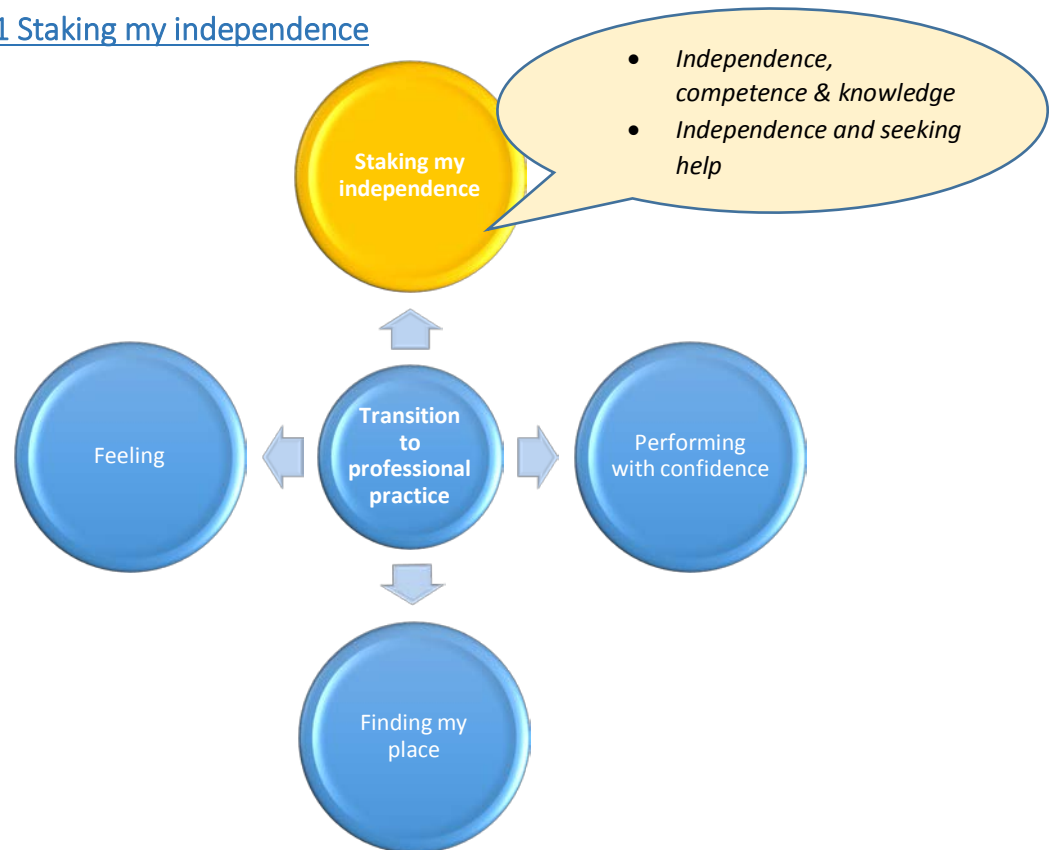


Figure 6.5: Category - Staking my independence

Medical radiation science graduates have a strong need to stake their independence. My participants considered themselves as independent professionals, reflecting their legal status as fully registered practitioners and their belief that others in the workplace expected them to work independently, and they acted to demonstrate this independence to others. In this respect, my study echoes Morley's⁽¹⁵⁸⁾ notion that new professionals experience early expectations for autonomy. My participants took their legal and ethical responsibilities very seriously. Their perceptions of themselves as independent professionals related closely to this sense of responsibility and accountability:

So you know that, when you make a decision, you'll be responsible for it. You have to be confident in your knowledge and skills to make a call. *Violet, first interview*

So I think it was overwhelming, but I think it's just getting used to being autonomous really...the buck stops with you. *Jane, first interview*

Feeling independent was often most acutely recognised by the medical imaging graduates at times when they were working in sole practice situations:

So you have to make the choice: who do I do first, and what do I do? What do I do for this patient, should I move them over onto the bed? There's usually someone else there saying, "No, don't do that, do this". You don't have a voice, whereas when I'm independent and on my own, I have a voice and I have a choice. *Dorothy, first interview*

At such times, the graduate had to rely solely upon themselves, which could be simultaneously daunting and empowering. Conversely, achieving a sense of independence seemed more difficult in circumstances when there were several radiographers present in the work unit:

There's only a couple of rooms but there's gazillions of radiographers, so I feel at times – and I know other radiographers have expressed this as well – that they are always a little bit on edge because there's so many more people around, watching what you're doing and you're not left to....you don't feel like you have your independence. *Susan, first interview*

Such feelings were not reflected by the radiation therapist participants, possibly because the nature of their work predominantly necessitates working as a team of at least two, where each professional continuously confers and confirms with his or her work partner. Carla noted the apparent conflict between being a fully independent and accountable radiation therapist working within a team:

I suppose it's a bit of a contradiction in terms, but that's what we do. In our daily jobs...We work with each other. That's especially good in situations that are a bit challenging. Even if you're making a decision on your own, you might get the opinion of others as well. You still decide for yourself, but you consider what they say. *Carla, first interview*

At times, the apparent tension between practising independently and being a member of a team with an established hierarchy was frustrating to graduates, particularly when they were required to defer to more experienced colleagues.

Nevertheless, my participants seemed to accept that this was simply an aspect of their professional workplace. The need for, and the challenges in achieving, a balance between truly independent practice and support from experienced others has been noted previously among Australian medical graduates,⁽²⁴²⁾ and it has been suggested that graduates should be allocated responsibility in stages in the earliest period of their transition to professional practice. Many of my participants recognised that the structure of their educational program, particularly the staged introduction of clinical elements to coincide with theoretical learning and the support provided by universities to clinical supervisors, encouraged them to progressively assume responsibility within the security of overall supervision.

In my study, graduates described two properties associated with staking their independence, as depicted in Figure 6.5. These properties reflect the associations and connections between their independence, competence and knowledge, and the balance between independence and seeking help. Each of these properties and its dimensions are now examined further.

6.3.1.1 Independence, competence and knowledge

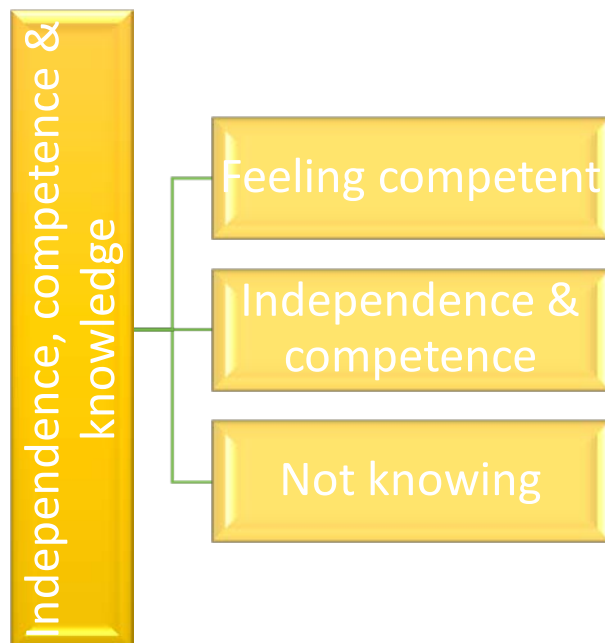


Figure 6.6: Property of Staking My Independence – ‘Independence, competence and knowledge’

Medical radiation science graduates associate independence, competence and knowledge closely, and the dimensions of this property are depicted in Figure 6.6.

For my participants, staking their independence involved demonstrating - and being acknowledged by others as demonstrating – their competence to fulfil the role of a commencing medical imaging or radiation therapy professional:

...so it is nice when people comment, “Oh yes!” and you’ve got your name on it, and they can see that you do nice work, and you are competent, you’re able to deal with the more difficult cases well. *Susan, first interview*

Being acknowledged by others for, among other things, the skills and knowledge brought to one’s practice has been identified as an aspect of nurses’ experience of respect in the workplace. ⁽²³⁸⁾ Having one’s competence belittled or dismissed, or being treated like a student rather than a practising professional, are examples of workplace incivility experienced by nursing graduates. ^(155, 279, 280)

Feeling competent

Medical radiation science graduates possess a strong sense of their own competence. While some of the existing literature suggests new graduates lack a sense of competence, ^(16, 23, 118) my participants felt competent to perform the roles expected of them. The graduates’ personal definitions of competence were not explored in this study, but most seemed to embrace some notion of being able to effectively perform the procedures necessary for the routine case mix in their workplace:

I think, competence and confidence, you've got this batch of knowledge and skills, and it's just a matter of sussing out the new environment or the new situation. It's not about not being competent or not being confident, it's just not being quite familiar in a new situation, but you get over that pretty quickly. Definitely familiarity. Once you've seen something once or twice, yep, totally competent and confident. *Carla, first interview*

Despite a strong perception about their core practice knowledge, some graduates felt that their confidence in their knowledge and, therefore, their confidence in applying it in practice, wavered in some situations, particularly when confronted by a procedure or incident with which they had had no previous experience. This dip in confidence sometimes led to moments of self-doubt:

You start off relatively competent for most things, maybe not things like skulls because you barely ever see them. But for those things, I may be competent to do them if I wasn't second-guessing myself the whole time, but being unconfident to do them. *Jane, first interview*

At such times, graduates might question their ability to practice, although this appeared to be predominantly feelings in the moment, and this has been similarly reported among new nursing and midwifery professionals. ^(200, 281) Upon later reflection, including during our interview discussions, those who expressed such concerns took a more balanced perspective that acknowledged that even the most experienced professional was likely to encounter unfamiliar situations that challenged their knowledge:

It might be, probably, a little bit more than if anyone new to [this centre] who'd never seen [this centre's] TBI technique before had to do it, maybe there's a tiny bit of also being a new grad, but not much of that. Probably you'd feel pretty much the same if we went downstairs and had to do a TBI, maybe a bit anxious. *Carla, first interview*

I definitely have all the knowledge and skills I need to tackle most of what we see here. There's always the odd thing, but that happens everywhere and sometimes even the experienced people aren't sure what to do. *Violet, first interview*

Some graduates recognised that while their professional group shares common core competency, there were areas or situations where experience, exposure or opportunity might mean that a particular colleague possessed competence that was not universally shared. My participants were enthusiastic about learning from such individuals and acquiring that aspect of competence themselves, reflecting previous findings that professional colleagues are an important learning resource for new graduates. ^(18, 25, 89, 113, 282, 283) Some of my participants acknowledged that there were aspects where they, too, were in possession of 'special' competence, which enhanced their sense of capability and independent identity:

It was a really interesting time, a bit of role reversal. I'd been out of my comfort zone before, and now they were the ones out of their comfort zone. It was exactly the same equipment that I'd used [at the start of grad year], so I'd had six months of experience practising on it, seeing how niggly and fiddly it was. So I think they were out of their comfort zone. It's made the relationship feel equal now. *Jane, second interview*

Possessing 'special' competence, and teaching other colleagues about it, was a very valued way for graduates to stake their independence.

Independence and confidence

Among medical radiation science graduates, independence is closely associated with confidence. While participants in my study were keen that their independence be acknowledged and respected by others, their own feelings of independence varied with the situation:

My feelings of independence could change from day-to-day, depending on where I am and what shift I do. I do morning shifts, some mornings, and I'll be on my own...and for that morning period I'm pretty much independent, so I'm like, "Okay, get into my little independent mode". Then I come back and everyone's there, so...when everyone's there, you kind of slack off a little bit, or I feel like I'm a student still because when I was a student I was pretty much doing the same things that I'm doing now. The only difference is, I don't get them to check my pictures. *Dorothy, first interview*

While such a finding is, perhaps, somewhat self-evident, much of the very small volume of literature that considers feelings of independence during transition to professional practice tends to report in broad terms. Graduates are generally described as commencing employment with a low sense of independence or capacity, and complete the transition program or the research study with increased feelings of independence.^(90, 200, 284, 285) Few studies have specifically identified that graduates experience regular variation in their sense of independence or capability,⁽²⁸⁾ as was reported by participants in my study.

My participants' sense of independence was often expressed in close relationship with their feelings about their knowledge:

So you know that, when you make a decision, you'll be responsible for it.

You have to be confident in your knowledge and skills to make a call. *Violet, first interview*

Knowing or feeling confident about knowledge has been previously related to new graduates' sense of independence and capability.^(141, 281) The graduates in these studies, like my participants, felt confident that they possessed the knowledge necessary to perform their roles, which differs from findings among some other graduate professionals,^(15, 25, 44, 93, 94, 284) where lack of confidence was a dominant theme.

Not knowing

Medical radiation science graduates are realistic about their level of professional knowledge. Universally, participants were comfortable that their knowledge allowed them to perform safely and effectively while acknowledging that they did not, and would never, know it all:

You don't have to know everything all the time, you don't have to have all the answers. It's always good to be, "Okay, what did I do wrong there?" to be able to know how to critique yourself. *Kylie, first interview*

This contrasts with other studies^(15, 162) that have found that 'not knowing' was perceived as a weakness and a source of anxiety, rather than as an occasional and natural expectation among new professionals. The distinction may reflect something about the way medical radiation science professionals are educated to seek ongoing development: the requirement for students to develop the capacity for reflective practice and lifelong learning has applied for many years in Australia.⁽⁷³⁾ Most of the graduates in my study felt that their transition to professional practice experiences had included significant learning opportunities, which they welcomed. In developing an expectation as students that they will always be learning and growing professionally – constantly evolving, in other words

- perhaps medical radiation science graduates feel it only natural that there will be times that they do not have all the answers.

In addition to an expectation that they will always be developing professionally, many of my participants expressed a strong desire to continue building and advancing their knowledge throughout their careers as medical radiation science professionals:

I do think that radiation therapy is getting new technologies and new methods from time to time, so I don't think at the moment that I will get to that stage where I don't have anything new to do, anything new to learn, something to keep me interested. For me, there needs to be some challenge in my work to keep me interested and wanting to do it. *Oliver, second interview*

I think an important part of radiography is that you're never complacent and that you think you know how to do everything. There's always a new way to do something, there's always a better way, a safer way, there's always a different way to do it. *Emma, first interview*

This commitment to, and desire for, ongoing professional learning among new graduate professionals has been commonly described previously.^(14, 22, 28, 29, 239, 286, 287) In the context of the Australian medical radiation sciences, the requirement for continuing professional development has been embedded in professional practice, accreditation and educational standards for many years,⁽⁷³⁾ so it is unsurprising that graduates seem so strongly committed.

6.3.1.2 Independence and seeking help

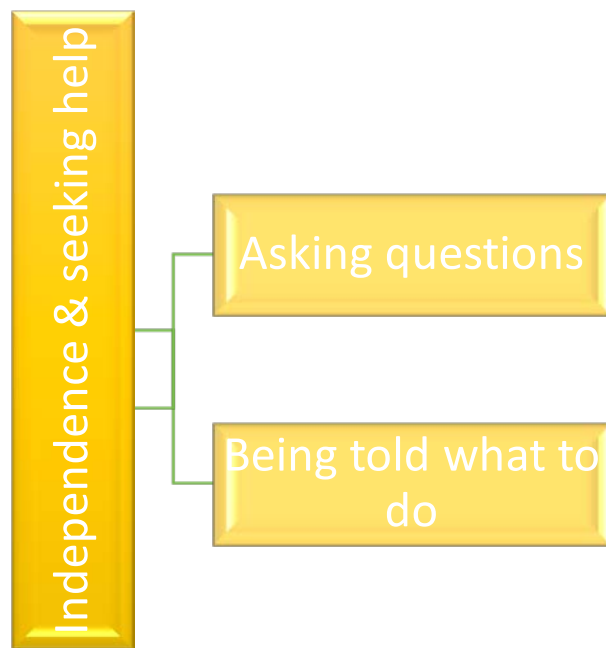


Figure 6.7: Property of Staking My Independence – ‘Independence and seeking help’

For medical radiation science graduates, a strong sense of independence does not preclude taking opportunities to seek help. In fact, knowing when to seek assistance is perceived as a professional strength. As depicted in Figure 6.7, this property incorporated dimensions of ‘asking questions’ and ‘being told what to do’.

Asking questions

Medical radiation science graduates ask questions as a primary help-seeking strategy. My participants experienced no conflict in practising independently while still considering advice and opinions from others. Many graduates felt that being prepared to ask questions was a positive and important element of being an independent professional:

Asking questions is something that people don't often do, but all along the way it's better to ask questions sooner rather than later. If you come across something you don't understand, better to ask questions then than to get weeks down the track and find out you've been doing it wrong. If you ask, you're going to get that trust earlier. They're not expecting us to know everything - we're a Grade 1, a base grade, so we're entitled to ask questions. If you ask questions, they know that you're not just going along

with things and you're actually understanding what you're doing. *Betty, first interview*

This positive view of questioning is supported by Bartolone⁽²³⁹⁾ in her study of new nursing graduates. She proposed that asking questions reflects one aspect of new graduates striving for excellence. While further investigation was beyond the scope of my study, it is interesting that my participants perceived willingness to ask questions as a clear strength that was valued by others in their workplace, yet some research has found that employers are ambivalent about the value of questioning attitudes in new graduates.⁽²⁷⁷⁾ It may be that questioning as a means of help-seeking is perceived more positively as a strategy for development and growth, while questioning the prevailing practice is perceived as criticism.

Being told what to do

Perhaps unsurprisingly, medical radiation science graduates do not like being told what to do. Seeking advice from colleagues was perceived as quite distinct from receiving unsolicited advice or instructions from others. For most of the graduates in my study, being told what to do was perceived negatively and, at times, as veiled criticism:

When some people try to modify how I work...I don't mind suggesting new ways or better ways, but some people actually want you to work in this way and not in another way. That would make me very uncomfy. *Oliver, first interview*

Being told what to do, or how to practice, made some graduates feel as though they were being treated as a student again and, echoing previous findings among new nurses,⁽²³⁸⁾ that their status as an independent professional was disrespected:

I get a little bit cranky. I feel belittled, a bit, like I'm a student again, and I'm like, "Okay, well I'm not going to do it then, you do it". *Dorothy, first interview*

Importantly, many of my participants based their decisions in new situations on thinking through the options and reflecting on their previous experience and existing knowledge. When a colleague pre-empted this process with unsolicited

advice, the graduate lost the opportunity to learn and exercise their own judgement. Few believed that being told what to do by colleagues was maliciously intended, and my participants predominantly excused such behaviour as misguided attempts at helpfulness or that their colleagues were bored and were seeking distraction:

I don't know why, I think it's just that work environment, everyone tries to help each other but sometimes it's like stepping on each other's toes...It doesn't happen all the time, but on some occasions. I don't think there's any malicious intent, it's a very helpful environment...I think it's more the fact that they're like, "Oh, maybe Dorothy needs some help", so they'll come and help me. *Dorothy, first interview*

The source of the unsolicited advice was important to how my participants felt about its impact on their feelings of independence. When the source was a colleague they particularly trusted or admired, graduates perceived this as positive learning and support:

I'm aware that I've still got a lot more to learn so if it was a senior radiographer or my boss....of course, they've got so much more knowledge than me, so I'm going to take on board anything that they say. *Susan, first interview*

When the source was a colleague that the graduate considered as less expert and more equal in status to themselves, the unsolicited advice was more likely to be perceived negatively. Susan was emphatic that unsolicited advice from people who were not her professional colleagues was patently unacceptable when she related an incident where a radiography assistant attempted to tell her how to perform a chest x-ray:

I just was so frustrated and angry and I just....yeah, that really annoyed me, because it's one thing for another qualified person to tell you because you're both adding knowledge, but this person who doesn't even know what it means to be a radiographer, telling me that he's had so much experience doing portable chests....annoying. *Susan, first interview*

Medical radiation science graduates are not averse or embarrassed to seek help, but being told what to do can be disempowering or insulting.

6.3.1.3 Section summary

Medical radiation science graduates have a strong need to stake their independence, which is closely associated with their strong sense of competence and realistic perception of their professional knowledge. Their sense of confidence underpins their independence and competence. While graduates keenly anticipate that their independence should be acknowledged and respected by others, their own feelings of independence vary in different situations. Despite their pervading sense of independence, medical radiation science graduates are proactive about seeking the help they require, perceiving such willingness as a professional strength.

6.3.2 Performing with confidence

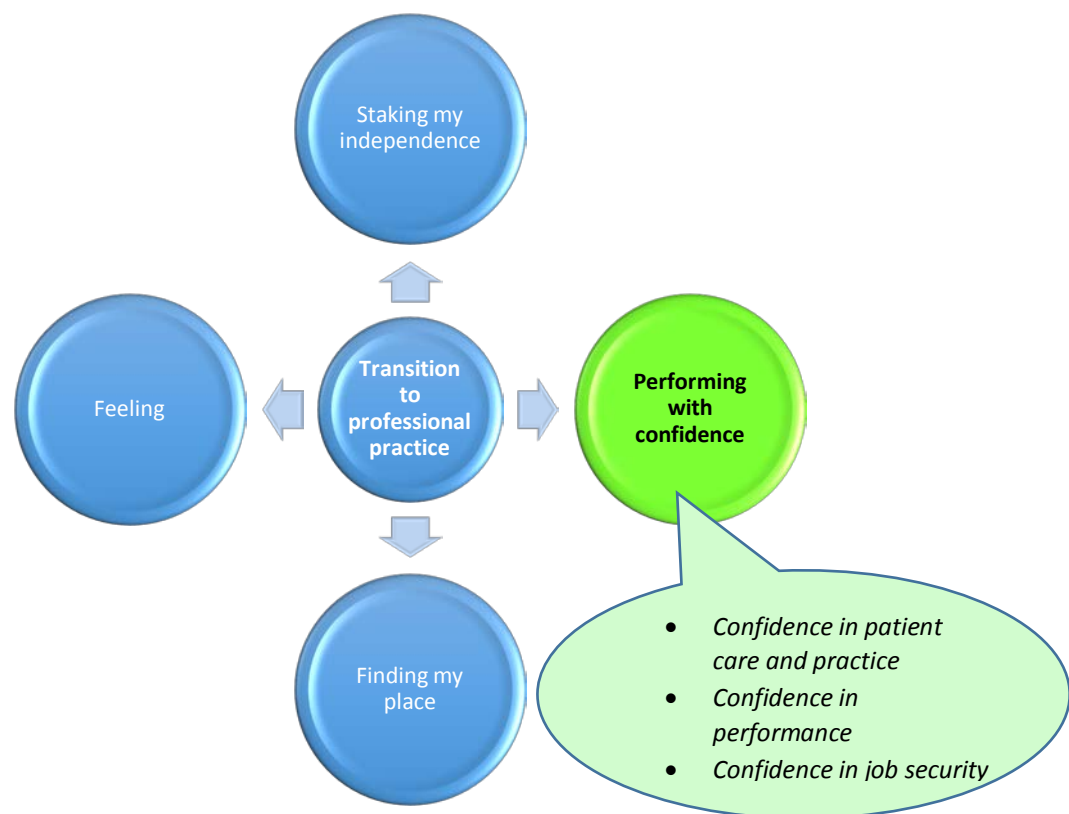


Figure 6.8: Category - Performing with confidence

During their transition to professional practice, medical radiation science graduates experience performing with confidence. This appears to be a multi-faceted experience involving the graduate establishing their own – and others’ – confidence

in their capability to do the job, and striving to make a contribution to the workplace and to improve.

While firmly of the view that they possessed the knowledge, skills and competence to practice independently, concerns about performance were common among my participants. Predominantly, though, these concerns related to the graduates' confidence in their performance rather than their actual ability:

Thinking about that now, if you take those two elements of confidence and competence...clearly I was competent because I got a good image. I wasn't confident I was going to get that image. And that was despite that I knew what I was doing, had enough skills to do it, I had the skills to think through how I was going to do it and that I'd seen it done before. Why didn't I think I could do it? *Trudy, first interview*

In my study, graduates described three properties associated with performing with confidence, depicted in Figure 6.8, and incorporating their confidence in patient care and practice, their confidence in their performance, and their confidence in their job security. Each of these properties and its dimensions are now examined further.

6.3.2.1 Confidence in patient care and practice



Figure 6.9: Property of Performing with Confidence– ‘Confidence in patient care and practice’

Confidence and competence are often closely associated for medical radiation science graduates and, as depicted in Figure 6.9, confidence in patient care and practice incorporate dimensions relating to competence and to practising in one's own way. Although my participants broadly felt a strong sense of confidence in their practice, their feelings of confidence varied considerably:

Now, today, I've just moved to another machine and I haven't worked with this man before. It isn't that I don't trust him and he doesn't trust me, it's just that unknown. My confidence is a little bit down today because I don't have that familiarity. I'm more comfortable working with people that I know. It's interesting that your confidence can change day to day, or even because of something that you haven't seen before or just stuff that you're a bit hesitant about. I think my confidence would drop a bit then. *Betty, first interview*

Such feelings do not appear unusual, and may even be expected among beginning practitioners.⁽²⁸⁸⁾

[Confidence and competence](#)

Medical radiation science graduates feel that confidence in their competence is critical to their sense of their capacity to practice. It has been previously suggested that a relationship or coincidence exists between confidence and competence,^(285, 289, 290) but the nature of that relationship is poorly understood, not least of all because of a lack of consensus about the meanings of the two terms.⁽²⁸⁵⁾ Many of my participants felt that their confidence underpinned their competence, and that a variation in their sense of confidence could affect their ability to practice effectively:

So I think there's definitely a connection between competence and confidence. Even a few days ago, I worked and I did not feel competent at all. I was having a really bad day with chest x-rays, I kept chopping off my bases. I'm competent to take x-rays, just on that particular day I did not feel confident at all, I don't know where my head was at. *Jane, first interview*

Their sense of confidence in their ability to practice effectively incorporated the belief that they possessed adequate skills and knowledge to perform their roles – even if, at times, recalling that knowledge was a struggle:

I guess the stuff I'm not using now stays in the bank for down the track, but things that I'm not using every day or regularly, it's hard to keep it fresh and not forget it. *Dorothy, second interview*

Reflecting findings from other studies,^(44, 284) my participants' sense of confidence also involved their belief that they could effectively interact with, and respond to, their patients:

Once you are an RT, the patient has total confidence in you that you know the answers to their questions. Even when you don't know, you have to keep the patient's confidence and make it sound that their question needs more expertise, not that you don't know the answer. If the patient loses confidence in you, they will not comply with your instructions and it will make them feel like they are not getting the best treatment and attention. *Oliver, second interview*

Emerging incidents and circumstances in their workplace or personal lives readily influenced my participants' sense of confidence and, therefore, their sense of competence also varied over time.

[Practising in your own way](#)

For medical radiation science graduates, performing with confidence involves practising in their own way. Particularly for medical imaging participants in my study, there seemed to be a strong sense of the importance of establishing one's own approach to practice, and respecting that of others:

When I'm assisting, I always ask them what sequence they're going to do their views in, if it's a shopping list or whether they'd prefer to do something against the upright bucky or slide them or....I always leave them to make that choice because they're in control and I'm just there to help them, and they obviously know what they're doing, they've found a

technique that works for them and so why should I disrupt that? *Susan, first interview*

Throughout their studies and, predominantly, during their transition to professional practice, graduates established for themselves how they preferred to approach particular practice procedures or elements of patient care, albeit that this could sometimes be challenging:

It's hard because as a student you're bombarded with so many different ways of doing the same thing, and some people are quite set in their ways, so as a student you might think you've kind of got your groove, and then someone says, "No, do it this way" ...you've still got to be open-minded to that kind of thing. *Trudy, first interview*

My participants employed their theoretical knowledge, trial and error, mirroring more experienced colleagues, and reflection to establish the approach that best suited them or the particular situation. On face value, this seems to raise a question as to why it is not simply a case of following a best practice approach. As was frequently pointed out by the participants in my study, there are sometimes equally worthwhile alternative approaches, or mitigating factors (related to equipment, the patient, or the professional's physical attributes) that might require them to adapt best practice to suit the situation:

Yesterday I was trying to get a supine chest and he was in so much pain, and I just couldn't get it. He was kind of hunched over, he couldn't sit up and he just kept slumping to the side. So it had to be supine so I laid him down. I just had to give him more time because he was in so much pain, and I finally got him into a position that he could stay in, I got the picture and I was like, "Right, that's it, that's all I can do". I couldn't do any more. It was a little bit rotated still, but it was the best that I could get. I could have tried one more time to get him a little less rotated, but what I had was acceptable. They could see what was going on and it was causing him so much distress, so I had to let him go back being comfortable because he was just in so much pain. *Gail, second interview*

The situation Gail described highlights the multidimensionality of confidence in patient care and practice: to manage the situation, she demonstrated confidence in her ability to adapt her practice to suit her patient’s needs, and in her authority to enact her clinical judgement.

6.3.2.2 Confidence in performance

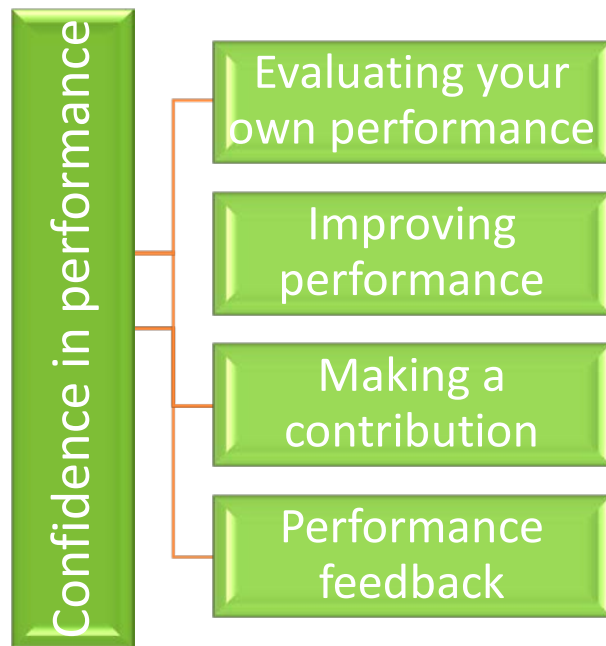


Figure 6.10: Property of Performing with Confidence– ‘Confidence in performance’

Medical radiation science graduates possess a strong desire to perform well and to progress. This is motivated, variously, by altruism (to perform well for their patients), by personal satisfaction (to feel proud of a job well done), and by pragmatism that future employment depends upon their continuing performance. Confidence in performance, as depicted in Figure 6.10, involves aspects of self-evaluation, performance improvement, contribution and performance feedback. My participants’ confidence in their own performance varied for a range of reasons, and feedback was perceived as critical to improvement.

Evaluating your own performance

Graduates self-evaluate, with a view to regulating and improving their own performance. In considering and evaluating their own performance, several of my participants indicated that they compared themselves with others – and this built (or not) their confidence in their performance. Where the graduate worked with

others with whom they had studied, they commonly indicated that they compared themselves with these peers. Mostly, this was perceived as positive comparison and even healthy competition:

You compare yourself with them, definitely. I don't know if others do, but I do. I compare myself to them, so I look at them and think, "They know such and such, I should know it too". If I don't, I try to find out or get a bit more experience in whatever it is. I think it's mostly healthy, and it's reflecting.

Gail, second interview

Sometimes, when the graduate had doubts about how they had handled a particular situation or had received negative feedback from a colleague, he or she would seek the advice of peers as one aspect of his or her reflection on performance:

I then went to my peers and said, "Well, what do you think?" and they said they wouldn't have known either, and the answer that [a supervisor] gave me, I just couldn't see how what she was saying made any difference to the outcome. So on one hand I was reassured that it wasn't just me that didn't know, that I wasn't just stupid. *Matilda, second interview*

While I was unable to identify examples within the literature where graduates in transition actively compared themselves with their peers as one aspect of building professional confidence, participants in my study echoed existing evidence^(5, 22, 291) that the ability to share concerns and frustrations with trusted people of a similar level of capability and knowledge was identified as a valuable asset during transition to professional practice:

The other radiographers here who graduated with me, those relationships have been really quite important. We support each other really well. Being able to talk to them, they're going through pretty much exactly the same thing as me, it's really easy to relate to each other. *Gail, second interview*

Jane was the only person who identified examples where comparison or competition with her peers was experienced negatively, and these situations complicated her social relationships and friendships with those peers:

Working with one of my best friends changed the relationship, very much so. It changed a lot. For worse at work, but socially you get over it, it's normal when you're outside of work, but at work there's definitely...not really conflict but there's competition. *Jane, first interview*

My participants also compared their performance with their more experienced colleagues. Sometimes graduates simultaneously held competing views about their performance in this respect. While they acknowledged it was illogical to expect to have an equivalent level of skills, knowledge, efficiency and capability as more experienced colleagues, participants in my study expressed frustration that they were not yet at such a level, echoing findings from other research.^(15, 28, 44)

Occasionally, this led the graduates to judge their own performance unreasonably harshly:

I just didn't know what to do, I was like, "I just don't know what I'm supposed to be doing right now". So I had to ask the supervisor...I just looked like an idiot. I just felt stupid. It was like I was a student again, like I didn't know what I was doing. *Susan, first interview*

My study demonstrates that medical radiation science graduates actively evaluate their own performance during transition to professional practice and, for the most part, this is enhanced when they can compare themselves with other professionals with similar levels of experience. In comparing themselves with more experienced colleagues, new graduates experience frustration and motivation.

[Improving performance](#)

Medical radiation science graduates possess a strong desire to improve their practice performance. As has commonly been identified among new graduates,^(15, 22, 28, 44, 284) my participants who felt themselves to be at an earlier stage of their transition to professional practice tended to feel that their efficiency was lacking:

Day-to-day, things happen when I feel more or less like a real radiographer. I tend to feel less like it when things get very busy and I need to let my colleagues who have more experience take over for that exam because they're a lot faster. So if I can get to their level, I'll feel better. *Phil, first interview*

Those in later stages seemed more focused on extending, advancing and challenging themselves. Occasionally, the areas of performance improvement had been identified in feedback the graduate had received but, more commonly, they were nominated by the graduates themselves as the result of their personal reflections:

It's always good to be, "Okay, what did I do wrong there?" to be able to know how to critique yourself. You're still learning, so don't beat yourself up about everything. At the start, I did that, so I had to be, "Right. What did I do badly today? How am I going to fix it next time?" At the start I was really doing it consciously, I was really quite good at doing it, I'd make notes and go back and study things. *Kylie, first interview*

[Making a contribution](#)

Medical radiation science graduates are eager to make a contribution to the team and the workplace. My study reflects others that have identified that making a contribution or feeling that one can make a difference is important for new graduates to feel valued, confident, and that feel they belong or feel satisfied in their jobs.^(14, 139, 200, 287) Commonly among my participants, the desire to contribute was motivated by altruism and the belief that contributing was simply the right thing to do as an employee or as a professional:

You need to take responsibility for yourself, pull your own weight, make sure you follow through on things. *Betty, first interview*

Sometimes the motivation was more competitive or self-interested. Some graduates believed that making a contribution made them valuable and productive in the workplace, thereby better positioning them for continuing employment, promotion or opportunities:

The world of radiography is very small. If I did something here that didn't impress, everybody knows about it and everybody talks about it, and then if I go to go somewhere else, everybody else would know about it. And then, there goes my career, pretty much, because [this city] is tiny and radiography is tiny, and everybody knows everybody so if you have a poor attitude, a poor work ethic, everybody's going to know about it. It didn't take me long to realise that, actually, because there was a particular staff member here whose contract was not renewed. This person didn't come to...she was always sick, didn't like to do a lot of work, didn't get her contract renewed. And I'm on a contract, I don't want that to happen to me.

Trudy, first interview

That new, enthusiastic professionals should demonstrate acute interest in getting ahead in their careers is probably to be expected. The interests of the patient, the workplace and the individual need not, necessarily, be perceived as mutually exclusive.

Performance feedback

Medical radiation science graduates place great value on feedback during their transition to professional practice, primarily as a means of confirming and progressing their development, but also as confirmation of their acceptance by the team. For most of my participants, the only formal evaluation of their work occurred at a point – commonly after six to 12 weeks of employment – that coincided with the conclusion of their probationary period. At this stage, the graduates received a formal evaluation of their performance, and feedback about their perceived strengths and weaknesses. Some graduates also actively sought feedback from trusted colleagues as a method of confirming their own self-assessment and to assist them to identify learning needs and opportunities:

Feedback definitely helps. I got a lot of feedback from people, like seniors on the day, they'd say....and you'd go up and ask them as well because not all the time, they wouldn't actually "you know, you need to improve" or something....I did approach some of them a few times just to see how I was

going and stuff, and I got some feedback which was good. *Fred, first interview*

My participants felt strongly that receiving feedback from colleagues – even negative feedback – was an important aspect of their transition as it allowed them to confirm or reconsider their own self-evaluation, thereby contributing to their confidence in their performance. It is well-established that feedback assists new graduates in making a successful transition to professional practice.^(17, 23, 30, 89, 114, 140, 155, 292-294) It is intriguing that for many graduates in my study, even poorly delivered or negative feedback was considered to be more useful than no feedback at all, a notion I have previously only identified in one study of graduate nurses in Norway,⁽⁹²⁾ who seemed to perceive that it was better to hear something from others about one's performance than to hear nothing. My participants indicated that, in general, the medical radiation science community is poor at providing effective and regular feedback to beginning professionals. This notion presents a potentially rich area for future investigation.

6.3.2.3 Confidence in job security



Figure 6.11: Property of Performing with Confidence – ‘Confidence in job security’

Job security is associated with medical radiation science graduates' sense of confidence. As depicted in Figure 6.11, this property primarily related to anxiety

about continuing employment. My participants perceived a relationship between their job security and a sense of constantly being judged, and this diminished their sense of confidence. Those who were employed on short-term contracts or as casual staff commonly indicated that they felt insecure in their positions and, as a result, felt as if they were continuously being evaluated:

Because we don't have permanent contracts, I definitely feel like I'm constantly being evaluated. Sometimes it affects my behaviour with some people. With some people I'm more intimidated than others, so it definitely does affect my behaviour and how confident I am in what I'm doing...I'm still just on a contract, so there's a potential I won't have a job at the end, so I do feel under pressure to perform. I do feel like we haven't stopped being students in that we are still being judged, everyone's always judging you.

Alice, first interview

That their ongoing employment was tenuous caused many graduates to feel that they could not truly be themselves, that they did not fully fit into the work group, and that they were constantly conscious of their performance:

Not having a permanent contract is definitely very stressful, and it makes us different. There's less stability, and there's uncertainty...I absolutely still think I'm being evaluated, one hundred percent, all the time. I'm very conscious of my behaviour, at the end of the day, you want to make sure that you're making a good impression and everyone's liking you because you want a job. In that regard you do still feel like a student, in that social aspect, because you still feel like you're being judged and evaluated. I definitely feel like that. All the time. All the time, regardless of who I'm working with. *Nancy, first interview*

It is difficult to make a comparison of these notions with the existing literature relating to transition to professional practice. Firstly, much of the literature during the past two decades reflects a period when staffing shortages were acute^(6, 10, 13, 17, 23, 24, 41, 44, 46, 49, 53, 55, 88, 94-96, 98-100, 102, 103, 117, 118, 121, 124, 141, 148, 150, 153, 159, 164, 282, 293, 295-307)

- new graduates were unlikely to experience such difficulty finding employment or

changing jobs as might occur in times of fewer vacancies. It will be interesting to see how the themes in the literature change as a result of the funding and budgetary cuts to educational and healthcare institutions that have flowed from more recent global economic issues. Secondly, the existing literature frequently reports about graduates in specific transition programs where evaluation is a formalised element or an explicit expectation^(17, 41, 46, 88, 96, 100, 101, 124) – the situation and context for participants in my study is quite different. Nevertheless, it is unsurprising that medical radiation science graduates who feel that their employment is tenuous might feel the need to continually demonstrate their worth to the team and their value as an employee. My participants indicated that this situation was personally draining for them, and it is little wonder that their confidence was diminished.

6.3.2.4 Section summary

Medical radiation science graduates experience performing with confidence, with elements related to their capability to perform their task responsibilities, make a contribution to the workplace and to improve. Graduates' confidence in their patient care and practice is associated with their sense of competence and capacity to practice in their own way. A strong desire to perform well and to progress can have various motivations, and graduates' sense of confidence about their performance also varies for a range of reasons. Feedback is critical to performance improvement. Job insecurity diminishes medical radiation science graduates' sense of confidence.

6.3.3 Finding my place

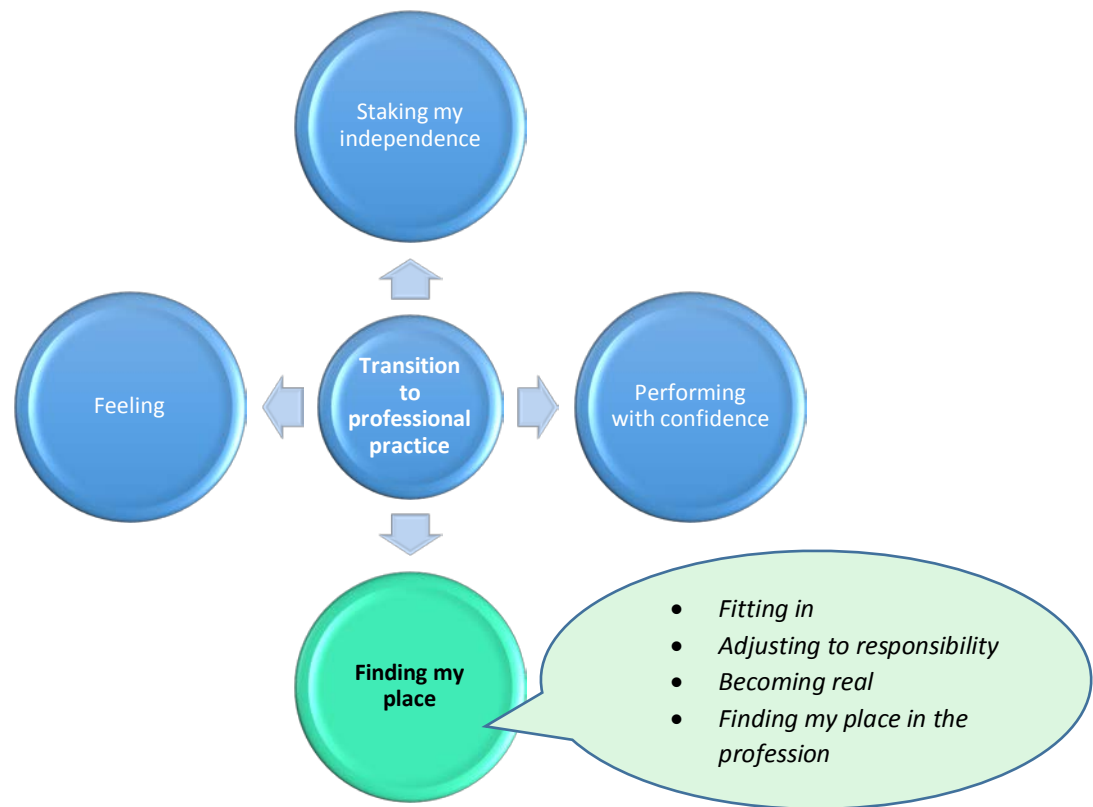


Figure 6.12: Category - Finding my place

During their transition to professional practice, graduates experience finding their place. This involves considerable adjustment as they fit in to their workplace, team and profession, and experience the differences between being a student and being a new graduate.

In my study, graduates described four properties, depicted in Figure 6.12, associated with finding their place – fitting in to the workplace and team, adjusting to the responsibility associated with their independent roles, becoming a ‘real’ professional, and finding their place in the broader profession. Each of these properties and its dimensions are now examined further.

6.3.3.1 Fitting in

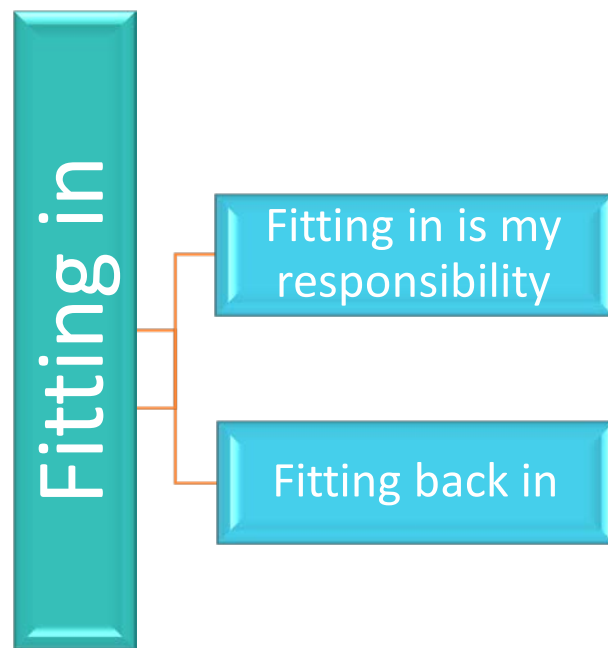


Figure 6.13: Property of Finding my Place– ‘Fitting in’

Fitting into the team and to their professional community is important to medical radiation science graduates. My participants described adjustments that were necessary as they fitted in during their transition to professional practice, and this property is depicted in Figure 6.13. Universally, graduates felt that fitting in to the workplace and the social structure of the work team was absolutely critical to a positive transition experience, to enjoying work and, more broadly, to their ongoing success as a practising professional, reflecting findings from other studies that graduates feel a strong desire or need to fit in^(10, 85, 200, 277, 284, 308).

To fit in as an independent radiotherapist is the most important issue for anyone because it will help building your confidence, knowing that there are people that you can communicate with, socialise with and, later on, it will be these people that you take support from. So, yeah, fitting in as a radiotherapist is really important for everyone especially in the beginning.

Oliver, first interview

It's so important to fit in because it makes the workplace so much more enjoyable to get along with all the people. Half the fun is who you work

with. Doing the work is one part, but being with people that you can relax and joke around with is really important as well. I'd say that fitting in socially is really important. *Remy, first interview*

While most graduates in my study felt that fitting in, for them, had been straightforward, there was a belief that other peers had not fared so well. Having previous familiarity with the workplace or organisation through placement opportunities as a student was advantageous to fitting in.

Fitting in is my responsibility

Medical radiation science graduates, as new members of the team, believe that fitting in is their responsibility. While supportive colleagues and a supportive organisational culture were considered important to facilitate fitting in, my participants believed that it is, ultimately, the new employee's responsibility to make the accommodations necessary to fit in to a new workplace, reflecting findings from nursing studies^(238, 287):

Everyone has different personalities, so you have to adapt and remember to consider other people. It's not just about you. You don't want to piss people off straight away. Be aware of how people are. You have to find your place, everyone else in the team doesn't have to change to suit you. *Remy, first interview*

Some graduates indicated that fitting in required adjusting one's behaviour or curtailng one's outspokenness to better accommodate the expectations of the workplace, echoing notions about learning the workplace or professional culture that have been reported among other graduates.^(15, 30, 238) While this did not necessarily mean that my participants felt that they could not be true to themselves, it required them to sometimes moderate their behaviour in consideration of others or to avoid sanctions from the group:

You'll be fine if you don't rub anyone up the wrong way. It's important that you are who you are, but you're conscious of the people around you too. You need to make sure you don't go too far. *Betty, first interview*

While none of the participants in my study indicated that they had experienced difficulties fitting in during their transition to professional practice, several identified situations that had occurred while they were early-stage students, or that had occurred to acquaintances, where fitting in had proven problematic:

You've really got to put yourself out there and not just....you know, some people go out to [other sites] and just sit there and read their book, and don't make an effort to talk to any of the people around. I just think that's the wrong way to go about it because, obviously, you're not going to fit in if you're an outsider like that. *Dorothy, first interview*

Graduates generally believed that such difficulties resulted when individuals refused to be considerate of the expectations of the organisation or their colleagues, or to make an effort to fit in. While participants in my study believed that people might have trouble fitting in when the workplace culture was intolerant of new people or students, there seemed to be a general sense that such workplaces represented the minority of situations. Intolerant and unwelcoming cultures have been identified as problematic environments that complicate new graduate socialisation,^(15, 24, 118, 155, 309) particularly for new nurses, but it is not clear from the literature how prevalent such environments might be. Some medical radiation science workplaces are alleged, anecdotally, to be unsupportive of learners and beginning practitioners, but this is unreported in the literature and unspecified by my participants.

[Fitting back in](#)

Returning as a graduate and employee to a workplace visited as a student facilitates fitting in, making it easier. Most graduates felt that they had easily fitted in and found their place in the work team and professional group. They frequently perceived this was easier for them where they commenced employment in locations at which they had completed clinical placement as a student. As a result, they felt familiar with the environment, procedures, protocols and expectations, and graduates perceived that this made fitting in as an employee much simpler:

I think if I hadn't been on prac here already, and hadn't known the people around me...I think for someone coming in new, you would have had much more factors to consider, like fitting in, getting to know the people around you, getting used to the environment and getting used to the equipment. But because I'd already had quite a few weeks in my fourth year, I was a bit more comfortable and that wasn't too worrying, so I was able then to spend more time thinking about what was in the best interests of my patient, whether my pictures were good enough. *Gail, first interview*

Because the participants in my study had not experienced the alternative situation - commencing their first employment in a location they had not encountered previously - it is difficult to know whether the relative advantage is perceived or genuine. It is conceivable that fitting in might be easier when one enters a workplace with no history, or with a 'clean slate' where one's former errors or inadequacies are unknown. Without suitable negative cases, this view is simply speculative.

6.3.3.2 Adjusting to responsibility

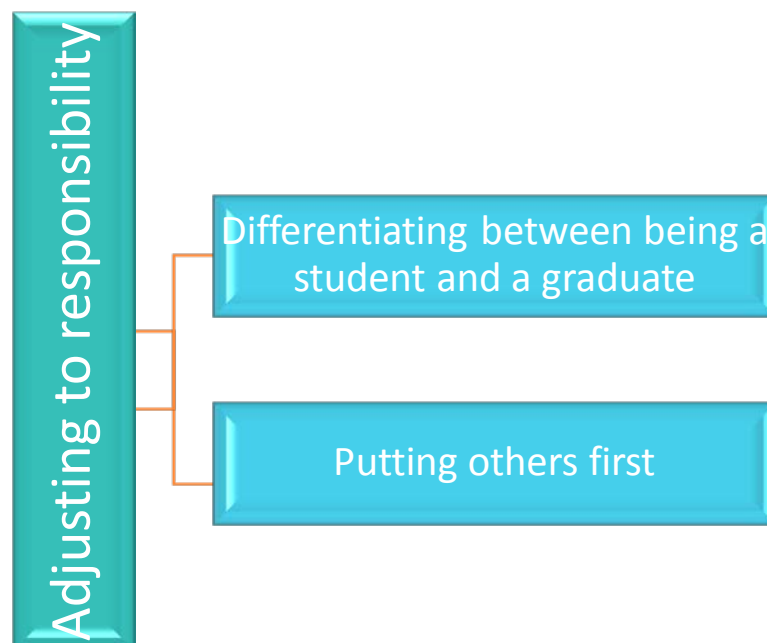


Figure 6.14: Property of Finding my Place – 'Adjusting to responsibility'

Transition to professional practice is a period of considerable adjustment and change. Graduates in my study frequently spoke of the adjustments they had made during this period in order to find a place where they felt comfortable and confident in their practice. Key adjustments, depicted in Figure 6.14, included making the leap from student to graduate in accepting their full professional responsibilities and genuinely putting others before themselves.

Differentiating between being a student and a graduate

Transition to professional practice requires medical radiation science professionals to adjust to the differences between being a student and being a practising professional. The differences were wide-ranging. Graduates spoke of adjusting from having relative autonomy over their time and schedules, where the workplace did not depend upon their attendance, to being required to attend work according to a roster:

When you're a student, you're kind of like an extra pair of hands, but when you're a radiographer, you're rostered there, they need you, you have a responsibility to share the workload. You have to be there, contributing. If you're not there, it's going to mess people around. *Remy, first interview*

It's not specific to radiography, but the transition from uni to fulltime work...I think everyone who goes through that, you do get some points where you think, "I wish I was still at uni. I wish I had all that free time". You're in the grown up world and that's it. *Gail, second interview*

Participants in my study spoke of adjusting from having little responsibility for others to being solely responsible for the patients within their care, and from having little legal accountability to being personally liable for their professional actions:

I had to take full responsibility for all of it, everything that happened in the room, the pictures that I took and everything to do with that exam....and that was really daunting because, as a student, you're always the involved radiographer so you never take responsibility, but ultimately....I don't

know....you care about, or you played some part in the examination but, at the end of the day, you can just go home and leave, it's not going to ever come back to haunt you. *Susan, first interview*

As has been described for other professions,^(27, 28, 92, 144, 242) the graduates in my study seemed acutely aware of this transfer of responsibility. For most, a strong sense of awareness did not seem to represent a burden, rather the normal expectation for a qualified professional. None described this responsibility as a shock or as unanticipated, unlike some examples in the literature,^(17, 24) and my participants perceived that their studies had prepared them to expect to be responsible and accountable.

Putting others first

During transition to professional practice, medical radiation science graduates adjust to putting the needs of their patients first. Just as Tryssenaar and Perkins⁽²⁸⁾ identified in their study of new occupational therapy and physiotherapy graduates, participants in my study considered that their transition to professional practice involved an adjustment or move from predominantly considering only their own needs to maintaining primacy of their patients' needs while simultaneously considering those of themselves and their colleagues:

To get that the patient is the most important person in the process requires time. I have seen people dealing with the other RTs as if they are the most important person, but it is not true. *Oliver, second interview*

The adjustments that graduates made to accommodate these differences were mostly perceived by them as positive experiences that they believed contributed to their growth and development as a person and as a professional. Occasionally, some people expressed reluctance or hesitation to make the adjustments necessary, usually because it required effort to move out of a state they found comfortable: nevertheless, these graduates did make the adjustments as they believed they had little choice if they wished to fulfil their responsibilities and their employer's expectations:

I'd been to both centres on prac. At [first employer site] all the people who had supervised me while I was a student there were now my friends so I still went to them to be babied because if you're not sure, go up because they're there. In [second employer site] there was no one there who'd baby me....it does get very busy, and... you're just expected to go off and do it. *Jane, first interview*

Learning to put others' needs first, and accepting it, may reflect the graduates' developing sense of altruism.

6.3.3.3 *Becoming real*

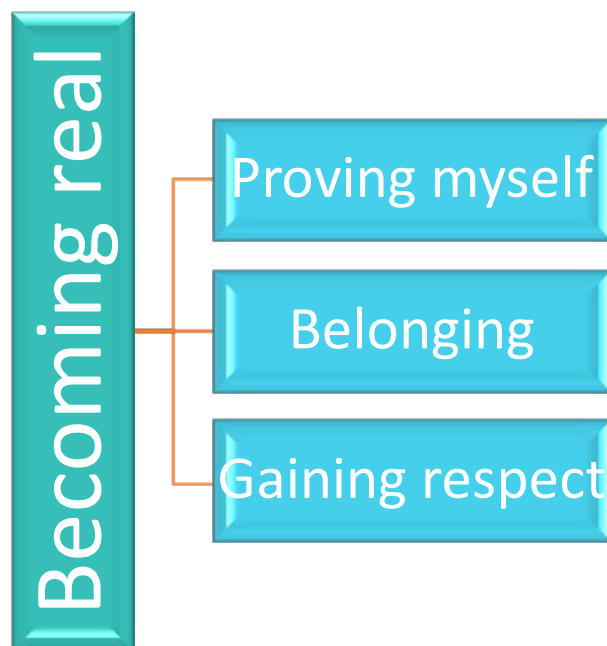


Figure 6.15: Property of Finding my Place – ‘Becoming real’

Medical radiation science transition to professional practice involves becoming real. In finding their place, medical radiation science graduates in my study not only fitted into their workplace and the social structure, they also sought to establish themselves as a legitimate team member, member of the profession and employee, echoing findings from other professional contexts.^(15, 16, 115, 193, 284, 310) As depicted in Figure 6.15, this included aspects of belonging, gaining respect, and proving themselves – to self or others – most commonly in the sense of proving their practice competence or feeling like a ‘real’ radiographer or radiation therapist:

You will work with doctors and other persons on different times, so you have to prove yourself for everyone not a special group of persons. Another thing, it is not only the radiotherapists, you have to prove yourself for the nurses or the [doctors]...I think I need to prove more to myself that I'm confident enough, that I have enough knowledge to be a fully qualified radiotherapist. *Oliver, first interview*

Proving myself

Medical radiation science graduates have a strong desire to prove themselves. For my participants, this involved a need to demonstrate to themselves, their colleagues, their managers and their patients that they were capable professionals who could be trusted. Surprisingly little in the literature highlights that new graduates feel a distinct need or expectation to prove themselves, although perhaps this is considered implicit in notions such as graduates' desire to excel or to fulfil their roles.

Also little considered in the literature is the idea of proving oneself for affirmation and recognition by others, or to feel validated, which was important to my participants. Like Craig et al.'s⁽¹¹⁴⁾ nursing graduates, the participants in my study felt the need to prove themselves to gain acceptance by others in the team:

I still definitely feel like I have a point to prove... I'm conscious of the impression that I make. If I'm comfortable with the person that I'm with, it doesn't really change my behaviour, but if I'm not then I really think about how I do things so that I make the right impression on them, prove that I'm doing a good job. *Matilda, second interview*

Many of those who felt insecure in their employment emphasised the importance of proving themselves as worthwhile employees:

I do have to make sure that I keep taking those steps to show that I'm worth keeping. *Emma, first interview*

This idea is not clearly considered within the existing literature and, as I have mentioned previously, this may be because the predominant situation during the past two decades or more has been one of staff shortages rather than job

shortages. While a desire to prove one's worth as an employee may have positive results, such as improved job performance, it could be speculated that new graduates could experience additional stress and anxiety as a consequence.

Belonging

Medical radiation science graduates feel the need to belong as a real member of their team and their professional community. Other studies have suggested that becoming real involves a process of growth and embedding or weaving oneself into the community.^(144, 239) Participants in my study felt that they truly belonged when they were perceived in the workplace as the same as any other radiographer or radiation therapist, including being recognised as capable of working in any rostered capacity and of not requiring special support:

I was just another staff member, so I could cover lunches or whatever, they didn't need to treat me differently. They just treated me as a radiographer.

Kylie, first interview

A thing that helped that progression was working interprofessionally with different professionals, for instance, working with everyone in theatre.

Nurses, doctors and that kind of thing, so when you're working well as part of that team, that's a good feeling. That felt like an independent thing. I

guess they see you as the radiographer, not as the new grad. *Gail, first interview*

It is intriguing that participants in my study were able to simultaneously hold the desire to stake their independence, make an impression and find their own way, and the desire to be perceived as the same as everyone else. This apparent contradiction did not cause my participants any anxiety or tension.

Gaining respect

Medical radiation science graduates are conscious of paying appropriate professional respect to their colleagues and patients: further, they desire it for themselves. Many graduates felt that gaining the respect of colleagues and patients was important for a positive transition experience, to feel accepted and to feel like

a legitimate and valued member of the work team, reflecting previous findings^(22, 101, 103, 284, 294).

Well, any new person who comes into the department....everyone's already used to each other in that department and you are coming in new, and so I guess that would play on people's minds. Just belonging, just becoming one of their colleagues, and being respected by them. I guess they should respect you all the time, but you still want to, yourself, feel like you're part of the community, part of the environment that's already established before you get there. So it's that feeling that you belong, that you're an accepted, respected member of the group. *Gail, first interview*

While most graduates indicated that they felt respect for others simply by virtue of that person's role as a colleague or patient, there appeared to be a sense that the graduate himself or herself had to earn respect from others:

I wouldn't expect to have as much respect from them, and I'd expect them to be shown more respect than me because they've probably earned it.
Betty, first interview

In a sense, this perspective is contradictory – as a professional, graduates expect to deal respectfully with others, simply as an element of appropriate professional behaviour. Confoundingly, they do not necessarily expect that colleagues should have to also meet this basic expectation in their own regard.

6.3.3.4 Finding my place in the profession

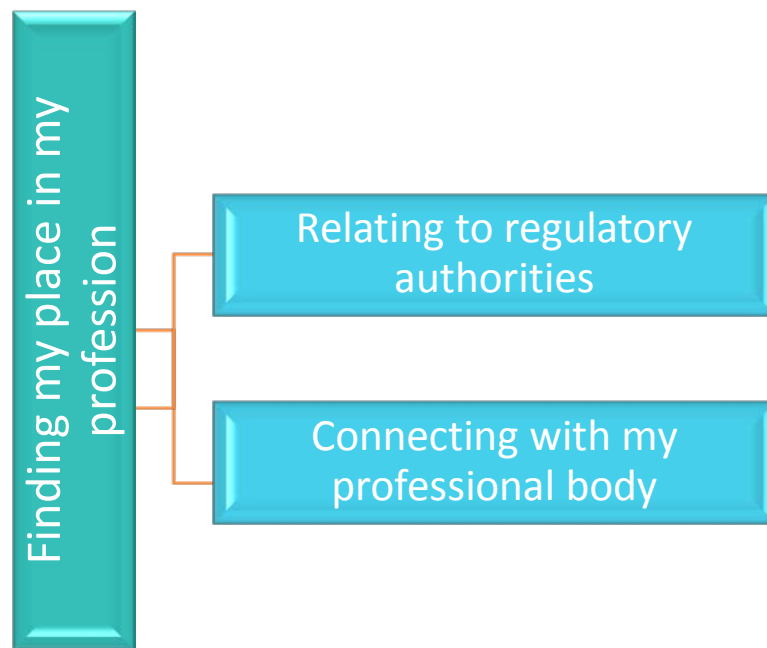


Figure 6.16: Property of Finding my Place – ‘Finding my place in my profession’

Medical radiation science graduates are ambivalent about their place in their profession beyond their own workplaces. The elements of this broader profession are depicted in Figure 6.16, and include aspects related to regulatory authorities and the professional body. The participants in my study expressed a somewhat limited desire to actively engage, at least in the short term, with the broader medical radiation science profession, except in the sense of extending their network in the local professional community. While it is not accurate to suggest that my study demonstrated that medical radiation science graduates are disengaged from the broader profession, nor did my participants demonstrate particular engagement. Some felt that there was little personal gain for them at their current career stage, perceiving professional authorities and associations as something that might become relevant for them at some later point.

[Relating to regulatory authorities](#)

Medical radiation science graduates feel little connection to the regulatory authorities and see no role in their transition to professional practice beyond credentialing for practice. With the exception of its regulatory function in providing practitioner registration, graduates expressed no appreciation of how the MRPBA influenced their practice or their transition to professional practice:

They didn't really have anything to do with my transition, apart from, "I need a licence, I need to apply for a licence and my registration" ...apart from that, it's not really relevant. *Gail, first interview*

As the MRPBA was only very recently established at the time of the participant interviews, perhaps it is understandable that graduates struggled to appreciate the regulator's function or influence on their transition to professional practice.

[Connecting with my professional body](#)

Medical radiation science graduates feel little engagement with, and some cynicism about, the peak professional association, and discounted the AIR's relevance to their transition to professional practice. The AIR was perceived by only Emma and Gail as playing a direct role in their current professional life through its function as the peak professional body, although their understanding of this role was unclear. Other graduates questioned the AIR's relevance, felt cynical about its functions, or viewed it largely as simply a provider of continuing professional development activities:

I think it's different in nursing or some of the other health professions, but in radiography there's no organisation or no one that gives you real advice about career paths or learning or guidance on how to get where you want. There's places like the AIR, but you only get part of the story, and some of it isn't what happens in the real world, and often it's just to sell you on them or what they've got to sell you. *Trudy, second interview*

I see in the AIR, conferences that they're doing, but it's all a bunch of things that you don't really want to see. There's one or two things that you're actually interested in and it annoys me: you're paying hundreds of dollars to go and see all these other things that aren't of interest or that aren't related to what you're doing, or maybe there's an indirect relation, and you wonder if there's any point. *Dorothy, second interview*

A small number of graduates indicated a desire to become more engaged with the AIR at some point in the future. There was very little sense that the participants in

my study perceived that the peak professional body influenced or directly affected their immediate professional community:

The AIR is very beneficial for those who want to keep updated with what's going on, what's happening elsewhere, but no, I can't say that they've had any impact at all in that transitional period. It's just something I've never really thought about, honestly. I can't say I missed their presence, but I don't know what they could bring to that transitional period to help or aid in the adjustment, our adjustment. *Emma, first interview*

I have not been able to identify themes in the literature with which it would be appropriate to compare these findings. While it is outside the scope of my study, my participants' perspectives suggest that there is a clear difference between 'the profession' as defined by membership of the peak professional association, and 'the profession' that is defined by one's identifying oneself with a community of practitioners.

6.3.3.5 Section summary

During their transition to professional practice, medical radiation science graduates experience considerable adjustment as they fit in to their workplace, team and profession, and experience the differences between being a student and being a new graduate. Fitting in to the workplace and the social structure of the work team is critical to a positive transition experience and, as new members of the team, graduates believe that fitting in is their responsibility. Returning as a graduate and employee to a workplace previously visited as a student makes fitting in easier as they adjust to their full professional responsibilities and learn to put others before themselves. In finding their place, medical radiation science graduates seek to establish themselves as legitimate members of the team and the profession, and this involves gaining a sense of belonging, gaining respect, and proving themselves. They are ambivalent about their place in their broader profession.

6.3.4 Feeling

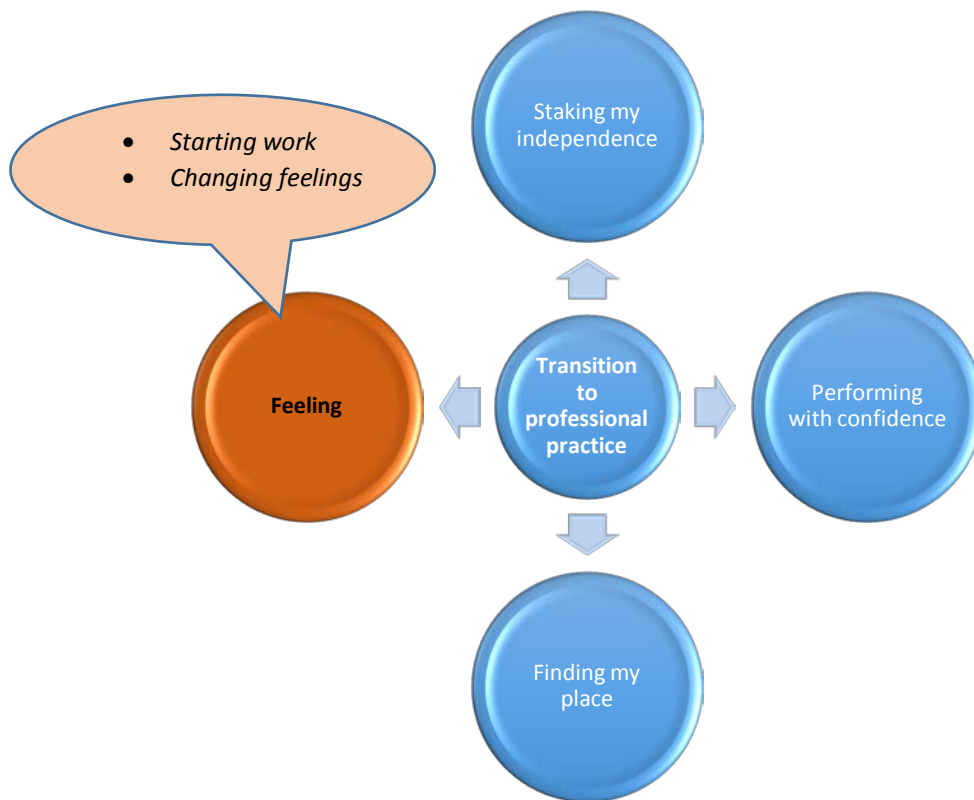


Figure 6.17: Category - Feeling

Medical radiation science transition to professional practice involves experiencing feelings about starting work, about starting in a professional career, about the future, and about the things that occur in their workplaces.

In my study, graduates described two properties, depicted in Figure 6.17, that were associated with feelings in transition to professional practice – the feelings they experience about starting work, and how their feelings about themselves, their profession and their patients change over time. Each of these properties and its dimensions are now examined further.

6.3.4.1 Starting work

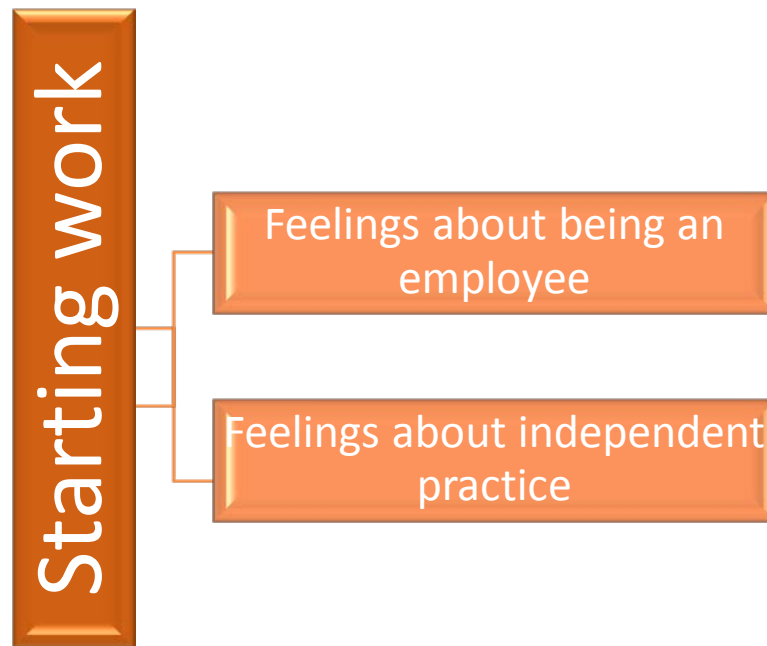


Figure 6.18: Property of Feeling– ‘Starting work’

Starting work involves feelings about being an employee and embarking on one’s professional practice career as a radiographer or radiation therapist, as depicted in Figure 6.18. For most of my participants, their first employment as a medical radiation professional represented their first full-time employment of any type. For a small number, it was their first paid employment ever.

[Feelings about being an employee](#)

Transition to professional medical radiation science practice involves learning to be an employee. My participants experienced a range of feelings about becoming an employee, including feeling accountable to others and a sense of maturing, evolving or attaining adulthood:

I think that was a good thing as well, you feel like you’re finally a real person, to be valued in society because you’re a proper working person and doing your bit. *Susan, first interview*

Graduates who had previously worked in some capacity frequently indicated that previous work experience had prepared them for the realities of being an employee:

...so I guess [I] had a head start on knowledge about the workplace. Being an employee means being punctual, making sure that you're doing the job properly, being trustworthy and responsible. Again, it's a sense of responsibility on your end...someone has hired you to do a job and you may have a supervisor to delegate tasks, but it is your job to do those tasks. So understanding what the job requirements are, making sure you receive adequate training to do those jobs. And also, its money matters as well, that's very important...knowing how to save. *Emma, first interview*

Further, many felt that the nature of their previous employment had assisted them in some way with managing their transition to professional practice. Participants in my study had a diverse range of employment backgrounds, but most had previous work experience in the retail, hospitality or health care sectors. They expressed a strong feeling that these previous experiences had prepared them well with knowledge and skills in communication, interpersonal relationships, time management, customer service, teamwork and conflict resolution:

Well, people aren't always especially nice to people in hospitality. You learn to deal with the public in all its variety. You just learn to deal with people, to deal with it. You learn to adjust, whether it's to customers or to patients.

Carla, first interview

Well, we had times in the job I worked in where we were without a manager and were left to do things on our own, so I did have to think for myself and by myself...having had a bit of experience making important decisions on my own helped. I'd done it a few times before. Also, working in a team. Team of people, you've got to get along with them, you still have someone senior to you that you have to answer to. The structure of the work environment was quite similar, so having been in a similar sort of environment helped me to transition as well. *Trudy, first interview*

Interestingly, and aligning with a previous exploration of Australian nursing graduates,⁽³¹¹⁾ participants in my study identified that their previous employment had equipped them with very similar skills and aptitudes, irrespective of the

employment type or industry. Moreover, almost all of these participants felt that their own previous employment was more advantageous than that of others, and could justify how they were better equipped for medical radiation science practice than others by virtue of these previous experiences. Common or generic capabilities such as time management, organisation skills and teamwork, may support transition to professional practice, and perhaps these are developed through a range of diverse employment experiences.

[Feelings about starting independent practice](#)

Starting independent practice is both daunting and exciting for medical radiation science graduates. My participants experienced these mixed feelings about starting in their professional careers:

I'm happy that I'm starting a new career but, at the same time, intimidated. It's a little bit scary for me to start a new career. *Oliver, first interview*

Generally, medical radiation science graduates were excited to be finally commencing their careers after so many years of study, feelings that are common among new graduates.^(25, 28, 162, 241, 287) My participants indicated that when they first started work in their professional roles, they felt determined to do a good job and anticipated with excitement opportunities for learning and career advancement:

Scary but also exhilarating, and that's very much my personality. I don't want to sit in the background and just cruise through, I prefer to get in there and be involved. I have ambitions to climb the ladder, like everybody does, so it was a great opportunity for me. *Betty, first interview*

In the early stages of their transition to professional practice, most felt passionate about their work and looked forward to the practical benefits of professional employment, such as a regular salary:

I like radiography, for the people we meet and the people we work with, and I was excited to start working full-time, to start earning some proper money. *Emma, first interview*

Participants also experienced some negative feelings about commencing professional practice. Most indicated a degree of anxiety that was short-lived and quickly resolved, reflecting Maxwell et al.'s⁽²⁸⁷⁾ findings from their study of new community nurses. Echoing themes in the literature,^(16, 17, 23, 26, 29, 30, 86, 111, 119, 162, 287, 312) many of the graduates in my study were daunted or intimidated by the scale of their professional responsibilities to their patients, and they felt stressed, lost, nervous or fearful about making independent decisions:

At first it was nerve wracking, you sort of guess...well, not guess, you trust your own skills to make sure, from what you've learnt....and now I'm very comfortable towards that, but before it was a bit nerve wracking, yeah. Just all that responsibility. *Fred, first interview*

So I think it was overwhelming, but I think it's just getting used to being autonomous really, that's the hardest thing. The buck stops with you. *Jane, first interview*

While in most cases these feelings were transitory, they could readily re-emerge when the graduates encountered unfamiliar situations.

6.3.4.2 Changing feelings



Figure 6.19: Property of Feeling – 'Changing feelings'

Medical radiation science graduates' feelings about their work and roles change during their transition to professional practice. Many participants in my study indicated that their feelings about their career choice changed considerably, for better and for worse (Figure 6.19). In all cases, feelings of fear, nervousness and intimidation about their responsibilities and their ability to fulfil them had largely resolved rapidly after commencing employment:

In the first week I was very anxious and reminded myself not to make any mistakes, but after that everything was absolutely fine. *Oliver, second interview*

Falling in or out of love with the job

Early practice experiences can confirm medical radiation science graduates' love or disdain for their professional roles. Many graduates expressed a continuing, genuine sense of passion for their professional role:

I've loved it from the first placement I had. I love it because of the variety that we see, talking to patients, dealing with technical problems, having to think, I just like it all. I like the daily duties and mix of it. *Carla, first interview*

Some of the participants in my study had identified a professional area in which they wished to specialise, and several had commenced studies that would enable them to progress towards their goal. Two participants had left their profession within the first six months of their employment: Emma was undertaking further studies in a different health care field and Jane pursued a research opportunity. Both indicated that they were not averse to practising as medical radiation professionals at some stage in the future should their circumstances change:

I didn't do research because I don't like radiography, I did it because I found I was very good at doing research. I got a [scholarship], I'm already broke, so why not be broke for a few more years? It doesn't matter to me if I don't have a big income. It just happened that, at that moment, there was a topic that I was interested in and was willing to do, so it all just fell into place. It

wasn't as though I was abandoning x-rays and going to do this other thing.

Jane, second interview

It is important to recognise that Emma and Jane's departure from medical radiation science practice reflected their personal desire to progress in different ways, rather than an aversion to, or disengagement from, radiography. This was not universally the case: while many participants remained quite engaged and passionate about their professional work as they progressed through their transition to professional practice, a considerable number indicated feelings of disengagement and disillusionment with the mundane and repetitive nature of professional practice, lacking in direction or goals, and were unenthusiastic about their work:

I don't really see myself in radiography long-term, not really. I don't look ahead, say, ten years and think I'll be doing radiography. It's the repetitiveness of the work, I don't think I could handle it for that amount of time. *Dorothy, second interview*

Some graduates indicated these feelings of disengagement and disillusionment commenced during their studies or within weeks of commencing their first employment:

My fourth year at uni broke a lot of my wide-eyed spirit about radiography, broke my passion, and I knew then that I couldn't do just radiography for a career. The environment is fine, it's just the job. *Susan, second interview*

As a member of the profession my participants had so recently entered, I was struck with sadness and concern that they had so quickly become disenchanted and disappointed. A small number of previous studies in other disciplines have identified this early disillusionment with the reality of practice,^(24, 117, 200) citing a range of causes including oppressive and hostile workplace culture, inadequate educational preparation, poor workplace orientation, repetitive or mundane work, or practice environments that are inconsistent with the graduates' professional values. It is noteworthy that inappropriate selection to educational programs was not mentioned – while my study could not investigate this issue, it is conceivable that the use of academic performance as the only entry criteria for professional

education programs provides limited, if any, assurance that students (and, eventually, graduates) are well-matched to the career.

For the graduates in my study, these feelings of disillusionment and disengagement led some graduates to question their future as a practising professional, although most expressed their intention to remain in the profession at least in the short term, and several felt strongly that medical radiation science was the right career choice for them for the foreseeable future. For some, their ongoing interest related directly to their enthusiasm for the work and duties while, for others, it related more to their work conditions and how these fit with their lifestyle:

Radiography is a great, portable profession, and that was my attraction to it. You can travel with it. Why not use it, then, if I can travel with it? *Dorothy, second interview*

It does mix it up a little bit, though, and I don't mind that. If you do a week of midnights, you've got the week to catch up with people for lunch and that sort of thing. *Fred, first interview*

Arguably, for the purposes of my study, it does not matter what it is that motivates or entuses individual graduates to remain engaged –and employed – in the profession, as long as something does. It seems unrealistic that all practitioners would be consumed with passion for their work: it is very likely that some simply find medical radiation science practice to be a reasonably satisfactory job, with satisfactory conditions, and that is sufficient for them to remain engaged and employed. The specific motivations of Australian medical radiation science professionals and their intent to remain in the profession are largely unexplored in the existing literature, and represent a potentially intriguing area for future research.

6.3.4.3 Section summary

During transition to professional practice, medical radiation science graduates experience feelings about starting work, their professional career and the future. Commencing independent practice is daunting and exciting for new graduates, but associated feelings of anxiety are transient and quickly resolved. Their feelings

about their work and roles change over time. While many graduates remain passionate about their work as they progress through their transition to professional practice, some experience disengagement and disillusionment.

[6.3.5 Chapter summary](#)

In this chapter, I have considered the transition to professional practice context within which graduates experience workplace adversity and provided a detailed description grounded in my participants' data. This description includes the nature, features and experience of medical radiation science transition to professional practice. I have further explored these experiences to develop a rich understanding of the context in which new graduates experience resilience. In the following chapter, I examine the remaining elements in my theoretical model of resilience as evolution.

Chapter 7 – Exploring resilience as evolution: Part 2

[7.1 Chapter introduction](#)

This and the previous chapter collectively examine in detail each aspect of the substantive theory of resilience as evolution. In the previous chapter, Part 1, I considered the transition to professional practice context within which graduates experience workplace adversity and provided a rich description of transition derived from my participants' data. In this chapter, Part 2, I explore the nature of workplace adversity experienced by participants in my study, considering the significant diversity of challenges and confronting events that new graduates encounter, and the resultant impact of these critical incidents. I then examine in turn the remaining aspects of my theory of resilience as evolution, including how new medical radiation science professionals experience energising, maintaining momentum, achieving equilibrium, and beating inertia. Finally, I consider the personal and environmental conditions that influence resilience.

[7.2 The nature of workplace adversity](#)

To fully appreciate the impact of workplace adversity and how medical radiation science professionals respond adaptively to the challenges they face during their transition to professional practice, it is important to have an appreciation of the nature of the adverse events experienced by new graduates. I have been unable to identify within the published literature any previous exploration of this topic. As a prelude to considering the impact of workplace adversity, I explore, in these next sections, the nature and range of workplace adversity identified by participants in my study.

When specifically asked to identify the challenges or adversity that they had encountered during their transition, my participants described a wide range of incidents that are summarised thematically in Figure 7.1. Most were related to situations or incidents that involved patients, although a small number of events

were identified involving work colleagues or related more generally to new employment.

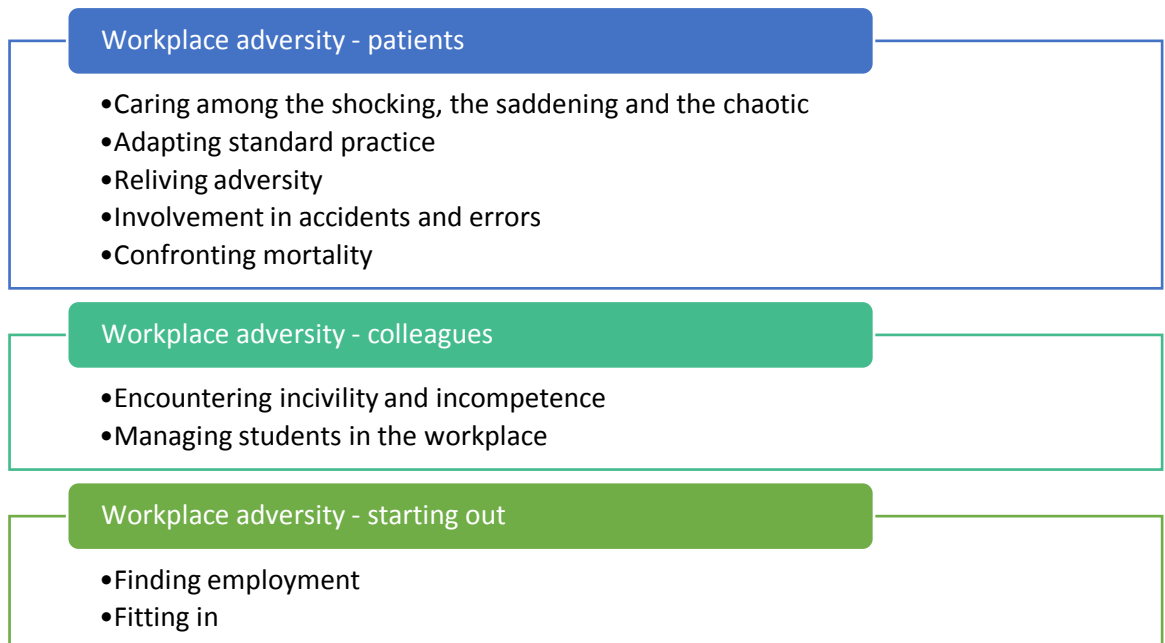


Figure 7.1: Medical radiation science graduates' experiences of workplace adversity

Many of the challenging situations involved potentially distressing or negative events to which the graduate was required to respond, however it must be acknowledged that even positively or neutrally perceived events may represent workplace challenges requiring some type of management or adaptation:

The way that the staffing worked meant that we had a very inexperienced team. On occasions I was the most experienced person. I was really shocked by that...and it was actually quite stressful. It was quite rewarding at the same time that they trusted me and were like "You'll talk us through it and you'll be okay". So it was good but quite scary at the same time. *Betty, first interview*

It is difficult to conceive of a scale or measure for the impact or severity of any particular challenging event. It is likely that the degree to which a situation contributes to workplace adversity depends upon a range of factors within the context and the individuals.^(171, 175, 181, 196, 222) For that reason, during the interviews I avoided prompting when I asked the graduates to describe the challenging

situations they encountered during their transition to professional practice, allowing each individual to determine what the situation meant for them. This ensured that I did not impose my judgement or preconceptions. In addition to the responses graduates provided when specifically asked to identify workplace challenges, participants revealed many other examples during the course of the interview discussion and in response to other topics of conversation. While these descriptions were incidental, it is important that they are not dismissed: the nature of the interview for many graduates was reflective, and it is unsurprising that other ideas may have occurred to them as they explored their memories and articulated their thoughts.

Each of the core areas of workplace adversity is examined further in the following sections.

[7.2.1 Workplace adversity: patients](#)

Workplace adversity - patients

- Caring among the shocking, the saddening and the chaotic
- Adapting standard practice
- Reliving adversity
- Involvement in accidents and errors
- Confronting mortality

Figure 7.2: Medical radiation science graduates' experiences of workplace adversity relating to patients

Medical radiation science graduates experience adversity because of their patients and their circumstances. Participants in my study detailed a considerable range and diversity of adverse events that related to the patients in their care and their practice, summarised in Figure 7.2. These situations included the difficulties of providing care in an often confronting, troubling or chaotic environment, and the challenges and conflicts of adapting standard practice to manage emerging situations. Graduates identified workplace adversity as including situations when they relived, often unexpectedly, previous challenging situations, when they were associated in some way with accidents or errors that affected people in their care, and when they confronted their own or other people's mortality. Each of these types of adversity is explored in the following sections.

7.2.1.1 Caring among the shocking, the saddening and the chaotic

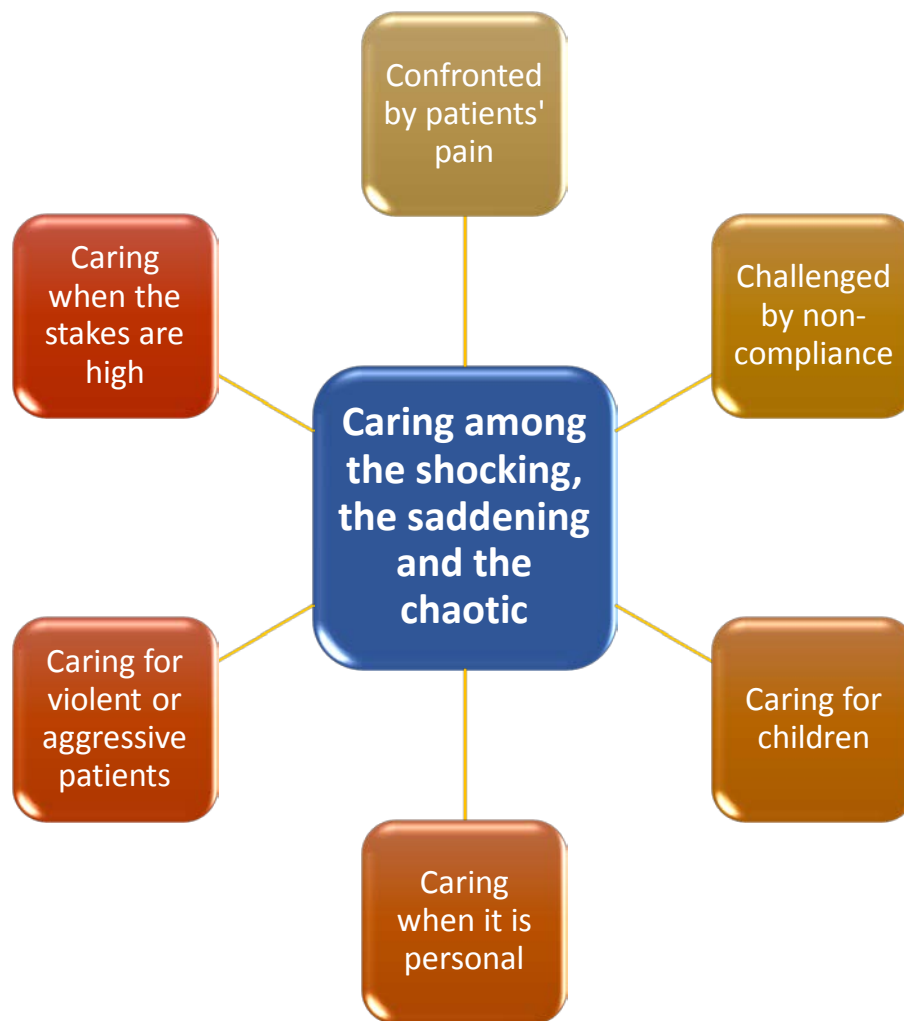


Figure 7.3: Experiences of caring among the shocking, the saddening and the chaotic

In caring and practising among the shocking, saddening and chaotic, medical radiation science graduates experience challenges and conflicts in managing the procedural or technical aspects of their work in an environment that can be unpredictable and emotionally confronting. As summarised in Figure 7.3, my participants were challenged by caring for patients suffering pain, managing patient non-compliance, caring for children, practising in situations where things felt personal, dealing with violent and aggressive patients, and caring in high-stakes situations.

A number of graduates identified situations where they experienced challenge because of encountering patients with distressing medical conditions, injuries or

illnesses. These events were often initially shocking or startling, and the distress was sometimes only recognised later:

There was a patient who had a code blue here. That was frightening. At the time, I was in a bit of shock and I just did what everyone told me...But then it sort of hit me afterwards, what a shock it was. It was startling initially, but you do what you have to do to help the situation and help the patient, and you don't really think about the emotional side so much at the time, until later it hits you. *Alice, first interview*

Sometimes the distress was caused because the situation was chaotic and unpredictable, such as caring for someone with dementia. That new medical radiation science professionals, should experience challenge and shock at the unfamiliar – especially when the unfamiliar is also unanticipated or chaotic – is not unexpected, and is similar to experiences of other new caring professionals.^(14, 15, 92, 199)

[Confronted by patients' pain](#)

Medical radiation science graduates experience workplace adversity caused by witnessing their patients' pain. Participants in my study were particularly challenged when the procedure required the patient to maintain a position or endure a procedure that exacerbated their pain. The graduates felt guilty that, in performing the procedure necessary, they inflicted discomfort on others – even when, rationally, they recognised that such guilt was unfounded and illogical. My participants were challenged, exhausted and upset by these situations, and frustrated by the conflicting emotions they experienced, echoing themes identified previously by Kornhaber and Wilson⁽¹⁸⁰⁾ in their exploration of resilience among burns unit nurses. These authors described the distress, emotional exhaustion and pain caused to nurses who witness the suffering of their patients, and the challenge of performing painful debridement procedures on the people in their care as a form of burns treatment. While this example is, perhaps, more extreme than those most of my participants would have routinely encountered in practice, it is clear that caring professionals experience emotional hurt and values conflict when they must

engage in medical procedures that are beneficial but painful for the people in their care.

More generally, my participants were distressed, discomforted and confronted by situations where they witnessed a patient's pain and suffering. They expressed their sense of guilt at being unable to do anything to relieve it, and their conflict in making clinical judgements:

Yeah, that's really always a factor, because if they're screaming and crying out, you're always hesitant to move them or to position them the way that you want, so that's always definitely a factor. But then, especially with old people, sometimes they don't know what they're doing, just thrashing around and you need them to hold still. *Fred, first interview*

Last week, I just got totally flustered, it was a really difficult patient and I didn't ...I was trying to manage getting the pictures they needed and not causing any more damage to the patient's condition. *Susan, first interview*

Being highly-educated and compassionate health professionals did not necessarily preclude my participants from being confronted by exposure to suffering, blood, gore and trauma. Graduates sometimes experienced shock and distress at seeing traumatic injuries such as haemorrhages or accidental amputations, or encountering patients with severe disfigurement as a result of previous injuries or surgery:

So I suppose just the shock of seeing something as confronting as that when....but when a patient's bleeding out and there's blood all over the floor, you've still got to work around that. *Fred, first interview*

Last week, there was a lady who tried to pull out her own eyes. That was...I don't know how to describe it...but it's really scary. The idea is mind-boggling. *Kylie, first interview*

This shock and distress was true, also, when graduates encountered patients with severe burns. Many months after the incident, Jane remained emotionally fragile about caring for a teenager with severe burns and continued to experience intense

conflict between feeling dismay for his situation and physical revulsion at the smell of his burnt flesh:

He was in bed shaking because his body was in shock, and his parents were by the bed absolutely bawling their eyes out because he was going to have massive scarring. He'd ripped off his nipples and everything. They were looking at massive reconstructive surgery and the whole works. At 17, and I was only 19 at that stage. My age, life-changing event...Oh, the smell....I walked out of the room in the middle of it because I couldn't cope. It was sensory overload as well. *Jane, second interview*

Clearly, graduate medical radiation science professionals retain their humanity and are, sometimes, affected by the emotions prompted by witnessing their patients' circumstances. Empathy, sympathy and compassion, as well as horror, distress and shock, contribute to the emotional burden on new graduates.

Challenged by non-compliance

Medical radiation science graduates are challenged when they encounter non-compliant patients, such as people with particular mental illnesses or medical conditions, or those affected by drugs or alcohol. These situations are dissimilar to those where a patient simply declines the recommended medical service or treatment – a small number of graduates spoke of such situations and appeared to experience little conflict in respecting their patient's wishes. In fact, my participants demonstrated strong commitment to their patients' right to self-determination. The situations where the participants in my study felt confronted involved patients who accepted, even insisted upon, the medical service or treatment yet actively or passively refused to comply with aspects of the procedure necessary to allow that service or treatment to be delivered:

In [the emergency department] on Saturday nights, you're always getting people through who are drunk and aggressive, who won't do what you need them to do to get the images. You want to care for them, or provide care for them more correctly, but they're yelling at you and being aggressive. *Fred, second interview*

Such situations were upsetting, often leaving the graduates feeling personally attacked. Some graduates described their frustration that such non-compliance wasted time and resources, and sometimes resulted in work that the professional considered to be something less than the best possible, contributing to dissatisfaction and feelings of discomfort. These perspectives resemble to some extent those reported by Thompson⁽³¹³⁾ in her narrative study of American new primary care physicians, who described the challenges of learning to accept that they simply could not please every patient.

Participants in my study differentiated between patients who were non-compliant through their own actions, such as someone affected by alcohol, and those who were non-compliant involuntarily because of the result of a mental illness, pain or medical condition. While these latter situations were often upsetting and perceived as adverse, graduates expressed empathy for such patients, whereas those in the former group were perceived as wasting time and resources that could be better allocated to other people:

I may not like it but I totally understand that when you're sick, stuff like that can be really annoying. But those situations are completely different to where someone is so drunk, and to me they're just wasting space in the hospital that should be for someone who genuinely needs it, so I won't put up with crap from them. I say to them, "I'm just here to help you, I'm just trying to help you". Sometimes people are fine, but in the small amount of cases where they're horrible, I don't feel anything when I send them back out to wait if they're abusive. I'm more than happy to try again when they've sobered up or calmed down or whatever, had an attitude adjustment. *Trudy, second interview*

While responding in this way reduced the risk of personal harm or abuse, it added to the emotional burden experienced by my participants: not only did the graduates experience the frustration and upset of the incident itself, they often also felt guilty and regretful in retrospect that, perhaps, they had acted with impatience, frustration or lack of empathy.

Caring for children

Paediatric patients usually represent only a small proportion of the workload of most medical radiation professionals,^(314, 315) yet caring for children represents a substantial source of stress and dread for many graduates. Caring for children involved situations that graduates experienced as emotionally heightened and somehow inherently stressful, even when the actual event was unproblematic, experiences which have been documented for other health professionals.⁽²³⁾

Of particular concern to medical radiation science professionals are issues associated with radiation dose. Children are more vulnerable to the risks of biological damage due to radiation and they have a longer potential lifespan than adults to suffer the manifestation of that damage.⁽³¹⁶⁾ Graduates felt increased stress about procedures involving children because of the potential for lifelong radiation-induced injury, as well as more general pressure because of the child's vulnerability. This meant that my participants felt acutely the responsibility for their decisions, and the effectiveness and efficiency of their practice:

I think paediatrics was a bit overwhelming. I think it is more the fact that someone so young is suffering. Not suffering physically, necessarily, but in general. They've got this disease so they're suffering in some way. That's what's confronted me the most. *Hugh, first interview*

Working with kids, I guess that was one of the things that I didn't expect – you do hurry a bit more, you really rush out of the maze and you're a bit more conscious of how long they've been on the bed because they're so distressed. You don't want to have that psychological impact on the kids. *Betty, first interview*

The challenge of communicating effectively with a patient experiencing pain, fear or anxiety was heightened in situations involving paediatric patients. Sometimes, graduates experienced difficulties communicating effectively with the child to obtain his or her compliance to facilitate the procedure:

She was crying, really upset and wanted cuddles from dad, so working that out, dealing with that....you have to get them up, you have to do the

treatment, and just finding ways to help her was really difficult to deal with, knowing that she was just so young. Not easy. *Betty, first interview*

Betty found that her own lack of life experience interacting with children challenged her when she encountered children in her professional context:

Working in paediatrics, especially the first couple of weeks. I'm not a mum, so I'm not experienced in just things like taking kids jumpers off, It was challenging even just figuring out how you get an arm out here and there, just silly things like that. *Betty, first interview*

For some graduates, the emotional impact of working with children was so pronounced that they had deliberately chosen employment in centres without paediatric patients in their case mix.

Caring when it is personal

Workplace adversity arises when medical radiation science graduates encounter care situations with personal implications. Sometimes things about the patient or their circumstances resonated personally with my participants, for example, they might care for a patient of a similar age to themselves or to someone they loved, or the illness or injury with which the patient presented resembled something from the graduate's own past. Situations where the graduate felt a personal connection were particularly confronting:

I'll never forget when I was on midnight, we had a patient come in who'd been in a car accident and she was quite a similar age to me. I'll never forget it because the circumstances of the accident were just horrible and we treated her friend who was part of the situation, and she didn't know what was going on. The patient ended up dying and it was just...I remember going up to ICU because they were putting a CVC in to try and preserve her organs. It was quite confronting...I have seen quite a few big resus cases, but nothing quite as traumatic, that hit home as much as that one. *Gail, first interview*

Medical radiation science graduates could readily identify with these patients or situations, and recognised that, through luck or circumstances, they could find

themselves or their loved ones in the same situation as their patient. As a result, they felt upset and empathic, relieved and sometimes guilty at feeling this relief. A small number of my participants identified times when the person who presented for care was an existing friend, resulting in heightened distress for the graduate and raising discomfort about their willingness or ability to provide appropriate professional care:

The most emotional thing I've had to experience is treating someone, one of my mum's friends, and that was really hard. Really hard. My mum knew she was coming in, and she really wanted me to treat her. It felt nice that she really wanted me to be in the room with her, to support her. It was a bit tough though. It was emotional on lots of different levels. *Carla, first interview*

It is not unexpected that the graduates in my study might feel particularly uncomfortable about caring for someone with whom they had a pre-existing relationship. Doing so causes each to assume a role beyond the usual boundaries of their relationship, and it is conceivable that this is even more challenging when the graduate feels some reluctance about this new role.

[Caring for violent or aggressive patients](#)

Encountering patients who are rude, violent, angry or aggressive presents considerable challenges to medical radiation science graduates. These situations occurred regularly for many medical radiation science professionals, and caused a range of emotions, from stress and anxiety to cynicism and anger. Confronting aggression from those for whom one cares has been identified elsewhere as a source of workplace adversity, ^(182, 317) and my participants were required to make quick but considered judgements about their personal safety and the potential risk of harm in refusing treatment to the patient, all while feeling under threat from the individual that they were attempting to assist. Many of my participants indicated that their organisation embraced a zero tolerance approach to violent or aggressive behaviour towards employees, and the graduates were aware that they could enact that policy at any point and simply refuse to provide services:

The only way I'll treat them differently is if they're abusive towards me. I won't give them the time of day. I've encountered that a few times, but I'll refuse to perform the examination. In the beginning I was a little bit more naïve and I would try to be nice to them, but I just won't tolerate it now. I don't need to be in that situation. I realised when I'd been in the same situation several times, and being nice just wasn't working, I wasn't getting anywhere with them. You just have to be strong sometimes. *Trudy, second interview*

Some graduates indicated that they had taken this action, usually in situations where the patient was affected by drugs or alcohol, and that they would do so again. Nevertheless, they did not make such refusals lightly, and were critically aware that refusing to provide a service had the potential to impact on the patient's medical outcomes. Such situations represent potential for inner conflict – in a sense, managing the primary source of workplace adversity becomes a source of adversity itself.

Interestingly, despite the potential for physical harm, medical radiation science graduates indicated that encountering aggressive or violent patients was, in some ways, more straightforward than caring for people who were rude, angry or unkind:

He's just a very, very difficult patient, to the point where he's just so angry we just don't say anything when we go inside the room other than little things that we need him to do...I'm not sure why that's stressful...it is though...It's more frustrating, I think. I understand his circumstances, but there's no need to be rude. It's hard, it can be hard. Sometimes we have patients that we don't really like. And it's not nice to deal with it, too. He's compliant, he's just so.....really rude. *Carla, first interview*

Zero tolerance policies support the graduates in making a decision to protect themselves from physical harm, but do little to assist in protecting them from emotional abuse or distress. While my participants were not prepared to place themselves at risk of physical harm, they were often prepared to accept considerable discourtesy and personal offence if doing so facilitated the patient's

progress toward receiving the treatment or care they required. In doing so, medical radiation science graduates ultimately removed the immediate source of adversity, but were often left feeling unsatisfied, irritated and upset by the compromises they made.

Caring when the stakes are high

Medical radiation science graduates encounter workplace challenges when they work in high pressure or high stakes situations. While this could include situations such as those involving the care of elderly people and children described earlier, it also incorporates work environments such as the emergency or trauma department, resuscitation unit, and the operating theatre. Graduates who worked in these environments encountered patients with high acuity conditions requiring them to act quickly and accurately, and to fulfil their role in the team:

My parents always say, "How do you do that? How can you do that?" I don't know. I guess the adrenaline at the time, there's quite a lot of adrenaline when you're in the resus, everyone's moving around you and you're part of the team, moving around trying to help the patient. *Gail, first interview*

It would seem natural that, as new professionals with limited confidence and efficiency by virtue of their limited practice experience, new medical radiation science graduates might feel the pressure and stress of these situations more acutely.⁽¹⁶⁰⁾ Their patients were sometimes in a state that was distressing for the graduate to witness, such as newly transported from an accident scene or with open surgical incisions, contributing to the emotional burden and stressors in the situation:

I remember a lady I saw who was in a car crash. It was pretty bad, and they had to do a thoracotomy. They had to open up her chest, and the guy was pumping her heart. You could see her heart out of her body. I'd never seen anything like that before, and I had to take a step back. *Remy, first interview*

While the medical radiation procedure may be relatively routine, the professional frequently needs to work around a range of other medical procedures that are occurring simultaneously. This busy physical environment sometimes exacerbated

the difficulties my participants encountered, as it was more difficult to concentrate and make decisions in hot, crowded, noisy situations:

In ED, it can get really, really hot with people running around, so sometimes you just have to stop, take a few breathers and start again because you get physically overwhelmed. So it's physically and mentally exhausting. *Gail, second interview*

Although Gail is speaking here of caring in a particularly stressful environment, her comments highlight that workplace challenges and adversity can result in a range of responses, including elements of physical, intellectual and emotional fatigue and tiredness.^(37, 58, 89, 180, 205, 318, 319) Participants in my study frequently spoke of feeling exhausted after challenging incidents.

7.2.1.2 Adapting standard practice

In the course of their practice, medical radiation science graduates care for patients whose circumstances require additional adaptations to standard practice and, sometimes, this can be a source of workplace adversity. Adaptations may be necessary because the patient is very frail or in pain, has some physical incapacity or co-morbidities, or due to some other circumstances that make it more difficult for the patient to comply with, or for the professional to achieve, what is necessary for the procedure. My participants found that these situations could be challenging. This type of challenge was not necessarily unwelcome or perceived negatively – indeed, some graduates suggested that it was this type of more complex, non-routine procedure that helped to keep them engaged and satisfied in their day to day work:

It's lovely when you have a difficult patient and you get a textbook image, it makes you feel good. It's really good job satisfaction in that sense. *Trudy, first interview*

But if the patient can't move their leg for whatever reason, I'm happy to give it a go with my angles and try to figure that out. I actually like that stuff because it makes you think. *Gail, second interview*

In particular, graduates identified that caring for elderly people and children often required that they adapt their usual approach to practice. Caring for frail or fearful older people sometimes necessitated technical adaptations that my participants felt were sub-optimal, or required them to work at a slower pace or differently to accommodate the patient's physical limitations:

...you've got to consider a lot of factors, you've got to take into account the patient: sometimes they're old, with dementia, or in a lot of pain, and they're just kicking out, they can't control it so you try to find a way to make it work. *Fred, second interview*

While these compromises were necessary and logical, my participants often felt dissatisfied or disappointed about the outcome. Other studies have identified the distress and anxiety that can be caused for new professionals when the situation is such that they cannot undertake their practice in the way or at the level they believe to be appropriate, or where the standard of care clashes with their own expectations or values.^(10, 15) Kramer⁽¹⁹⁾ identified this misalignment as one element of reality shock among new graduate nurses. Graduates in my study considered that their experiences during their studies had prepared them well for the reality of such situations, although they remained dissatisfied about settling for a lesser standard of work than their usual.

7.2.1.3 Reliving adversity

Medical radiation science graduates relive the adverse situations they encounter. Sometimes this supports reconciliation of their feelings, at other times it can cause a recurrence or heightening of hurtful feelings.

My participants relived adversity in their own reflections and in conversations with others. Mostly, this type of reliving was manageable, even helpful, because graduates had a degree of control over if, and when, such reliving occurs. In some cases, my participants experienced adversity in the primary event, and then relived or re-experienced the event when they encountered a media report of the case. Participants indicated that their workplace challenges included seeing or hearing accounts in the media of the circumstances of their patient's accident or injury, or

reading the death notices in the newspaper. These reports sometimes caused them to relive the distressing events that they had witnessed in caring for the patient, and often they heard these reports during their non-work, personal time. In that sense, then, it meant that events that would normally have been 'left' at work were recalled and relived:

A lot of the cases that come through are widely televised and in the media for days and days after, and I think that the more you know about that, especially when you hear half of it from the ambulance officers, about what's happened....yeah, it's a lot more difficult to deal with and at the beginning, it was quite difficult...but you just have to distance yourself and other people have said, "Just leave it here. Leave it at work. Don't read too much about the case afterwards. Just take them as a patient instead of as a..." Otherwise, I wouldn't know what I'd do. *Susan, first interview*

Media reports sometimes incorporated information about their patient that served to deepen the graduates' distress by providing a backstory that compromised their ability to be objective and clinical in their perspective, or to call on their usual sources of support:

I found it much harder at [other hospital] where you saw the critically injured patients come through, some of them were your age, watching them and then hearing their stories on the news. If someone was bashed you'd hear the appeal from their mum on the news, and that's really traumatic. I think there are levels where you can't talk about it, and in those cases I can't even talk to my mum about it because she would also be hearing it on the news, so their name's been in the media. So you just don't talk about it. That's a lot to carry around, I guess. *Jane, first interview*

While the reliving of adversity through debriefing has been advocated as beneficial to healing and as promoting reflection,⁽³²⁰⁾ the type of reliving through media reporting that participants in my study described seems to be quite different. Perhaps this is partly because the timing of hearing or reading the media report is not within the graduates' control and they may not have sympathetic and

supportive others present who have the same privileged access to professionally confidential information. More simply, it may be that hearing or reading the media report occurs at a time when the person is in a non-work context – their personal time - and so they feel surprised and intruded upon.

7.2.1.4 Involvement in workplace accidents and errors

Involvement and the fear of involvement in workplace accidents and errors represents a source of workplace adversity for medical radiation science graduates. Several of my participants had been present when a patient collapsed or was accidentally injured during the medical radiation procedure. Graduates found such situations very challenging and often expressed feelings of guilt, even when there was nothing that they could have done to prevent the incident from occurring. Notwithstanding that the injuries were not serious, these situations were upsetting for my participants:

It was a minor thing, although I didn't like that a patient in my care got hurt.

At the time, I was scared. *Remy, first interview*

Even when the event could not have been predicted and where the fault was entirely that of the patient, graduates indicated that they felt responsible and dismayed that such an incident occurred under their watch:

...just because you're alone in the department, it happened on your sole watch....Every time after that, every patient that's maybe fractured something, I've been panicking, "How do you feel?". When they stand up in the waiting room, "How do you feel? Do you need a wheelchair?" It was that traumatic, it's the one thing you start to remember. It made me more cautious...If it had been any more serious, I'm not sure how things would have gone. I think it was about my ability to control what was going on, it's completely....they can tell you about it in lectures but it's not the same for a medical emergency in your own presence.... And it wasn't a very bad situation, it could have been much worse and I think it is the whole running through the worst scenario that gets me. While I say it wasn't a very bad

situation, while I was living it, it was terrible. I wanted to quit. *Jane, first interview*

Errors, like accidents, were a source of dread for graduates even though, like the new graduate teachers in a recent Australian study,⁽¹⁹⁵⁾ the participants in my study acknowledged that errors were a stressful but normal part of professional practice:

I feel very safe here and I feel that this environment will allow me to make mistakes without harming my patients. Everyone is very accurate, but we also have to consider that we are all human beings. Human beings make mistakes. With that idea in mind, you watch yourself and others carefully, not to be unkind, but to look out for each other and the patient, to prevent these mistakes. *Oliver, second interview*

Most participants were anxious about making even relatively minor errors, and while espousing understanding and empathy for others, they were sometimes much harsher judges of their own practice:

I'd like to think that everyone makes mistakes and that as long as you fix them and learn from them, that's okay, but I actually really dwell on it quite a bit. I guess that motivates me to do things differently next time, really because I want to avoid making a mistake again and having that awful feeling about it. Take a bit more care, triple check things. Sometimes even then it happens and you think, "How didn't I see that?" *Violet, first interview*

While almost all the graduates dreaded making or being involved in an error of significance to their patient, there were only two people who had actually experienced such an error. Fortunately, both were very minor, but the anxiety experienced by those involved – directly and indirectly - was, nonetheless, substantial:

We all make them. Touch wood, I haven't made any errors that were significant. You feel physically sick about the minor ones, so I hope I never make one that is considered an actual error. I've had feelings of sickness when I thought I've done the wrong thing. And I feel awful even when I'm

not even involved, it's been an error on my machine. They probably weren't that big, but to me they were pretty big, things that I would have gone home and just felt sick about. *Carla, first interview*

It seems natural that medical radiation science graduates would take the risk of error seriously, particularly given that there is no antidote or remedy for unnecessary irradiation, and radiation damage may take decades to manifest.⁽³¹⁶⁾ Participants in my study dreaded being involved in an error. While they expressed understanding and empathy for others who made mistakes, graduates had a strong sense of intolerance for their own errors, which they perceived as reflecting upon their competence and professionalism.

7.2.1.5 Confronting mortality

Medical radiation science graduates experience challenging work situations where they are required to confront death or mortality, an aspect of new graduate practice that is little discussed in the literature.^(92, 103, 142) For my participants, these incidents related to their patient dying during or after the medical radiation procedure, or encountering patients who were in the very final stages of life:

I had another girl come in, she was only a couple of years older than me. She'd just had her large bowel taken out and we were doing a small bowel study on her. She has type 1 diabetes but didn't get diagnosed until later and she's got all these tears. She might die soon because she can't keep anything in, no food is staying in. So it was a bit emotional, a bit draining.

Dorothy, second interview

Caring for patients with cancer, particularly younger patients, was sometimes distressing for my participants, especially where they were aware of the patient's poor prognosis:

I think when it's an older patient, it's not so bad because you know that they've lived such a long life, their time has come. But when someone...I've had cancer patients come in who were my age and that's just horrible. You see them and it's like, "Gosh!" *Dorothy, first interview*

My participants had considerable empathy for the patients with cancer in their care, and several medical imaging graduates indicated that they found these situations very upsetting. The radiation therapists in my study were somewhat less confronted – although apparently no less moved emotionally - by such situations than the medical imaging professionals. Perhaps this is unsurprising given that virtually all of the radiation therapists' work involves caring for people with cancer, so it is their regular day-to-day expectation that some of their patients will be in the end-stages of life. Radiation therapists did, however, articulate their sadness at witnessing the progressive deterioration of some particular patient's condition throughout the course of treatment, or how their knowledge of a particular patient's poor prognosis could be upsetting:

Well, that could be every patient, every day. There's plenty that you have to cope with. We deal with patients who are in pain, who are very ill, who are in the last stages of their life, all the time...It can be hard to see... even just randomly while we're on the treatment units, you'll have the treatment sheet, and if you haven't met the patient and they're only a couple of years older than you you'll be, "Oh, you're kidding". Automatically, there's an understanding that it's so sad. *Nancy, first interview*

Similar distress resulting from understanding the reality of the patient's condition, and the likely outcome, has been reported among new medical professionals⁽³¹⁰⁾ and highlights the tension between empathic care and protecting oneself emotionally.

7.2.1.6 Section summary

Medical radiation science graduates experience considerable workplace adversity as the result of their encounters with their patients or in fulfilling their practice responsibilities. They experience challenges in managing the procedural aspects of their work in an environment that can be chaotic, high pressure and emotionally confronting. Witnessing their patients' pain, particularly when it is exacerbated by the medical radiation procedure, can be distressing. Encounters with non-compliant, rude or violent patients can leave new graduates feeling stressed, threatened and guilty. Caring for children is commonly a source of anxiety for new

graduates, who find such situations emotionally charged and, frequently, upsetting. Reliving workplace adversity, such as hearing media reports about their patients can cause a recurrence or heightening of the graduates' distress. Involvement and the fear of involvement in workplace accidents and errors represents a source of stress and dread for medical radiation science graduates. They can be distressed when confronted by mortality, such as encountering patients who are in the final stages of life.

7.2.2 Workplace adversity: colleagues

Workplace adversity - colleagues

- Encountering incivility and incompetence
- Managing students in the workplace

Figure 7.4: Medical radiation science graduates' experiences of workplace adversity relating to colleagues

While the diversity of workplace challenges directly relating to interactions and incidents with colleagues was less than that relating to patients, my participants identified many situations where they were confronted, frustrated, hurt or upset by fellow employees. The primary sources of workplace adversity relating to colleagues involved incivility and incompetence, and the supervision and management of students.

7.2.2.1 Encountering incivility and incompetence

Medical radiation science graduates experience workplace adversity when their colleagues are rude or uncivil. These situations were experienced as harsh because my participants aimed to treat their colleagues with due professional regard and respect, and were disappointed, perplexed and annoyed when this was not reciprocated. Graduates felt strongly that incivility between colleagues was simply unprofessional. Given that many of these same participants indicated that their colleagues could be a source of support and strength during challenging times, it is an intriguing notion that, simultaneously, they may also represent a source of adversity. It may be that reconciling these conflicting perspectives could, itself, be an adverse experience for new professionals.

Most of my participants described their own experiences of incivility from their colleagues as minor or transient stressors, although most indicated that they had witnessed or heard of other graduates involved in situations with more serious consequences:

It's not been bad, not for me anyway. I think for other people, though, it might have been pretty bad. There was another girl [at this organisation], and she didn't make it through her six months of probation. She didn't get it extended, she actually got fired. I think she felt she got nit-picked and people were a bit colder to her, especially in some of the practices she went to. I heard about it and I think that it would have been a difficult time for her, and I think that would put me off being a radiographer, to be honest.

Dorothy, second interview

Inevitably, it was not possible to fully investigate such reports and it is likely that there are elements of the situations of which my participants were unaware. Nevertheless, the effect that these stories of incivility and bullying – even if they were just urban legends – had upon the graduates was profound, shaping their views of their own workplaces and the culture of the medical radiation science profession. It is concerning that caring professionals may be less inclined to extend care and compassion to the more vulnerable among their own colleagues. Further exploration of the role of workplace incivility and horizontal violence in attrition from the medical radiation science workforce would be intriguing.

Several graduates worked with rude or unpleasant colleagues, or experienced incidents when colleagues were critical of others. They perceived these situations as more challenging than encountering rude or unpleasant patients for two main reasons. Firstly, patients come and go, and the medical radiation professional spends a relatively short time with each, whereas work colleagues might be present all day, every day:

Don't piss anyone off. You've got to work with these people, maybe every day for years. You've got to get along with them. You've got to get along with them if you want to stay working here. *Trudy, first interview*

Secondly, responding to aggression and abuse from patients was perceived as less complex than having to consider the political, hierarchical, social, cultural and industrial factors that might be associated with responding to a fellow employee's behaviour or actions:

Well, I don't like confrontation, so I let her - if it was an innocent thing, I just let her run with it. It's not my place to say "no" to her on every little thing. In a way, she's more experienced than me so I feel like there's a hierarchy, and you're still the bottom of the food chain. These were smaller things. *Betty, first interview*

New graduates are in a more vulnerable position,⁽²⁸⁰⁾ with less knowledge of the resources available to them and what services and support are at their disposal to manage workplace incivility. They have less established relationships and know less of the way power is held and used in their workplaces. Simultaneously, many are experiencing job insecurity and possess fewer marketable skills, so they may perceive that they are less able to stand up for themselves to protect themselves from horizontal violence.

Some graduates described challenging incidents where they had worked with colleagues that they perceived as incompetent or lazy. This is an intriguing notion that I could not identify in the transition literature – much has been written of the perceived incompetence and laziness of new graduate professionals,^(106, 117, 120, 146, 155, 313, 321) but the challenges they experience when working with colleagues whom the graduate perceives as incapable do not appear to have been widely examined. Atyeo⁽⁵⁹⁾ identified that working with incompetent or lazy colleagues was a source of stress for Australian radiation therapists - although his study did not specifically examine the perspectives of new graduates, my participants' views support his findings. Graduates in my study described the internal conflict they experienced in deciding whether to remain silent about their concerns regarding such colleagues rather than accepting the potentially negative consequences of doing something:

She has ten years of experience but no initiative and won't pull her weight when she comes to work, and you can't afford to do that when you're on

evening shift and there's a lack of staff. It's hard to get on with everyone when you have all this pent up frustration because they're not doing the work and you can't really say anything. You don't want to create conflict, and you don't want her to be "oh, I'm being bullied". But then you also feel like you've got to say something because otherwise it will just boil over one day... *Susan, second interview*

The new regulatory environment in which medical radiation science professionals practice potentially adds to the challenging nature of these situations. As registered professionals, graduates are now required to report situations where professional colleagues are unfit to practice, including by virtue of incompetence, described as "placing the public at risk of harm because of practice that constitutes a significant departure from accepted professional standards".⁽³²²⁾ This places medical radiation professionals, particularly vulnerable new graduates, in the tenuous position of judging a colleagues' competence and possibly exposing themselves to a variety of negative consequences for the act of reporting.

Some participants experienced challenges in the workplace when interacting with colleagues who refused to allow them to practice independently, interfering with or overriding their professional decisions or treating them like a student, all examples of workplace harassment and incivility^(280, 323):

When some people try to modify how I work. I don't mind suggesting new ways or better ways, but some people actually want you to work in this way and not in another way. *Oliver, first interview*

...she spoke to me in a really condescending manner when I asked a question...that was really difficult because it just put me all the way back to when I was a student again, and it made the rest of the nights dealing with her quite difficult. I avoided her, I just didn't want anything to do with her...*Susan, first interview*

These behaviours from colleagues left my participants feeling disrespected and demeaned, echoing findings among other graduate caring professionals.^{(155, 280, 323,}

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7.2.2.2 Managing students in the workplace

Medical radiation science professionals supervise student practitioners in the clinical practice environment, sometimes leading to difficult challenges for new graduates. Most of the participants in my study had been responsible for supervising student professionals during their transition to practice and, while some found this stimulating and enjoyable, a considerable proportion were challenged and burdened by it:

It's good. I like it. I think it helps consolidate your own ability...When you're teaching them things, you kind of realise what you have learnt and that you can pass that on. *Trudy, first interview*

An emotional burden. You want them to do well, you want to create a good environment for them, you understand what it was like to be a student.

Emma, first interview

...and I just can't deal with the pressure that that places on me, having to not only look after my work, but taking full responsibility for them as well. It's really quite....I was just not coping at all. It was really, really stressful, and I didn't know how to handle them. *Susan, first interview*

The capacity to supervise and mentor students in clinical practice has been a required outcome from medical radiation science professional-entry programmes^(72, 73) for many years. Like other health professionals,^(87, 137, 154, 283) it may not be unusual for medical radiation science professionals to sometimes find the supervision of beginning professionals to be challenging, adding to an already substantial workload and, potentially, distracting from core responsibilities and patient care. It is understandable that new graduates might experience supervision of students as particularly challenging while they are also managing and experiencing their own transition to professional practice.

Most of the graduates in my study had completed some brief instruction or learning during their studies that related to peer-teaching or mentoring, but none felt that this had been particularly helpful or meaningful – in fact, many were dismissive about what they perceived as tokenistic learning. None of my participants felt that

they had been adequately prepared with skills and knowledge in clinical supervision and teaching:

You do this peer tutoring in the labs in the start of third year...you don't get taught how to teach for those sessions. We had a small talk in one of our lectures about what was to happen, and we were given the rundown sheet, a list of questions to ask, a list of projections to go through, what exposures would you use and this, that and the other, but apart from that there was nothing. Nothing about how to teach, how to give feedback, conflict resolution, nothing like that. And it's really traumatic to be a new graduate trying to deal with students without that. *Jane, first interview*

No one teaches you how to supervise. No one. At the beginning when I was trying to decide how to deal with students, I tried to think back to my supervisors that I looked up to when I was training. But they have their own methods, and when you try to put that into practice, it's easy to just get lost. *Susan, second interview*

Most of my participants tended to adopt the supervision approaches used by the supervisors that they had personally found effective. While this was successful to a greater or lesser extent, many of the graduates in my study experienced anxiety and uncertainty about being ill-equipped and unskilled to supervise.

My participants were aware of, and readily accepted, their legal responsibility for the actions of students under their supervision, but often remained wary:

...even fourth years, I know that they're competent at doing it but it's my name going on the pictures so if they do something wrong, when a radiologist or senior is looking through the pictures and they go, "Oh, this isn't good enough", they don't blame the student, they blame you. *Trudy, first interview*

It is understandable that new graduates who were working hard to prove their independence, to create a positive impression, and to secure ongoing employment, might feel hesitation or concern that the actions of students could reflect upon

them. Some participants felt that the students were judging and evaluating their performance or questioning their credibility:

I think it's just that they knew that I was only six months out and maybe saying, "Wow, you should know what you're doing and why don't you know what you're doing, you've been working for so long already. I hope I'm not like you when I graduate". Just like, "You shouldn't be qualified", things like that. *Susan, first interview*

Medical radiation science graduates felt this particularly acutely when they knew the student from their own time at university. Interestingly, all participants who expressed this view also indicated that, while a student themselves, they had not perceived the new graduates that they worked with in such a harsh or judgemental way – in fact, they had respected and admired them. The graduates' perception of how students perceive them may, therefore, be inaccurate and symptomatic of their own fragile sense of confidence.

While medical science graduates strongly desire feedback for their own development, participants found it difficult to provide critical feedback to students, and while they corrected students' errors as part of their overall responsibility for patient care and safety, some found it difficult to manage the emotional impact this sometimes had on the students:

Sometimes it's a bit nerve wracking, because I'm like, "It's not quite right" or, "It's not good because of this, this or this". Then you look into the student's face and it's like, "Oh, man!" It's a bit hard being the bearer of bad news and helping them to fix their pictures or whatever. *Dorothy, first interview*

Graduates felt guilty and stressed at being perceived as unkind or mean-spirited in providing what they believed was feedback that contributed to the students' development.

7.2.2.3 Section summary

Colleagues represent a significant source of workplace adversity for medical radiation science graduates and, while the range of challenges may be less diverse

than those associated with patients, the impact can be substantial. Unlike patients who come and go relatively quickly, graduates are required to encounter their colleagues day after day. Managing sources of stress associated with colleagues' behaviours - such as rudeness, incivility, laziness or incompetence - can be more challenging because of the social, political, hierarchical, industrial and cultural complexities involved. Medical radiation science graduates commonly find it challenging to supervise learners during their own transition to professional practice. While success in doing so is satisfying and confidence boosting, graduates feel inadequately prepared for supervision.

[7.2.3 Workplace adversity: starting out](#)

Workplace adversity - starting out

- Finding employment
- Fitting in

Figure 7.5: Medical radiation science graduates' experiences of workplace adversity relating to starting out

Some of the challenges that participants in my study experienced during their transition to professional practice related to starting out in a new career. Graduates identified that finding employment and fitting in to the workplace and profession were sources of adversity related to starting out. These experiences were compounded by their coincidental timing with managing the workload of final year studies, lengthy clinical placements, high stakes competency assessments, finding employment and other life responsibilities:

But I can still remember how stressful it was...How stressful fourth year was, being on prac with all these people who are just like, "Oh, you can't even do it as well as I can, you're no good"... The [final year research] project was so stressful, it was just crazy...it really was a horrible year. And then, yeah, I mean, you're stuck in a place for thirteen weeks, I don't know. And everybody does judge you to evaluate you. *Matilda, first interview*

This stressor was only temporarily relieved in some instances as many new graduates pursued further studies almost immediately, or were appointed on short term contracts so continued to seek employment.

7.2.3.1 Finding employment

Medical radiation science graduates experience significant stress and anxiety in finding employment. Perhaps unsurprisingly, the process of applying for jobs was challenging, competitive and stressful for many participants, echoing previous findings for beginning health professionals.^(22, 28, 325) My participants described being fearful that they would not be selected, and this was made more acute for those who were unsuccessful in their early applications:

I didn't know I had a job during that period, I think for a good month and a bit we were up in the air and we hadn't heard anything about jobs at all. It was awful. It was just that waiting period until they released the job ad, then that will they give me an interview, maybe they won't, so there was that pressure. Then waiting for your interview, doing your interview, so it felt like long, drawn-out waiting period where it was so unknown, where you would be. We were interviewing for other places, but we all really wanted here. We didn't want to have to travel interstate and change our life completely. It was a hard time, that period. I wouldn't wish that on anyone really. *Betty, first interview*

Although all the graduates in my study were employed at the time of the interviews, most were employed on short-term or temporary contracts. Like the Australian graduate nurses in Parker et al.'s study,⁽³⁰⁾ feelings of job insecurity and uncertainty were common among my participants, and the process of applying for positions continued for most of the graduates in my study:

I don't have a [permanent] job yet, which is thoroughly disappointing. I think I was expecting a job because I was here at this site for three months and at the other [current organisation] site for three months, and I kind of got the opinion that I was one of the favourites for the job, but then I just didn't get anything. *Kylie, first interview*

Not having a permanent contract is definitely very stressful, and it makes us different. There's less stability, and there's uncertainty. But I've now got

three months, so if I don't have a job, there's a little bit of relief because I've got a little bit of qualified experience. *Nancy, first interview*

A number of graduates had quickly identified during their transition that the medical radiation profession was not, as it turned out, the career for them, or they found the work repetitive and boring, or struggled to see where their career pathway might be. Career and professional plateau and monotonous work were three of the top five reasons identified for leaving the Australian nuclear medicine profession,⁽⁵⁸⁾ although it should be noted that the associated study was not restricted to recent graduates. For the participants in my study, the realisation that they felt unsuited for a longer term career in medical radiation science was sometimes a challenging situation because of the significant time and financial investment they had made to their professional educational preparation, and some were conflicted about pursuing something else at the cost of this investment:

...it's difficult, because by the end of fourth year you know exactly what you're getting yourself into, so to have completed your four years of study and to have resented it the entire time or seen it as it was not what you want to do is a huge, huge problem. *Emma, first interview*

While a number of the participants in my study indicated that they gained great satisfaction from their work as medical radiation science professionals, it is concerning that, at such a very early stage of their careers, so many felt insecure in their current jobs, uncertain about their employment security in the career more generally, or had experienced some degree of disengagement and disinterest. There appears to be potential for workforce attrition in the future, yet none of my participants had engaged in specific activities or interventions from their workplace or profession that attempted to address their concerns or to support them to resolve their feelings.

7.2.3.2 Fitting in

Beginning medical radiation science professionals experience anxiety from fitting in. Challenges associated with fitting in to the culture of the profession, the workplace or the team were frequently identified by my participants. Fitting in was considered

challenging in any situation, but graduates in my study felt this was much more difficult when cliques existed or where there were colleagues who were unwelcoming of new staff:

To integrate socially with all the cliques and groups of the qualified staff members is a lot harder to do. We sit and have lunch together, the three new grads here, because you're not in [with] some other group. *Nancy, first interview*

In some respects this finding appears obvious, and it is supported by previous nursing studies^(24, 118): unwelcoming culture or behaviour presents difficulty for the new team member in trying to fit in. Susan and Jane, female medical imaging professionals, felt that they had experienced more difficulty fitting in or accessing opportunity than their male colleagues as they perceived that their workplace culture was inequitable:

But it is a boys' club and I know that one particular supervisor will overlook and not come down as harshly on the boys club as he would with other female people, and that frustrates me. If you compare a male student who gets on really well with them, and a female student who is brilliant, he will make more opportunities for the guy, regardless. *Susan, second interview*

There appears to be no published evidence that explores this aspect of the medical radiation science workplace culture. As a female dominated profession,^(65, 326, 327) it seems counterintuitive that 'boys club' might be the prevailing culture:

nevertheless, my own experience of the profession suggests that there may be validity to Susan and Jane's perspectives. Further exploration falls beyond my study, although it may prove intriguing.

Many graduates had experienced at least one relocation to a new organisation or site during their transition to professional practice, and some had experienced several – Dorothy was employed as a relief staff member and was routinely rostered through eight or more different sites. While it was acknowledged that there might be some value in being exposed to different approaches and environments, for the most part graduates felt that changing location – even once –

presented challenges in fitting in, being new, understanding the culture and being valued as a contributing, independent team member:

...because I just moved here [from other site], I'm considered here as a new person now. I've really had two times of being new and adjusting, I really have. They do things slightly different as well, so I've had to adjust to that. It's the same protocols and everything, but the way they do things is slightly different. *Carla, first interview*

It's very tiring, going from one place to another each week. It gets a bit much sometimes, you just get run down a bit. Not being a part of the permanent team, sometimes that's tricky too. You come and you feel like you're just a guest, you're not there all the time, so you miss out on that whole being part of a group. *Dorothy, first interview*

This finding aligns with those previously identified in other health professions.^(24, 27, 30, 85, 94, 112, 158, 242, 277) While, initially, graduates may perceive some value in gaining broader experience in rotating to different locations throughout their transition to professional practice, their feelings change when they experience the stress of fitting in all over again, and the undermining of their confidence and sense of competence, with each new rotation to a new location, new team and new culture.

7.2.3.3 Section summary

Starting out in their careers, while exciting, represents a source of adversity for medical radiation science graduates, particularly as these feelings coincide with managing the workload of final year studies, lengthy clinical placements, competency assessments, finding employment and other life responsibilities. Graduates are anxious to fit in to the culture of the profession, the workplace or the team, and this can be substantially more challenging when they encounter workplace cliques or where they struggle to gain a sense of belonging because of their temporary employment.

Graduates in my study described a wide range of experiences of workplace adversity relating to patients, to colleagues and to starting out in their new careers.

This appreciation of the nature and diversity of workplace adversity supports understanding of how new medical radiation science professionals experience resilience to workplace adversity as a process of evolution. This process is considered further in the remainder of this chapter.

7.3 The impact of workplace adversity

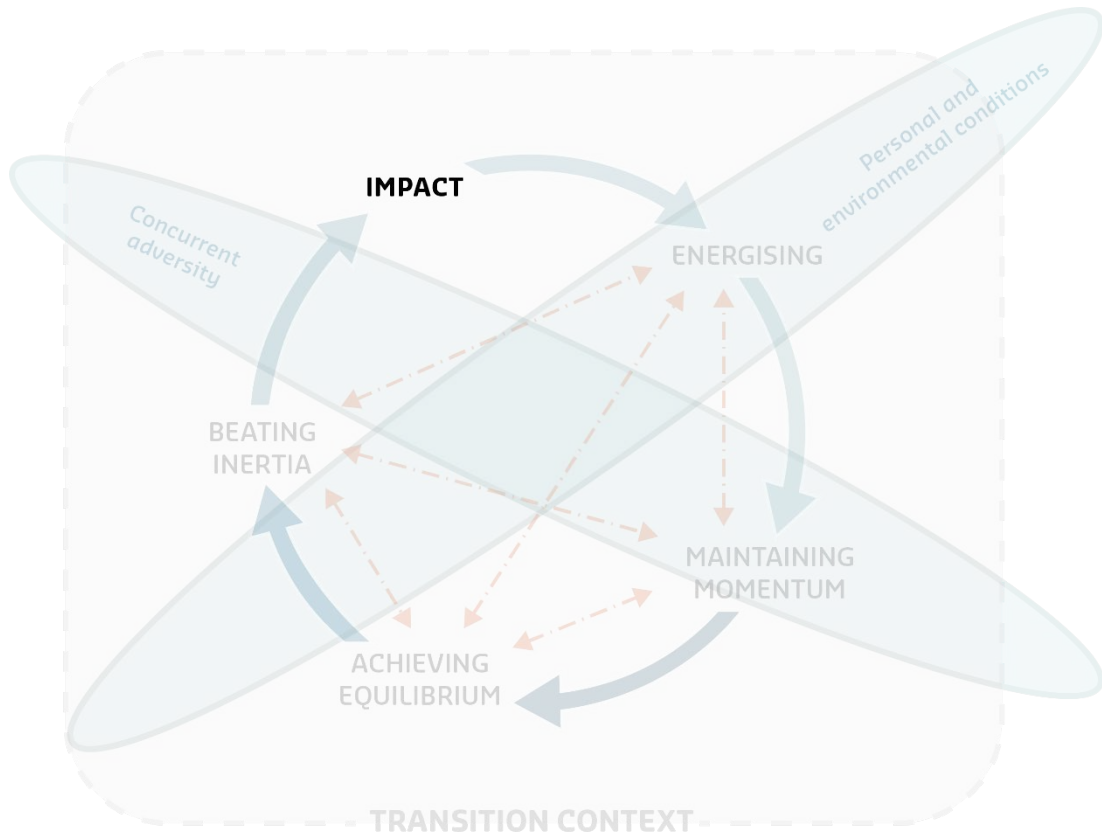


Figure 7.6: Resilience as evolution - Impact

With an appreciation of the nature and diversity of workplace adversity, it is possible to consider how medical radiation science graduates manifest resilient responses. As the initial stage of resilience as evolution (Figure 7.6), graduates experience the impact of adversity.

Upon encountering or confronting an adverse event or situation, medical radiation science graduates experience a range of feelings and effects. In many cases, their initial feelings include shock, upset, horror or surprise.

My participants identified incidents where they encountered situations that they had not anticipated or those which they had not expected would be challenging:

She was told to get changed and...the change room is very close to the x-ray console room. So she was told to get changed, and she actually opened the curtain and exposed herself, and I was walking past. I really didn't like that at all. She was also yelling and swearing...it was unexpected for me and very confronting. *Phil, first interview*

It is to be expected, therefore, that many of the graduates in my study spoke of being shocked, stunned or surprised upon encountering a particular challenging event:

Just a sort of shock, really, it's not something you see every day, but obviously in a hospital it happens more often than anywhere else. So I suppose just the shock of seeing something as confronting as that. *Fred, first interview*

Participants spoke of being traumatised, upset, saddened and confronted in the initial moments when they encountered challenging situations:

I felt a bit sad about it, got a bit teary eyes and stuff. *Dorothy, first interview*
...and then I was looking at her and then looking to the side where I just expected the Help button to be. And it wasn't there and I was like, "Shit! What am I going to do?"...So I was just sitting there, watching this patient and thinking "Help, somebody!" *Jane, first interview*

Some graduates indicated that, when an event suddenly unfolded before them, they momentarily froze or felt hesitant to step in and act, echoing experiences previously described by new nurses⁽²⁰⁰⁾:

I'd never seen anything like that before, and I had to take a step back. It was a shock... *Remy, first interview*

In some situations, my participants felt anxious about their ability to cope or described being overwhelmed:

I think paediatrics was a bit overwhelming. I think it is more the fact that someone so young is suffering. *Hugh, first interview*

Oh, the smell....I walked out of the room in the middle of it because I couldn't cope. It was sensory overload as well. It was day two at the hospital, so hospital smell anyway is quite different especially in the ICU wards because it is so sterile and so clean. *Jane, second interview*

While in many situations, the impact of workplace adversity involved transient emotions, for some graduates, the initial impact of encountering particular challenges has been significant. In relating their stories, often many months after the event, some people were clearly still moved emotionally by what they had witnessed. Some indicated that the particular event was something that they would always remember, and a number had difficulty in articulating some of their initial emotional responses even though significant time had passed.

Following the initial impact of workplace adversity, graduates typically moved into a stage where they pulled themselves together and got on with the job at hand. This energising phase of resilience as evolution is explored in the following section.

7.4 Energising

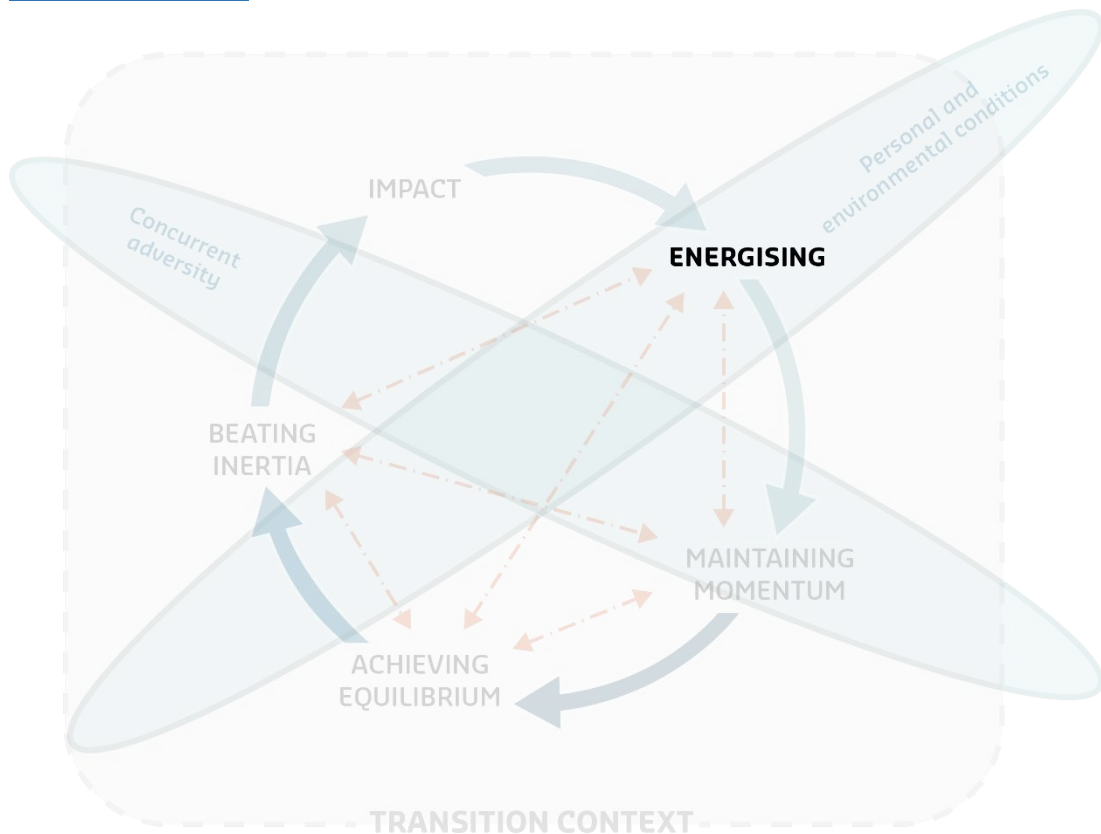


Figure 7.7: Resilience as evolution - Energising

Following the initial impact of encountering a workplace challenge, medical radiation science graduates employ strategies to energise themselves to engage in action (Figure 7.7). This stage might be thought of as one where the individual pulls themselves together after the initial shock or disruption, resembling the progress from disorganisation to reintegration identified in Richardson et al.'s resiliency model.⁽¹⁷²⁾ At this point, my participants had recovered themselves sufficiently to recall and recognise that they had a professional role that must be enacted. By controlling their emotions and focusing on action, graduates were able to motivate and empower themselves to act. Processes that helped my participants to energise included normalising, desensitising and seeking help from others. These properties (Figure 7.8) are considered further in the remainder of this section.



Figure 7.8: Properties of the category 'Energising'

7.4.1 Pulling yourself together

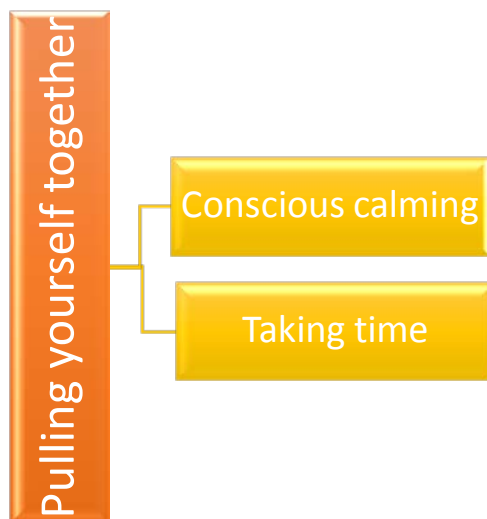


Figure 7.9: Property of Energising – 'Pulling yourself together'

In energising themselves to act after the impact of workplace adversity, graduates pull themselves together by deliberately calming themselves, physically and emotionally (Figure 7.9). This was perceived by my participants as consciously calming themselves as a means of focusing their thoughts and energy on the tasks

ahead. This might involve deliberately thinking to themselves to calm down or to relax, or it might be a simple physical strategy such as taking some deep breaths:

At first...it is stressful, but then you calm yourself down and just do one thing at a time. *Gail, first interview*

Graduates emphasised that it was often important at this point to pause and think about how to tackle the challenge before them. Sometimes this involved remaining active in ways that were more practised or automatic, completing tasks that required little thought, providing mental space and time to clear their minds of distractions and to think through their plan of action. At other times, pulling themselves together involved an actual pause in actions:

You have to stop for a moment and collect your thoughts. *Remy, first interview*

We had a student just a few weeks ago who was good when she took the time to stop and think, but often she would panic...I'd have to take her aside and say, "Stop, think, take a moment. It's alright. Take a moment, think about what you're going to do, and then go ahead and do it." *Emma, first interview*

While many participants spoke of the constancy and busy nature of their working environments, several indicated that it was important to take the time needed to think to determine the best course of action for the patient and to avoid errors. Gail argued that she could only deal with one patient at a time, so there was little point in rushing to save a few seconds if it meant a greater likelihood of making mistakes that would require more time to correct than would have been saved:

If you try to rush through it, you often make mistakes and you have to backtrack, fix whatever mistakes you've made and that takes longer. So it's better just to give it the time it needs and give the patient the time they need, do things properly...I've realised this year that it's less important to be fast than it is to do things properly. You don't really save time by rushing. *Gail, second interview*

When graduates pause (figuratively or literally) to pull themselves together after the initial impact of adversity, they equip themselves with emotional resolve to proceed. This conscious calming of oneself is, therefore, energising.

7.4.2 Recalling responsibility



Figure 7.10: Property of Energising – ‘Recalling responsibility’

Energising after the impact of workplace adversity involves recalling responsibility to do what is right as a professional and what they are employed to do (Figure 7.10). Medical radiation science graduates take their professional responsibilities seriously, and this motivates them to act. After encountering the initial emotional response to a challenging situation, my participants were able to spur themselves into action by reminding themselves of their professional responsibilities, thereby energising themselves to enact them. Graduates universally perceived that they had a responsibility to their patients that maintained primacy, irrespective of their own shock or upset:

It doesn't matter how serious it is, I can be "I've got a job to do". At the same time, saying that doesn't mean that I don't feel anything. It does not mean that at all. It's quite natural to feel something. But you can't let it overrun your work. *Hugh, first interview*

My participants demonstrated acute awareness of their professional accountability and responsibility, and a genuine commitment to patient-centred care. In challenging situations involving patients, several of the graduates in my study

indicated that one of their strategies for managing the incident was to consciously remind themselves that they were there to do a job, that they were paid to fulfil certain responsibilities, and that the role they played helped to progress the patient's care:

...you're there to take their x-rays and get them through that chain where they can get the treatment or help that they need. *Remy, first interview*

The motivation for these perspectives appears to be partly altruistic (this is what a good professional would do), partly cultural (this is what my colleagues expect) and partly legalistic (I might get sacked or deregistered if I do not). A sense of responsibility enabled graduates in my study to focus on the needs of the patient and the team as the challenging event unfolded, enabling them to act.

Accepting responsibility, whether for others, for some effort, or in a more general sense, has been identified as a source of resilience in response to adversity.^(188, 193) People find it empowering to take responsibility,⁽¹⁷²⁾ albeit that there may be associated obligations which could be perceived as burdensome. Medical radiation science graduates in my study were both inspired and empowered by their responsibilities.

7.4.3 Gaining control of emotions

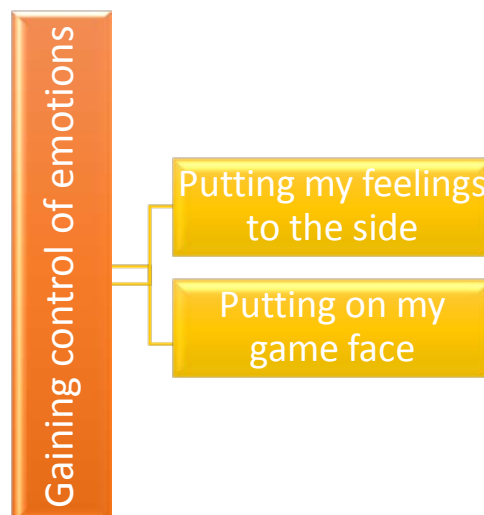


Figure 7.11: Property of Energising – ‘Gaining control of emotions’

To energise, graduates gain control of their emotions, putting their feelings aside for the moment and assuming a controlled persona (Figure 7.11). Gaining control

over their initial emotional responses to adversity is important to allow medical radiation science graduates the freedom to act. As many of the examples of workplace adversity described by my participants involved patient care situations, it was common that they spoke of gaining control of their initial reactions and emotions when they encountered something confronting, for the sake of their patient. Exactly how this was achieved varied, and it was sometimes difficult for the participants in my study to articulate their personal strategies. Many participants spoke of consciously putting their own feelings to the side, achieving this by focusing their attention on other thoughts or using deliberate thinking to calm themselves. Some graduates spoke of adopting a specific persona or deliberately masking their emotions in challenging situations:

There's been other stuff....gory or smelly stuff. You just put on a brave face, a really brave face. *Carla, first interview*

This 'face' served primarily to conceal emotions from the patient and others. The intention was not to be insincere or disingenuous, but to avoid frightening or offending the patient, or risking that the patient might lose confidence in the graduate's capacity to provide care:

If the patient loses confidence in you, they will not comply with your instructions and it will make them feel like they are not getting the best treatment and attention. *Oliver, second interview*

Adopting a persona sometimes also served as a strategy to protect the graduate from further emotional distress, in the sense that they assumed a role, rather like an actor in a play. Deliberately adopting a calm and unperturbed persona allowed some of the graduates in my study to manage how their emotions appeared to others, providing them with a sense of control and of confidence that they could manage the situation.

7.4.4 Focusing on action



Figure 7.12: Property of Energising –‘Focusing on action’

Energising involves focusing on action, where graduates narrow their attention to the most immediate of their responsibilities as they strive to think objectively, rather than emotionally, about the patient or the situation (Figure 7.12). By focusing on action, or acting upon the most immediately necessary tasks, medical radiation science graduates are able to summon the resolve and energy necessary to fulfil their responsibilities in the face of adverse situations. Many of the participants in my study identified that a key strategy for collecting themselves after the initial impact of an event was to consciously put their emotional responses temporarily to one side and to focus on the task at hand:

You can't completely detach because empathy makes you a better practitioner, so you have to feel all that emotion but at the same time you've got a job to do and you've got to do it as best as you can. So you've got to try and put it all aside and really focus on what you need to be doing. The doing part helps with that, you know you've taken this duty of care to treat this patient as accurately as required, you've got a lot of other pressures as well, and you've got to sort of oversee how you're feeling emotionally. *Hugh, first interview*

In some ways, this strategy is the real essence of the energising stage of the resilience process: when trouble struck, the graduates commonly tended to focus on doing what was necessary to resolve the crisis in the moment, and to worry

about the emotional fallout later. Graduates articulated this action-focus in numerous ways. Some felt that focusing on their task responsibilities allowed them to feel that they were contributing to the team goal or the patient's care – a sense of purpose and of doing something useful to fix the particular problem:

My job is to be able to do something practical and helpful for the patient, being able to focus on what I can actually do to help the patient helps me to manage the emotional part of it. *Carla, second interview*

Some graduates felt that focusing on action provided a distraction from emotionally charged situations, allowing them to block out negative feelings by concentrating on doing:

And I think my response to it is to just keep going. I need to distract myself otherwise I'll think about it too much and I'll get upset. *Dorothy, first interview*

Several graduates felt that focusing on their tasks was a way of not thinking about anything, effectively blocking the immediate emotional aspects of the situation:

When things are really intense, I just concentrate on what I'm doing, don't think of anything, block everything out. *Susan, second interview*

This notion is initially perplexing because, in fact, considerable thought is involved in performing what are often complex, non-routine procedures. A clearer interpretation is that task focus allows medical radiation science graduates to focus their thoughts in a very particular way, which happens to be directed away from thoughts about the patient or the situation that might be distressing or disturbing, and towards fulfilling the immediately necessary procedures or tasks.

A focus on action has been identified as an important element of some people's resilient response to adversity.^(171, 175, 194, 198, 230) In deliberately acting, an individual may gain strength from believing that they have the capacity to influence the situation, resonating with notions of self-efficacy, problem-solving and coping.^(170, 194, 196, 230) In explaining their deliberate focus on the task, some graduates in my study indicated that concentrating on doing and acting enabled them to see the

situation rationally rather than emotionally, perceiving the patient as a procedure rather than as a person:

When things like that happen, I try not to think about the actual person, I just think about what we're doing. Not really think about them. I don't know them, so I focus on the job and what I'm here to do. I can help them best by getting in there, getting the job done and getting them on their way. *Violet, first interview*

Graduates rationalised this strategy as approaching the challenge objectively, clinically or professionally rather than as dehumanising the patient in any way. That the distinction between these perspectives is less than clear is, perhaps, a moot point: the key notion is that by depersonalising the experience, participants in my study were able to progress the immediate situation. Depersonalisation or dehumanisation have been previously identified as strategies that health professionals use to cope with challenging situations.^(33, 310) There may be an association between more general depersonalisation in practice and negative effects of adversity such as emotional exhaustion and burnout,^(35, 38) but little in the literature considers depersonalisation as a specific, in-the-moment coping strategy such as participants in my study described. My participants perceived that, in some situations, depersonalisation positively supported them in managing the adversity encountered, thereby contributing to their resilient adaptation – a finding that aligns with those from Howard and Johnson's⁽¹⁸²⁾ exploration of resilient Australian teachers, who used depersonalisation to reconcile and reflect upon difficult situations. Graduates in my study seemed to be both perfectly capable of, and perfectly comfortable in, possessing the apparently contradictory perspectives of sometimes rejecting the human or personal aspects of their practice, and of genuinely embracing patient- and person-centred care. Their resilience during the energising stage relied upon knowing when to adopt a task-focus to help them to manage and adapt.

7.4.5 Normalising and desensitising



Figure 7.13: Property of Energising – ‘Normalising and desensitising’

Over time, repeated exposure to workplace adversity appears to enable medical radiation science graduates to more readily energise in challenging situations as they become used to adverse situations and they practice their responses (Figure 7.13). This may be partly because the unexpected becomes more familiar, and partly because the graduates have the opportunity for reflection and growth between exposures. My participants indicated that their ability to quickly energise when confronting challenging situations involving patients was due, in part, to normalising. Normalising adversity has been identified as a key resilience process^(168, 206) that allows people to make meaning of the challenges they face, to gain perspective, and to understand and gain control of their reactions, and thereby aid adaptation. All of the graduates in my study had engaged in considerable periods of clinical placement during their professional education, providing significant opportunity for them to practice their practice. In other words, this was the opportunity to do things over and over again in different contexts and environments, and to become used to things through repeated experience:

I think it's just being exposed to it more often. In that constant exposure, it becomes normal, it's like normalising it. I've had lots of patients with broken bones and they come in and they can't move, and you kind of just get used to it. I don't like going to theatre and seeing people laying there like that. That freaks me out a lot and I find it distressing at times...But the more and

more I go through there, it's more normalised, you just find that's the way it is there. *Dorothy, first interview*

In addition to building confidence and capability, graduates valued the opportunity to repeatedly encounter a wide range of patients and their associated challenges and situations. My participants frequently spoke of being confronted by a particular event – for example, an unconscious patient prepared for surgery – but that the sense of shock lessened upon subsequent encounters, often disappearing altogether over time. Graduates attributed this lessening or deadening of the initial impact to gaining practice and familiarity in managing the particular type of situation – practising their practice – and to normalising some of the shocking aspects:

It gets easier over time...desensitisation. Seeing it repeatedly, it's not as confronting anymore, you're a bit more used to it. It's still sad, but you know more, you know about the outcome and that eventually it'll be okay, you just have to get through it. *Betty, first interview*

While normalising and desensitising might occur unconsciously as the result of normal experience, some graduates had deliberately and strategically sought repeated exposure to particular situations in order to build their ability to normalise what they witnessed. Several participants in my study suggested that they could no longer be surprised by what they see, because they so regularly witnessed situations that might commonly be considered as anything but normal.

Being desensitised, I guess. I've seen it or similar things enough times, and each time it gets a bit easier. It definitely gets easier each time. After you've been to places like [major trauma hospitals] you've seen enough things that you can't get shocked. I feel like I've seen it all, from horrific injuries to things stuck up passages that they should never have been stuck up. You don't get used to seeing it, but it's not shocking anymore. *Jane, second interview*

Hugh was able to articulate the changes and differences he experienced between the first and subsequent encounters with particularly confronting situations, using his experience with a paediatric patient as an example:

Seeing him struggle and being forcefully put to sleep, that's what got to me. But next time around, after taking it all in, I understood why he needs to be put to sleep and why it would be more detrimental to him if he was awake, and I know he's going to struggle because it's the body's natural reaction to try and fight something like that, especially something that you don't know what it is and you don't want it, your body just wants to fight it. So the difference was that I started really looking at things logically and why they were occurring and why it's okay for it to be occurring. That's what started to change my mind about how I thought about things, and I just focused more clinically on why this is important. Initially it was emotion driving it, then it became more rational. It was also the first time that I was just observing, so there was no need for me to think clinically, I wasn't thinking clinically. Even though I was following steps in my mind, I wasn't doing them. I wasn't occupied. All that was left to think about was looking at this poor little kid struggling. *Hugh, first interview*

Hugh's explanation resembles descriptions provided by Lamdin's⁽³¹⁰⁾ medical student study participants when they spoke of their experiences of dissecting human cadavers in their anatomy studies. These students were able to overcome their initial apprehension by adopting what they described as a clinical view, considering the bodies as things rather than as people, and considering the anatomy laboratory just like any other working environment. Reflection between repeat exposures may also contribute. I echo Lamdin's view that it is unimportant whether the progress my graduates experienced from reacting with shock to being unperturbed represents desensitisation or normalisation. The key point is that with time and experience, medical radiation graduates are more at ease and less disrupted by subsequent encounters with particular adverse situations.

7.4.6 Seeking help



Figure 7.14: Property of Energising – ‘Seeking help’

Asking for help involves deliberately seeking resources and assurance (Figure 7.14), and it represents a critical strategy for medical radiation science graduates to energise and act. In doing so, they receive support and assistance for their actions and, additionally, gain a sense of taking charge and being proactive. It was apparent that my participants perceive no challenge to their independence and capability by seeking the help of colleagues.

It has been suggested⁽¹⁶⁾ that new graduates rely heavily on the help and advice of others to fulfil their work responsibilities: this was not reflected in my study as my participants expressed a strong sense of independent action and responsibility. To suggest that their reliance on others was ‘heavy’ is unwarranted. All participants in my study identified that seeking help was vital for them to manage some of the challenges they faced in the workplace, particularly when they were preparing themselves to act to resolve problems, reflecting findings from other resilience studies.^(194, 198, 201, 221) In this sense, help-seeking is a proactive strategy that contributes to resilient response by facilitating the acquisition of the resources necessary to resolve the challenging situation and eliminate the source of adversity.

While help-seeking was not always necessary, the participants in my study perceived that asking questions when required was a professional strength, one to be admired and encouraged:

Asking lots of questions, I think, is key. That shows that you're willing to learn. *Carla, first interview*

Sometimes the assistance they sought was material support, such as help to physically move a patient or piece of equipment, or technical information about a particular procedure. Mostly, though, graduates sought moral support as a strategy to pull themselves together and act, echoing Howard and Johnson's⁽¹⁸²⁾ finding that resilient teachers in their study drew strength from turning to colleagues to share experiences and to boost morale. Commonly, graduates in my study explained that they would outline to a trusted colleague how they planned to tackle the situation, less to seek advice as to be reassured by their colleague's affirmation for their plan of action or their ability to enact it:

Most of the time, even when I ask the right people, I have an idea of how I'm going to do something and it's really just to check and make sure that I've thought of everything. In a lot of cases, I'm not really seeking an answer, I'm seeking reassurance about what I already think. *Dorothy, second interview*

The notion that graduates seek help as confirmation of their own reflective thinking is intriguing. It might be a useful future investigation to examine how the structure of the work team influences help-seeking and reflective thinking, and to establish what – if any – relationship exists. My participants indicated that they consciously posed questions to themselves in preparing for action, actively reflecting on their existing knowledge and past experience to determine a course of action for the current situation. Interestingly, very few participants identified this as reflective thinking, which is recognised as fostering or underpinning resilient responses to adversity.^(39, 193, 199, 215, 324) The scope of my study precludes examination of the subtle differences between reflection at different stages – reflection before action,⁽³²⁸⁾ reflection in action,⁽³²⁹⁾ reflection after action,⁽³²⁹⁾ reflection about action⁽³³⁰⁾ – except to acknowledge that, for participants in my study, reflective thinking was useful at various points in supporting their resilient responses to workplace adversity. During the energising phase, graduates employed reflective thinking to plan for action, and used help-seeking to confirm and affirm their plans.

7.4.7 Section summary

Following the initial impact of workplace adversity, graduates typically moved into a stage where they pulled themselves together and got on with the job at hand. This energising phase of resilience as evolution involved a number of processes including recalling their responsibility, gaining control of their emotions, adopting an action-focus, becoming used to challenging situations, and seeking help. In the following section, I consider the next stage of resilience as evolution, where medical radiation science graduates persevere and persist through adversity.

7.5 Maintaining momentum

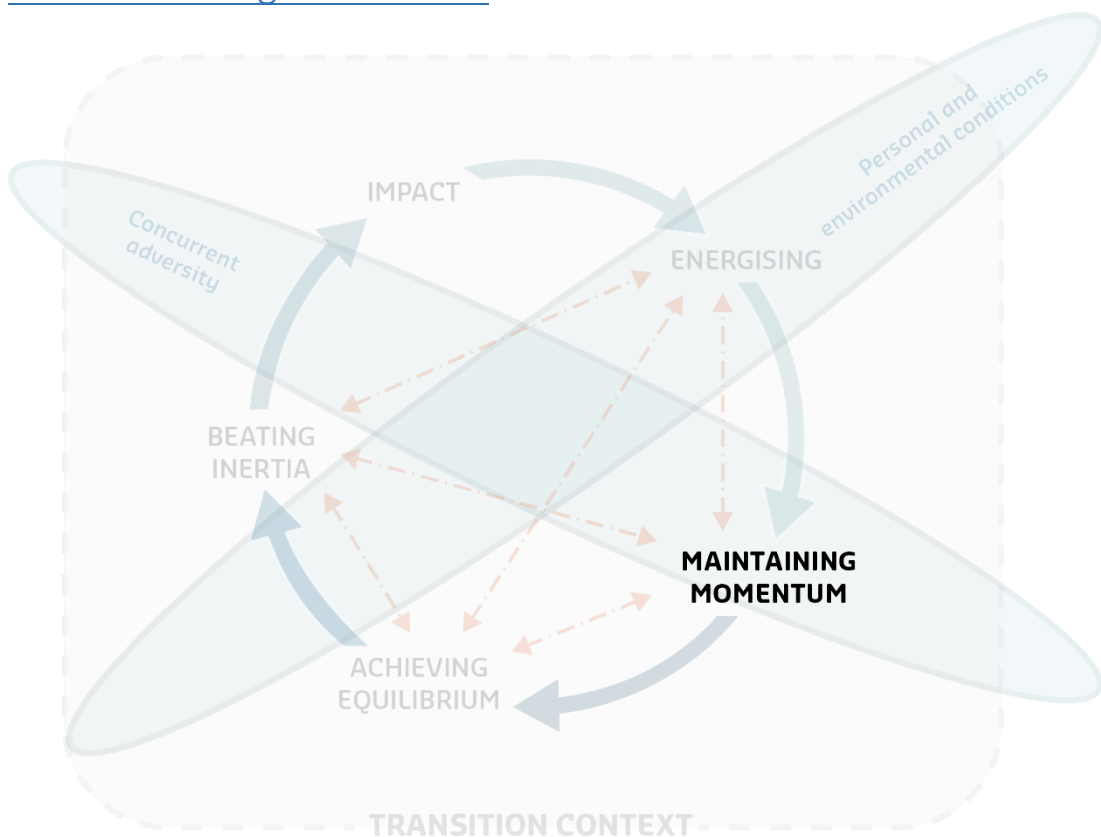


Figure 7.15: Resilience as evolution – Maintaining momentum

After experiencing the initial impact of event and energising themselves to act, medical radiation science graduates maintain momentum as they respond resiliently to adversity (Figure 7.15). This stage might be thought of as one where the graduate has pulled themselves together after the initial shock or disruption, and now perseveres and sees through the immediate task or situation. In this sense, momentum relates to both the progression of the procedure or interaction

towards a conclusion, and to the graduate's perseverance to complete the task at hand:

I guess the main thing for me is to just get in there, get it done, then once it's done it's over and I can forget about it. *Violet, first interview*

My participants indicated that their primary focus during this stage was on persisting and pushing through the situation, doing what needed to be done to counter the immediate challenge or fulfil their immediate responsibilities:

I just go in there and get the job done and pretty much get out. *Dorothy, second interview*

As most of the challenges described by my participants involved situations involving patient procedures, it is unsurprising that the resilience strategies they described to maintain momentum mostly focused on action, on getting things done, and on resolving the immediacies of the event by making decisions and solving problems. This reflects, once again, the seriousness with which medical radiation science graduates accept their professional obligations. Graduates employ distancing to protect themselves from the emotional effects of the situation, facilitating persistence and allowing them to act to progress the situation.

Like other caring professionals,^(170, 190, 195, 196, 200) the graduates in my study demonstrated a strong commitment and desire to persevere when things became challenging. They had multiple motivations for this perseverance, including feeling a sense of purpose about what they do, feeling a desire to help or do the right thing by their patients, having faith that things would turn out positively, or gaining satisfaction from helping others. The notion that resilient adaptation to challenges is supported by a sense of purpose has been well-established by other studies,^(39, 175, 182, 188, 190, 198, 200) and believing that there is a higher purpose, bigger picture, or broader goal seems to be a source of strength for medical radiation science graduates during the immediacy of a challenging situation, and afterward.

This category has properties depicted in Figure 7.16 and each is considered further in the remainder of this section.



Figure 7.16: Properties of the category 'Maintaining momentum'

7.5.1 Solving problems

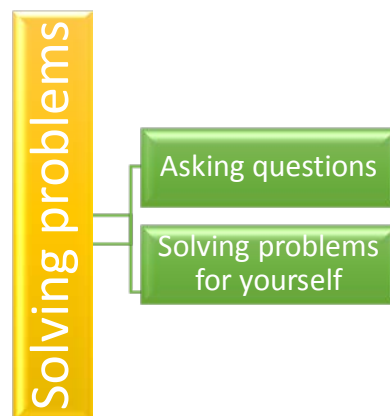


Figure 7.17: Property of Maintaining Momentum –'Solving problems'

Solving problems removes the obstacles in medical radiation science graduates' pathways to bringing adverse situations to a conclusion. Solving problems is an important aspect of maintaining momentum as graduates work their way through particular situations, asking questions and identifying their own solutions (Figure 7.17). In doing so, they rely upon their own knowledge and experience to identify

solutions and to act to progress the immediate situation towards resolution, and they actively seek the advice of trusted colleagues. My participants indicated a willingness to ask questions of others in order to solve problems, predominantly to resolve technical or procedural uncertainties:

Well, there's learning all the particular little processes or workflows or whatever. I ask lots of questions when I'm not sure because I like to make sure I'm doing it right the first time, so I ask before I go ahead, "Is this the way you guys do it here?" If I'm ever confused, I'll just go, "Guys, what's happening here?" I'm pretty comfortable with the team. *Carla, first interview*

Most felt comfortable to seek advice from their colleagues to solve problems, although a number of graduates were careful in choosing which colleagues they would ask or, perhaps more tellingly, whom they would not ask:

...you learn to pick and choose. No matter what anyone says, not every radiographer out there is good or maybe even good enough. If someone good isn't around, you do stress out if something comes up, but you just have to do the best that you can. *Dorothy, second interview*

This suggests that, even as new practitioners, medical radiation science professionals are savvy about recognising the sources of expertise around them, as well as which colleagues are approachable. Even with limited experience, graduates consider that they can differentiate between colleagues who can add value to their practice and those who cannot.

Relying upon others to assist in solving problems, when the assistance was (or should have been) unnecessary, was perceived as laziness or incompetence by my participants. In their second interviews, Jane and Matilda identified that, approximately six months after commencing employment, they had recognised that they had adopted a somewhat passive approach to the challenges they encountered, asking questions that were really unnecessary and creating a perception among some of their colleagues that they were incapable or dependent:

Whereas when stuff used to happen, I'd go to just one person, a senior person, but then I was getting the feeling that I was a bit stupid for doing that, and I should be able to figure it out for myself. So I decided that it was time to start trying to do stuff for myself, figure it out for myself. *Matilda, second interview*

Both graduates described themselves as confident in their ability and knowledge, yet they continued to rely on others to solve problems. Jane explained that this was partly because of habits she had developed as a student which she had continued in her postgraduate practice:

So I think definitely for the first three months, you're still very much like a student mentality. You've just spent another three months the year before on prac, and it was with the same people for me for my job as for my prac, so you're still looking up to the same people, "Is my outlet shoulder x-ray okay? It doesn't look very good, I don't think I can get it better though. What do you think?" Even though I knew it was perfectly fine, I just wanted to be babied and have someone else say it. *Jane, first interview*

That both Jane and Matilda described herself as confident, yet clearly continued to seek assurance and affirmation unnecessarily is perplexing. Perhaps these participants continued to harbour insecurities and uncertainties that they were unwilling to admit during my interviews with them, which is not unanticipated as I was previously a stranger to both of these graduates. In each case, the graduate realised the need to modify her behaviour after sensing that some colleagues held her in low esteem. In each case, the graduate actively focused on changing these perceptions by continually and deliberately reminding herself of her strong knowledge, and choosing to solve problems without seeking unnecessary assistance. In this way, Jane and Matilda persisted and progressed through the challenging situations encountered by focusing on what each knew to be true - that she was competent to solve the problem - in spite of wavering confidence in the moment.

Problem-solving supports resilient adaptation to adversity,^(165, 182, 193, 194, 198, 221, 224) perhaps because people gain strength and a sense of self-efficacy, agency or control from being actively involved in determining and enacting a resolution (or partial resolution) to the challenge encountered. More pragmatically, it may be that by solving problems and progressing a resolution, the challenging situation lessens or ceases, eliminating the source of stress.⁽²³⁰⁾ In solving problems, medical radiation science graduates also relied on other processes, such as reflection and help-seeking, exemplifying the non-linear and dynamic nature of the resilience processes demonstrated by participants in my study.

7.5.2 Making decisions

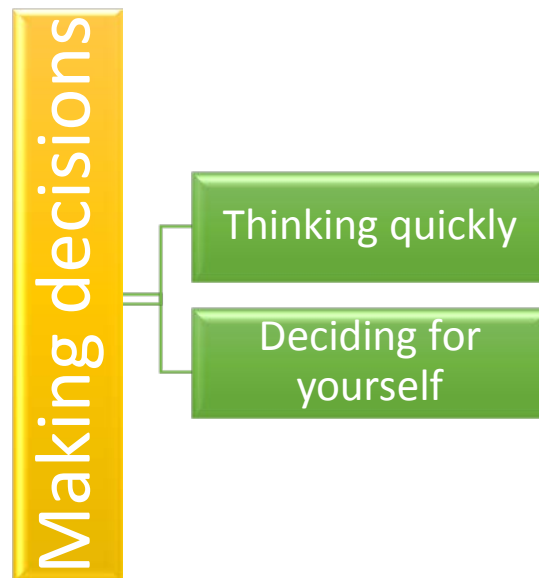


Figure 7.18: Property of Maintaining Momentum – ‘Making decisions’

In order to get things done and maintain the momentum in managing challenging situations, medical radiation science graduates make decisions that require them to think quickly and that reinforce their sense of independence in ‘owning’ the decision (Figure 7.18). Often the decisions are simple to make, sometimes they are extremely complex. In many of the adverse situations related by graduates in my study, decisions needed to be made quickly, sometimes in environments where it was difficult to concentrate and think clearly:

Previously, I could call on someone else to help me solve a problem or make a decision, whereas now I have a lot of responsibility in that area. It feels good in a way, but sometimes it can be stressful. If I’m not used to quickly

thinking on my feet in this particular situation...I'm getting better at it with more experience. *Wilma, first interview*

This could be both exhilarating and frightening for the graduate involved. Frequently, it was only upon reflection after the event that the graduate was able to recognise the height or intensity of these emotions, and participants commonly indicated that they were exhausted and emotionally drained in the aftermath of these situations. Tasks that involve high emotional demands have been demonstrated to deplete health professional's resources, leading to exhaustion.^(331, 332)

Many of the participants in my study indicated that making decisions – and being responsible for them – was a key aspect that differentiated their postgraduate practice from that as a student:

As a student, you didn't have to make that decision really, or you might say what you'd do but ultimately the supervisor would decide whether to do what you thought or do something else. Now it's me who says yes or no. *Gail, second interview*

Acknowledging their new legal responsibilities and employment obligations empowered graduates to make decisions and reassured them of their competence and capacity to do so. The opportunity to make decisions was valued by graduates: while none indicated recklessness in decision-making, there was a sense that making and enacting decisions in the face of uncertainty was an interesting, satisfying, sometimes empowering aspect of their practice:

I find it very fulfilling that it's what I've been training for, and I finally get to do it for real. And making the decisions as well, I like the autonomy. *Phil, first interview*

I have previously noted that a culture and environment of collegial support is important in supporting new graduates' transition to professional practice in the broader sense: collegiality has been identified as important in fostering resilience processes in caring professionals.^(39, 181) An environment of collegial support and

understanding provided my participants with a sense of safety that facilitated their confidence to make decisions, particularly in high pressure situations:

The main thing is the support that you get from your colleagues and your supervisors. Your colleagues might say, “I would have done the exact same thing”. They give you their opinion, even if it’s a bit different than yours, it gives you something to think about, something to use when you make your own decision. *Fred, second interview*

The role of support as a critical environmental condition that influences resilience through evolution is further examined later in this chapter.

7.5.3 Recalling purpose and realism

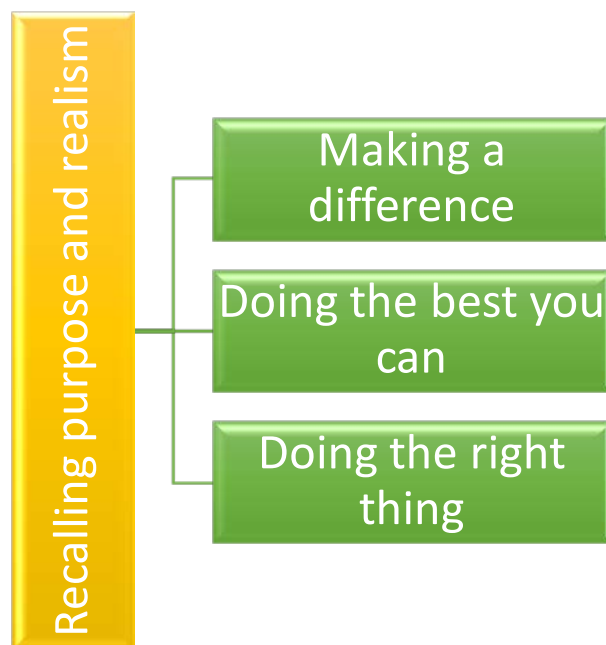


Figure 7.19: Property of Maintaining Momentum –‘Recalling purpose and realism’

Medical radiation science graduates rely on their sense of purpose to persist towards resolving challenging situations, relying upon their sense of making a difference, doing a good job, and doing what is right (Figure 7.19). Possessing a sense of purpose has been demonstrated as underpinning resilient responses.^(39, 193, 225) Feeling that there was a purpose for their work, that they were acting to fulfil some goal that transcended their own personal needs or fears, allowed the graduates in my study to persist and persevere. In particularly stressful situations, graduates often maintained their momentum during the moment in encounters

with workplace adversity by consciously recalling the specific purpose of the task or procedure they were undertaking, their broader role in their patient's care, or their philosophical commitment to helping and caring for others. Graduates who encountered non-compliant or unpleasant patients, and those who recounted situations where the patient was experiencing considerable pain, distress or fear, reminded themselves that their aim was to help the patient:

...you just learn to deal with it, you know that they're sick, you know that you're there trying to do the best that you can for them. Trying to help them. *Jane, first interview*

Recalling this purpose helped medical radiation graduates to manage the conflicting emotions they experienced at these times. Some graduates were acutely aware that, occasionally, the procedures associated with their practice caused discomfort or anxiety to the people in their care. In turn, performing these procedures sometimes caused graduates to feel uncomfortable, mean or guilty for breaching what they perceived as their responsibility to protect and care for their patients, a situation that has been previously identified as distressing for caring professionals.^(118, 180) Participants in my study were able to rationalise their feelings about this by focusing on what they perceived as the greater good for their patient:

When I'm doing a procedure that's going to cause the patient discomfort, I find that quite difficult, because there's only so many times you can say, "It's alright, we'll be as quick as we can". Sometimes you wonder what they think. If someone was saying that to me over and over, I'd be, "Oh, I know but it's still hurting"...Just talking to them and seeing what you can do, explaining that these x-rays will help the doctors to diagnose whatever's going on or to improve their situation, give them medication or whatever. *Gail, second interview*

By focusing on the reason for their practice, and the greater good of the patient in their care, graduates were able to persist when they felt emotionally torn. Similarly, some participants spoke of situations where they had refused to continue caring for patients who had behaved aggressively or abusively. Graduates were able to

reconcile their internal conflict in these situations by recalling that, sometimes, some people may simply not want the help they were trying to provide:

And she just didn't want anything to do with me, so it's really a case of learning that you just can't help everybody if they don't want it. If they don't want the service, then it really is their choice. It's their body, it's up to them...That's all you really can do. You're not going to be able to help every single person who walks through those doors. *Emma, first interview*

Graduates were not blasé about these situations, and most had found that the patients they could not help became a rich source for their reflections.

Doing things for their patients' good went hand-in-hand with doing all that was reasonably possible as motivation for graduates to persist when situations were challenging. When their patients were particularly difficult, or their condition was grave, my participants pushed through the situation by actively focusing on doing all that could for their patient:

You did the best you can for the patient, you've done everything you could be asked to do so, for me, you've got to make it a positive. *Kylie, first interview*

This determination was tempered with recognition of their own scope of practice and that of others in their workplace, suggesting that graduates' resilience involves being realistic yet positive. Previous studies have identified that realism and a realistic world-view are important for supporting resilient responses to adversity,^(165, 170, 198) possibly because people who possess realistic expectations for what they can legitimately achieve are more likely to feel successful and avoid being overwhelmed by the scale of their task. While some graduates in my study expressed sympathy or empathy at the poor prognoses for some of the patients in their care, there was a sense of realism that they, personally, could only do what was within the bounds of their roles:

I'm here to provide a service, I take their x-rays or whatever, and then I guess that's my job done. It's not that I've stopped caring, but I know what

my place is and ultimately I can't help in any other way. You have your job, you do your job well, you do all you can do, but it's not your place to be their friend or their emotional support. *Remy, first interview*

Such realism should not be mistaken for defeatism, and these graduates indicated that they were committed to enacting their responsibilities to the best of their ability. Their motivation seemed to be multi-faceted. Partly, the desire to 'do all I can' appeared to be prompted by altruistic motives – put simply, because it was the right thing to do:

But I keep in the front of my mind that the important one in this circle is the patient. Not me, not my senior, not my colleagues – the patient. He or she has to be treated right and properly. *Oliver, second interview*

There was also an aspect that doing all that they could for the patient was an element of excellence in patient care that would make the right impression with colleagues and, importantly, for ongoing employment and career advancement:

You still take it personally...you want to do the right thing. You want to try and impress him because he's a good boss. *Susan, second interview*

There could be a degree of self-interest involved - nevertheless, whatever the motivating factors, a sense of purpose allows medical radiation science graduates to continue acting to bring challenging situations to a conclusion.

7.5.4 Distancing

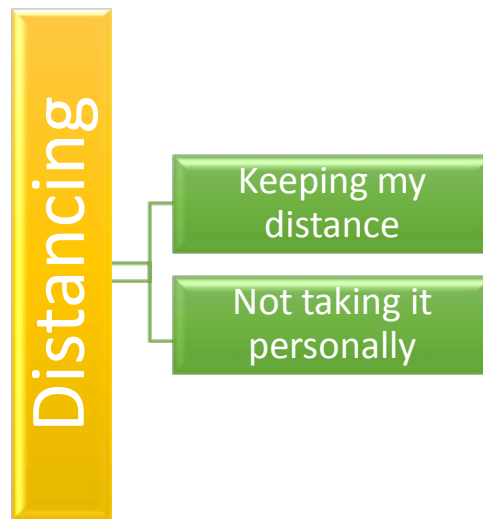


Figure 7.20: Property of Maintaining Momentum –‘Distancing’

With dimensions relating to keeping their distance and not taking things personally (Figure 7.20), emotional distance allows medical radiation science graduates to persist and fulfil their task responsibilities in the face of workplace adversity. In addition to maintaining the task-focus that initially energised them to act, my participants employed strategies to distance themselves in order to maintain momentum, to keep going, and to move through challenging situations, aligning with the emotional detachment that supports other health professionals to persist in their care tasks.⁽¹⁸⁰⁾ Distancing oneself emotionally has been previously identified as a strategy by which people cope with adversity.^(166, 182, 217, 230) By predominantly limiting their communication with the patient to general small talk and specific instructions or requests, medical radiation science graduates felt that they could effectively progress the procedure at hand and avoid being affected personally by the situation:

Obviously I’m talking to them, and I want to treat them compassionately, but I try not to really engage with them emotionally....because with other patients I always try to ask them about their injury because I’m generally curious, light-hearted banter about general things. I never ask personal questions about their family or...just the weather or pertaining to their injury or...I keep everything to do with what I need them to do, and that’s it.

For my own sake as well as the patient's.....because, obviously, I have a lot to deal with as well. *Susan, first interview*

While none had specifically been told to do so, most of my participants had learned through practice and experience to consciously limit their engagement with their patients in order to distance themselves from stressful situations. Graduates consciously reminded themselves to not take personally the things that were said and done by patients in situations of high intensity. Doing so enabled them to engage effectively in the task while distancing themselves from the negative emotional effects:

...so you have to get on with it as quickly as you can and deal with the fact that they're not happy. You have to realise it's not personal, they're just in so much pain or frightened or so much stuff is going on. It's understandable. *Gail, second interview*

Graduates also used this strategy when the examples of workplace adversity they cited involved inappropriate behaviour from colleagues:

There were instances when I'd get brushed off...stuff like that, but I don't take that to heart. I can't stress over how people react towards me. Whether you like me or not, I can't control that. *Hugh, first interview*

That doesn't mean it's right that they get angry and annoyed, get a bit grumpy, because they shouldn't do that because it's not our fault that things are going wrong. But the fact is, sometimes they do go wrong, and you have to remember that they're in quite a high pressure situation...so sometimes you just have to accept it and not take it personally. *Gail, first interview*

My participants showed a remarkable capacity to forgive the rudeness and discourtesy of patients and colleagues when they appreciated the situation to be highly stressful. Strategies that allowed them to achieve emotional distance enabled them to persevere rather than to suffer personal offence.

7.5.5 Section summary

Following the initial impact of workplace adversity and having pulled themselves together, graduates typically moved into a stage where their focus was persisting and persevering through the immediate task or situation. In this phase of resilience as evolution, they maintained momentum through a number of processes including problem-solving, making decisions, recalling a sense of purpose, being realistic and distancing themselves emotionally. In the following section, I consider the next stage of resilience as evolution, where medical radiation science graduates employ strategies to rebalance and restore equilibrium.

7.6 Achieving equilibrium

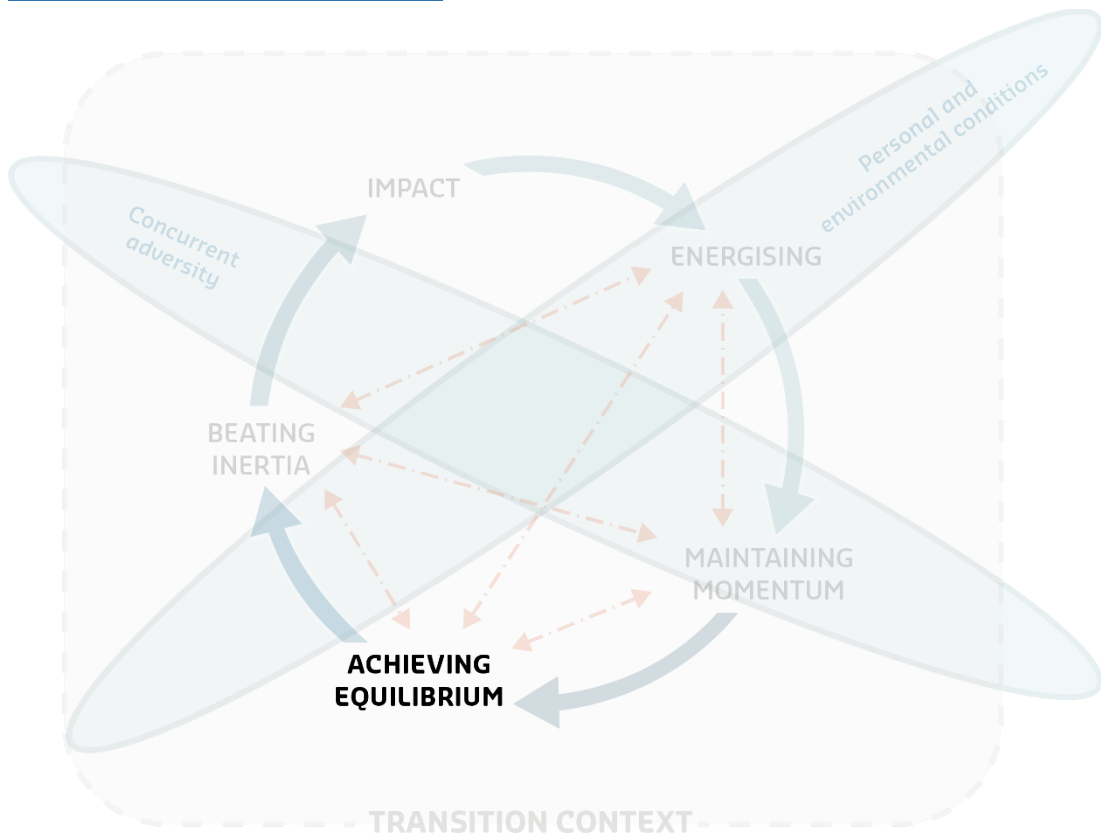


Figure 7.21: Resilience as evolution – Achieving equilibrium

After experiencing the initial impact of an event, energising themselves to act, and maintaining momentum to push through the immediate situation, medical radiation science graduates experience a stage where they rebalance themselves (Figure 7.21). This stage might be thought of as one where the graduate works to regain emotional and physical equilibrium. When my participants recalled encounters with workplace adversity in situations of emergency or high pressure,

they often described a clear distinction between the 'doing' phase, where they maintained momentum, and the period immediately after when the emotional and physical fallout struck them:

So I was so focused on getting the job done that it probably wasn't until afterwards that I went, "Hmmm, that wasn't nice". *Betty, first interview*

Where situations were less intense or urgent, graduates felt that there was less distinction between doing and feeling as they had greater capacity to be aware of, reflect upon and manage their feelings during the event. This is an example of the point that I have previously emphasised: that manifesting resilience is a non-linear process, and that medical radiation science graduates may move back and forth between the phases as their experience of adversity unfolds. My participants described achieving equilibrium during and, commonly, shortly after encountering challenging situations:

I got the nurses, acted calmly, called the code, and then at the end, I was okay right then. But then it sort of hit me afterwards, what a shock it was. *Alice, first interview*

This phase of resilience in encountering workplace adversity predominantly involved employing strategies, including humour, distancing, keeping perspective and talking with others, whereby graduates restored themselves after the impact of the physical and emotional stressors they encountered. This category has properties depicted in Figure 7.22 and each is considered further in the remainder of this section.



Figure 7.22: Properties of the category 'Achieving equilibrium'

7.6.1 Talking about things

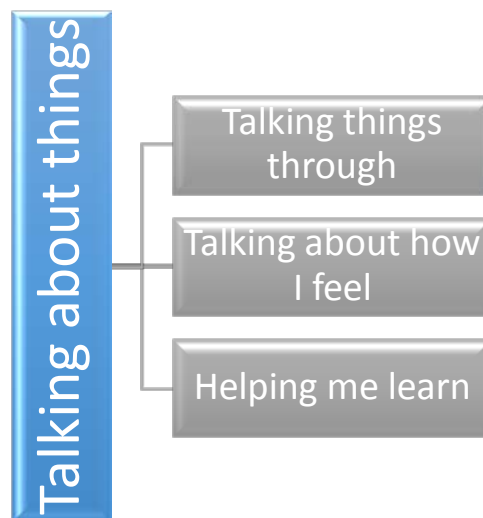


Figure 7.23: Property of Achieving Equilibrium – 'Talking about things'

To achieve equilibrium, graduates relied on talking about things as a strategy to examine and reflect on events, feelings and learning (Figure 7.23). Talking about one's experiences may assist with reflection, understanding and reconciliation.^(217, 230) Medical radiation science graduates often talk about things with others as a way of analysing and deconstructing their stressful experiences in order to make meaning of and learn from them, and to regain peace of mind.

My participants achieved equilibrium by talking about challenging situations with their colleagues:

I've always talked about these issues, these confronting situations with somebody, whether it's with my colleagues...actually, most of the time, if something does happen now, the first people I turn to are my work colleagues. Whoever's around, whoever, the senior technologist, everyone's senior to me right now so it doesn't matter who. They've all got years of experience. *Emma, first interview*

There were four types of discussions with colleagues that served differently to preserve the graduates' emotional wellbeing. These discussions revolved around technical performance improvement, venting, comfort and reflection. Most commonly, graduates spoke with colleagues to identify how they could have approached the procedure differently or better:

And also, from a learning perspective, if it was particularly difficult to get the images on that patient because of whatever condition they had, you talk about what you could do for future reference, if you got another case like that. *Susan, first interview*

In a sense, this was an extension of their task-focus, and allowed them to distract themselves and to regain calm, and to seek positive learning from what might be an otherwise negative situation. These discussions were perceived as safe. Graduates used discussions of this kind to learn and develop, to settle themselves, and to reconnect with others in a human sense, without having to risk exposing their emotional selves.

Graduates used more superficial exchanges with colleagues to vent and discharge some of the emotional intensity from the situation, a resilience strategy reported as useful for other caring professionals.^(111, 215, 221) For the graduates in my study, these exchanges were not necessarily deep or profound, and might be as simple as saying something like 'Thank goodness that's over':

We can't just say, "look, you rude...." You want to, some days. You might say stuff to each other like, "That was awful". *Carla, first interview*

These discussions allowed graduates to 'blow off steam', relieve some emotional pressure and calm themselves. After experiencing workplace adversity, graduates valued opportunities to receive words of comfort and affirmation from colleagues, and to hear of their similar experiences. Hearing a colleague speak of their own experiences of adversity provided reassurance to my participants that they, too, could get through the challenge at hand:

I turn to the staff members and say, "How did you deal with this?" and they tell you their story. I think that helps because you realise you're not the only one that it's happened to, it happens all the time. *Kylie, first interview*

Commonly, my participants viewed these types of discussions as opportunities to remind themselves that others had found a way to prevail in similar circumstances, helping them to gain or retain hope and a sense that all would turn out to be okay. Some graduates indicated that, while they found this reassurance valuable, it would be more helpful if colleagues shared the strategies that they had enacted to regain equilibrium, so that the graduate could learn something immediately useful for support:

They're like, "Well, I've been through this or that". But they don't really tell you how they dealt with it or anything like that, it's more like "Oh, I've been through that too. Move on". *Dorothy, first interview*

Medical radiation science professionals readily and willingly shared with my participants their technical and procedural knowledge and advice, demonstrating and teaching the skills necessary for practice, yet there was reluctance or difficulty in similar sharing of the skills and strategies associated with coping and self-care. While my participants appreciated the support for their care for patients, there was a strong desire for advice that might help them to better care for themselves, albeit that they acknowledged such discussions may be difficult or awkward.

A small number of participants in my study shared deeper discussions with colleagues, where they reflected on the emotional impact of the event, but this tended to occur only with selected colleagues who were considered as trusted:

It depends on the case and how it affected me. If it affected me really badly, I guess I would talk about it with certain people that I trust, and it's useful for other people to share their experiences, because everyone has a story like that...and that helps if you see how they got through it, you can take some of their advice. *Susan, first interview*

Several authors note that resilience is fostered when a person has access to one (or some) supportive, trusted people.^(193, 194, 203, 205, 213, 225) Grotberg,⁽¹⁹⁴⁾ in particular, emphasised that trusted others underpin resilience by providing help, guidance and support for people who are learning to respond adaptively. While this was true for graduates in my study, the participants who had identified trusted others in their workplace with whom they could reveal themselves emotionally were few - most graduates indicated that they would be very unlikely to engage in deeper, more reflective discussions, partly because this is not something that medical radiation science professionals in their workplace would normally do and so they would feel uncomfortable:

Sometimes I do talk to my colleagues, but not as often, because your colleagues are kind of....everyone's kind of different, they kind of expect you just to forget about it and move on...It's just not knowing how they dealt with it or how they got over it, those are the sorts of questions that you don't really ask a colleague because it's pushing on a bit too personal. You don't want to pry into their life. I mean, I probably could ask those questions and they'd be pretty honest with me, but you don't really want to ask them. We just don't really do that in radiography, you avoid getting too deep with people. *Dorothy, first interview*

In the absence of published literature specific to the medical radiation sciences, it is intriguing to speculate about this apparent culture of reticence. Perhaps it is a unique feature of the medical radiation sciences, perhaps it is simply a

misperception of the graduates in my study who had not yet had time to develop the deeper relationships that might support deeper sharing with their colleagues. Reluctance on the graduates' part to engage in discussions about their emotional responses to challenging situations was also motivated partly by concerns that they might be perceived as weak or incapable:

Depends what it was, I guess, maybe talk to someone first, or if I didn't want to do that, yeah, I'd probably go to [particular senior radiographer] or, I don't know, just talk to other people about it and see what they thought. It depends on how bad the situation is, I don't want to create a perception that I can't cope. *Matilda, first interview*

Given that most of the participants in my study had little certainty of continuing employment, it is not surprising that they were hesitant to place themselves in an even more vulnerable position.

7.6.2 Humour



Figure 7.24: Property of Achieving Equilibrium – 'Humour'

Resilient responses by medical radiation science graduates frequently involve humour. These humorous responses are mostly uplifting, although occasionally discomfiting (Figure 7.24). The graduates in my study used humour as a strategy to achieve equilibrium. Cameron and Brownie⁽³⁹⁾ confirmed that the use of humour among aged care nurses helped to defuse the stress of adverse situations, and aligned with other authors who have noted the role of humour as a strategy to

promote wellbeing and foster resilience.^(188, 190, 225) Participants in my study valued the opportunity to have a laugh and share incidental fun exchanges with colleagues and others in their workplaces. The humour was sometimes directly related to the challenging incident:

...so you might come out of it and say, "Oh, this idiot" and someone will make a joke and you smile and you'll all be alright. Even though if the patient heard you, you'd be in a heap of trouble. It's kind of what you have to do to get through your day, and because you can come out and say something like that and your team doesn't go, "Oh my God! You're horrible", that helps build you as well. Knowing you're not going to be judged, getting it off your chest and moving on. *Trudy, first interview*

More commonly, graduates indicated that engaging in general, day-to-day, harmless fun in their workplaces provided consolation, relief and distraction from workplace adversity:

I think there's a really great body of staff who work where I work, and interacting with them and having a laugh with them gets me back on track, because you....like, it's still there but it makes it easier to distance yourself from everything, get back to reality a little bit. *Susan, first interview*

In this way, humour allowed my participants to connect with their colleagues and to regain their sense of wellbeing. Some graduates expressed their discomfort when colleagues joked about or poked fun at patients. While several indicated that this occurred in their workplaces and that they, too, had indulged in such behaviour, they were clearly uncomfortable about it:

It's easy to make jokes about patients behind their backs, but I don't really like that. I guess it relieves the stress. Unfortunately I've done that, I've been guilty of that. Laughing at how large patients are and how difficult it'll make the exam, and it is a de-stressor to talk about it like that. But I don't feel comfortable with it. I think mostly it isn't mean, but I have been in a situation where it was more than that. *Phil, first interview*

Graduates appreciated that, usually, there was little malicious intent associated with this type of humour. While discomforting and guilt-inducing, these incidents served to relieve pressure through a form of venting and promoted the graduates' sense of camaraderie with their colleagues.

7.6.3 Distancing

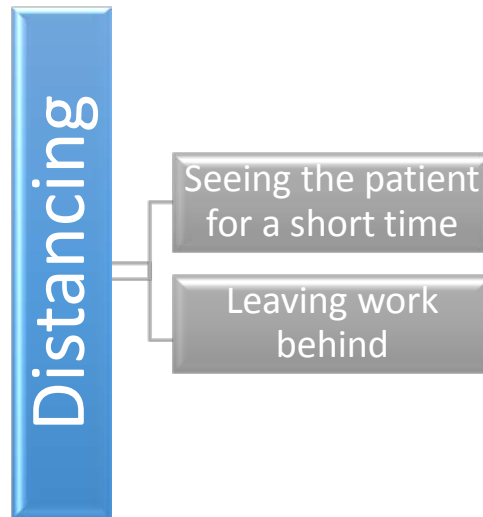


Figure 7.25: Property of Achieving Equilibrium – ‘Distancing’

The distancing strategies that medical radiation science professionals employ to maintain momentum are also useful to achieve equilibrium, allowing them to defuse the emotional aspects of a difficult situation. Distance can be achieved through separation in time and in physical disconnection (Figure 7.25). Graduates in my study achieved distance by consciously limiting their emotional engagement with their patients as a way to minimise disruption to their own wellbeing. My participants described a clear and conscious balance between expressing compassion and empathy for their patients, and limiting their emotional connection with them. There was a strong sense that they were very willing to give to their patients, but that they were protective of their personal, emotional selves. There is an instinctive logic that one might more readily regain one's sense of wellbeing if less disruption is allowed to occur.

Graduates achieved distance from their patients by virtue of the way their workload is designed. They encountered their patients for only a brief period of 10 to 20 minutes and so opportunities for engagement were limited:

So I think it's easier for us to detach because we really only spend ten, fifteen, twenty minutes with these people, and we've got something else to concentrate on when we're in there. Apart from the general chit chat, you're taking your pictures, you're critiquing your pictures. We don't really have much to do with the before and after care, we just take the pictures. So I think that helps us detach from the whole situation. *Trudy, first interview*

While radiation therapy graduates may encounter their patients daily over several weeks, each individual encounter is limited in duration: additionally, the radiation therapist remains separated from their patient for considerable periods of each daily procedure for radiation safety reasons.⁽³³³⁾ Medical imaging graduates, they rarely encountered their patients more than once or twice, so they tended not to form close relationships with the people in their care, facilitating distancing:

Rarely do we see our patients more than once, and I think that protects us in a way. You see them for a little while, and then you probably won't see them again...So in that respect, I think it does protect you from the emotional side of it. I can just switch off when I get home and not worry about it, whereas nurses and physios and RTs, people who have seen that patient over and over again, it would be much harder for them. *Gail, second interview*

This contrasts distinctly with the findings of Cameron and Brownie's⁽³⁹⁾ phenomenological study of aged care nurses in Queensland, where it was determined that resilience was fostered through the long-term, meaningful relationships that nursing professionals had with the people in their care. While, initially, the two positions may seem contradictory, both may be perfectly valid within their own context, and reflect the different nature of the practice activities and working situations of the two professions. It may simply be that, without sufficient time to establish profound caring relationships with their patients, or even to encounter them except very briefly, medical radiation science professionals are in some way protected from emotional stressors because they do not have the opportunity to establish a personal, emotional connection with their patients.

The nature of medical radiation science practice means that graduates could not take their work home with them in a literal sense, providing some ability to achieve physical distance:

That is one good thing about radiography - you go to work and then you can come home and you don't have to think about it too much, which is very unique for a professional. A lot of jobs, you carry work home, you take things home, and a lot of people work at home or are thinking about things at home. *Gail, first interview*

In Edward's⁽¹⁹⁰⁾ study of crisis care mental health clinicians in Melbourne, she highlighted that resilience was enhanced by a separation between work and other aspects of a professional's life. While the ability to achieve physical distance from their work and emotional distance from their patients is not necessarily the result of deliberate action on the part of the graduates in my study, it is noteworthy that many viewed this distancing as an aspect of their work that provided protection from the impact of workplace adversity, and that allowed them space to regain their sense of emotional balance.

[7.6.4 Maintaining perspective](#)

For medical radiation science professionals, maintaining a sense of perspective is important to achieving equilibrium. Gaining and maintaining perspective fosters resilient response to adversity.^(188, 194, 198, 202, 205) By consciously considering the event and its outcomes, comparing other possible scenarios or situations, my participants gained consolation from recognising that things could have been worse:

I talked to my supervisor and he was, "Don't worry about it. I get this kind of report every week". And everyone else told me their stories of what had happened to them. It helps because it makes you feel like you're not the only one. So you reflect on it and think about what actually happened and how really unimportant it actually was. You're not incompetent making that one small mistake. Everyone makes mistakes. *Remy, first interview*

Gaining a sense of perspective was very important to some graduates in helping them to manage their feelings of sadness for the patients in their care:

There's one particular patient that just breaks my heart, but it's just another one of those things, this one in particular. I know that's going to happen, things like that, but I try to think that, on the whole, we're doing a good thing, most patients are fine. They're going to be okay, we're helping them, and they're grateful. We'll have good interactions and it's mostly positive.

Alice, first interview

By reminding themselves that the good experiences largely outweighed the bad, and that things frequently could be much worse, participants were able to regain their equilibrium after encountering workplace adversity.

[7.6.5 Section summary](#)

Following the initial impact of workplace adversity and having pulled themselves together and persisted through the immediate task or situation, graduates managed the physical and emotional outcomes by employing strategies to restore equilibrium. This phase involved strategies including talking about things, using humour, distancing themselves and maintaining perspective. In the following section, I consider the final stage of resilience as evolution, where medical radiation science graduates employ strategies to beat inertia and to move on from their encounters with adversity.

7.7 Beating inertia

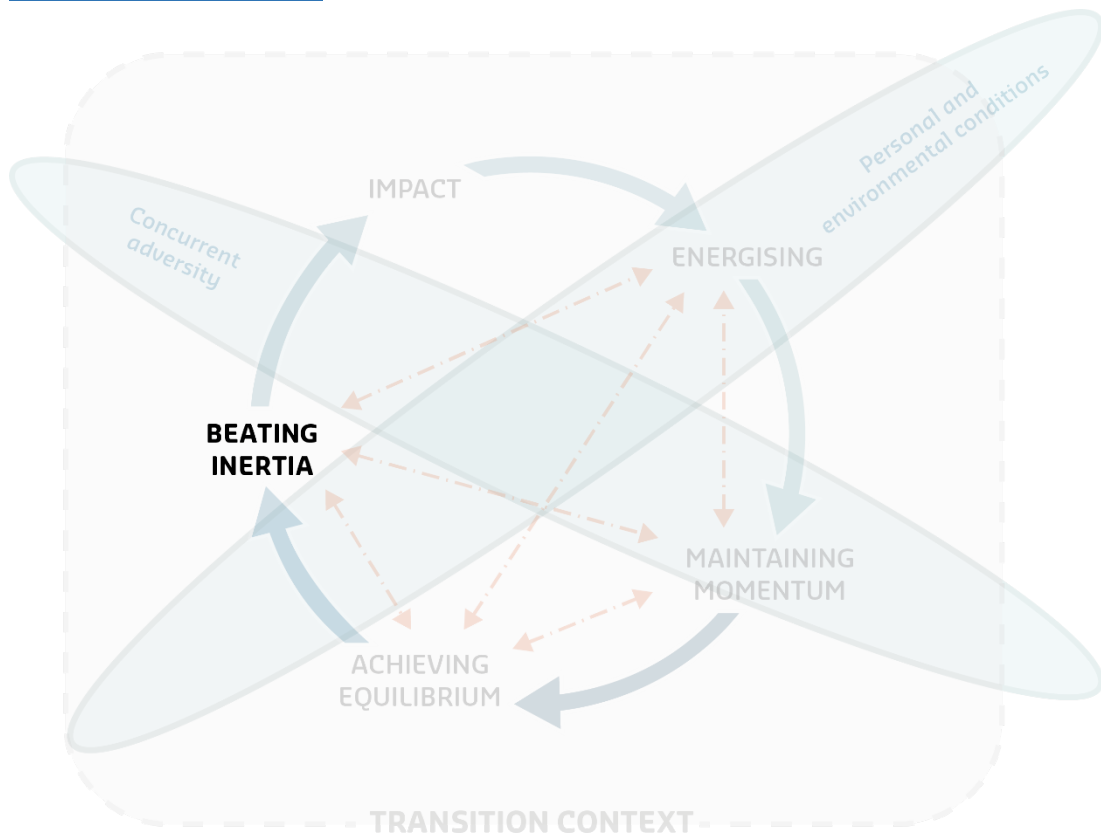


Figure 7.26: Resilience as evolution – Beating inertia

After experiencing the initial impact of an event, energising themselves to act, maintaining momentum to push through the immediate situation, and rebalancing themselves, medical radiation science graduates experience a final stage of resilience as evolution where they employ strategies to move on from adversity (Figure 7.26). This stage might be thought of as one where the graduate works to beat inertia. Inertia is defined as the tendency to remain unchanged or the disinclination to act.^(63, 64) Following encounters with workplace adversity, and commonly outside of the workplace, the graduates in my study beat inertia by recollecting themselves physically, spiritually and emotionally, moving beyond the challenges encountered, engaging with loved ones, and recognising what they had learned. This category has properties depicted in Figure 7.27 and each is considered further in the remainder of this section.



Figure 7.27: Properties of the category 'Beating inertia'

7.7.1 Relaxing



Figure 7.28: Property of Beating Inertia – 'Relaxing'

Medical radiation science graduates beat inertia by relaxing, involving dimensions that include strategies that allow them to take care of themselves, forget about work and unwind (Figure 7.28). It is almost intuitive that deliberate or conscious relaxation plays a role in relieving stress and in making people feel better. Previous studies^(36, 39, 180, 190, 205, 219, 334) have indicated that relaxation, through physical

activity or hobbies and intellectual interests, assists with managing workplace stress or in fostering resilience. Medical radiation science graduates engaged in a wide range of activities to relax and rejuvenate. Strategies to engage their physical bodies included sports, exercise, hobbies such as dancing, and massage:

I go to the gym and I eat lots, that always makes me feel better. I'm a little bit of an exercise junkie. It works for me for stress relief. *Violet, first interview*

These physical activities served to relieve stress, promote physical health, and provide a sense of caring for oneself. Undertaking activities such as further study, watching television, listening to music and reading allowed graduates to engage their minds in non-work related areas, to distract themselves and relax, and to disrupt undesired worries about workplace events:

I might be thinking about something and how to fix it for the next day...I just try to switch off. Sometimes I consciously make that decision, sometimes it's just by relaxing, whether it's playing a bit of music or something, just trying to relax. *Hugh, first interview*

It has been argued that having hobbies and interests outside work fosters resilience and assists in managing adversity.^(190, 198, 334) Pursuing personal interests, such as creative hobbies and art, enabled the participants in my study to fulfil needs that they perceived as unsatisfied by their work, allowing them to regain their resolve to persevere:

It's more creative for me, I need something that I can think and do other things that's more artistic than straight and narrow, like radiography where you need to get your image perfect and this and that. I need something where I can just be let loose and be silly...do creative things. I need something creative. *Dorothy, first interview*

Some graduates identified that they relaxed by drinking alcohol, either in moderation or with the aim of getting drunk:

Hot shower, a glass of wine and a good book. If it's close to a weekend, I normally go out with my friends and party like we did when we were at university. It's not like I need a drink, it just helps me to unwind sometimes, takes my stress down a notch. *Jane, first interview*

It would be simplistic and inappropriately judgemental to dismiss this strategy as maladaptive because of the potential risk involved. None of the literature I examined that was associated with resilient response to adversity considered the use of alcohol or illicit substances, except for Weiner et al.'s⁽³³⁴⁾ exploration of physicians' wellness practices, where simple statements relating to alcohol avoidance are made. That the use of alcohol or illicit substances— in moderation or excess – is barely mentioned in the contemporary literature is surprising given that the most recently published National Drug Strategy Household Survey⁽³³⁵⁾ reported that 80.5% of Australians aged over 14 years had consumed alcohol at least once in the year prior to the survey, 14.7% had used illicit substances during the same period, and almost 40% consumed alcohol at least weekly. These results suggest that, irrespective of the value judgement one places on alcohol consumption or the use of illicit substances, the reality is that many Australians regularly consume alcohol or drugs to some degree. It is unclear whether the lack of consideration in the literature reflects a view that any alcohol or illicit substance use – as opposed to abuse – is a maladaptive strategy. For example, in a recent study⁽³³⁶⁾ of anxiety disorders amongst Chinese medical doctors, alcohol consumption was positively associated with the presence of stress and anxiety for female doctors, yet there was no apparent distinction made between consumption of any alcohol and excessive or unhealthy alcohol use. Similarly, I was not able to determine from my findings whether use of alcohol or illicit substances was truly restricted to a small number of people or whether other participants simply did not mention it or perceived a stigma in admitting to such behaviour. For those participants in my study who reported that using alcohol worked effectively for them as one strategy to manage workplace adversity, it seemed the main purpose was to promote relaxation.

7.7.2 Engaging with loved ones

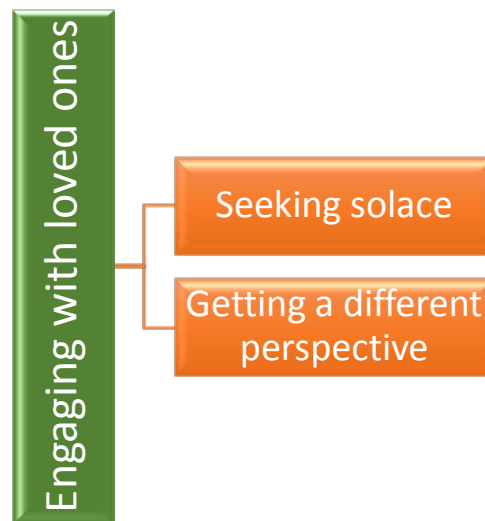


Figure 7.29: Property of Beating Inertia – ‘Engaging with loved ones’

Spending time with loved ones is important for medical radiation science graduates to beat inertia following encounters with workplace adversity. Engaging with trusted people involved seeking solace and comfort, and gaining new perspective on adverse situations (Figure 7.29). Universally, the participants in my study deliberately sought time to socialise and engage with the people they loved – friends or family – as a critically important means of helping to regain balance and wellbeing. This reflects a theme that occurs very commonly in the literature: engaging and interacting with supportive and trusted others promotes wellbeing and fosters resilience.^(168, 182, 187, 194, 198, 201, 205, 206, 209) Talking about their work with people who care about them provided my participants with a safe place to vent their emotions:

You try not to take it home with you, but you do. Sometimes its patients, sometimes its people at work. If you've had a bad day, you just need to get it off your chest. It's a good thing because you get a different perspective. You're talking to someone that doesn't have any other interest or they don't know who you're talking about so you can say whatever you want. *Alice, first interview*

Given the particularly vulnerable employment situation that many of my participants were in, they placed great importance on having safe, supportive,

trusted others with whom they could reveal themselves without risk of compromising their prospects.

Often, the different perspectives these trusted people provided added to the graduates' understanding of the adversity they experienced:

I have a chat to my parents at home. I tell them what happened, how I felt, ask their advice on, "Do you think I could have worded it differently?" My Dad's very good with his words. After that, once I've talked about it, I've found a way to deal with it or acknowledge it, I'm usually alright. It's just having that outlet. Being able to discuss it turns it from something raw to something where I can find some meaning from it. *Emma, first interview*

In this way, engaging with loved ones had the potential to prompt the graduates' reflective thinking. For some graduates, the loved ones they sought were also fellow medical radiation professionals – friends or partners who were also colleagues or peers. In some cases, their social conversations revolved around workplace events and, in others, 'shop talk' was explicitly banned. In either case, the participants in my study found that socialising with friends who were also professional colleagues was useful to beat inertia:

I guess that it's important to go and be social with people that you work with away from work as well. We have drinks at [the local pub]. That matters just so that you get to know people as not just colleagues but as people, outside of the working environment. That helps when you do come up with difficult cases because, if they're quite distressing, they're not just your colleagues but they're your friends. Also, belonging to the environment a bit more. *Gail, first interview*

Social relationships between work colleagues are recognised as important in managing workplace adversity and in fostering resilience.^(17, 39, 85, 217, 221, 337) More generally, social relationships may foster resilience by supporting emotional self-management (for example, by providing a safe place to vent or moral support) and one's sense of agency and self-efficacy (for example, by providing access to knowledge, information, resources and opportunities).

7.7.3 Reflecting and recognising growth

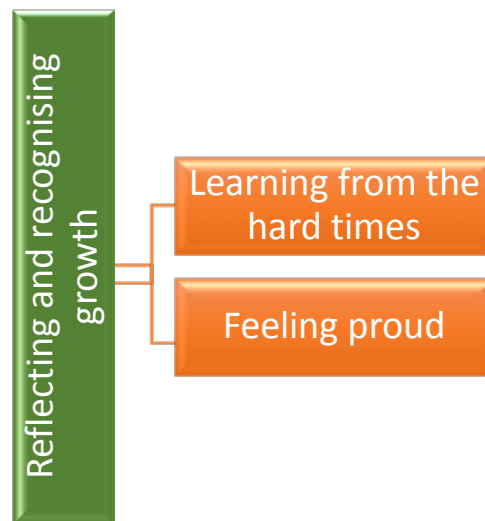


Figure 7.30: Property of Beating Inertia –‘Reflecting and recognising growth’

To beat inertia, medical radiation science graduates reflect and recognise their growth from adversity, gaining a sense of personal evolution and pride (Figure 7.30). They recognise and acknowledge the professional and personal development that emerges from their encounters with adversity, and this contributes to their resilience by promoting positive emotions and motivating them to persist and to try again. My participants felt that recognising the positive outcomes or learning that resulted from encounters with workplace challenges was important in helping them to manage the impact of these challenges:

You did the best you can for the patient, you've done everything you could be asked to do so, for me, you've got to make it a positive. You don't dwell on it, you don't take it home. You don't want to take it home with you. I always just want to put it past me, it's an experience now and it happened, and so if it happens again you know how to move on. I find it really helpful.

Kylie, first interview

Acknowledging that they felt proud about their performance, and recognising the satisfaction of successfully resolving a difficult situation, fostered future-orientation and the desire to persevere:

It's easier said than done, because several times I've just been, "I don't know what I'm going to do", and for a minute you think, "Oh my goodness, I

just can't do it". But then you stop and think about it for a second and realise that, of course, you can do it. There's a way, there's always a way. And it feels really good when you've had a go and got it done, especially when you get it perfect first time. *Gail, second interview*

Other authors have reported this experience of pride among resilient people,^(199, 338) manifested as a sense of achievement at having persisted through a challenging situation. While, sometimes, this sense of achievement was initially experienced by my participants as relief that the situation had ended, with time and distance the graduates felt generally proud about the ways in which they had responded.

Many graduates in my study indicated that they used reflection to consider their experiences, to identify learning and to determine actions for the future.

Reflectivity is recognised as a key capacity that underpins resilient response to adversity.^(39, 177, 178, 181, 184, 193, 195, 198-201, 215) Most of my participants felt they reflected purely by thinking, some by talking with trusted others:

...then I start reflecting and think, "Well, how could I have done that better? How could I have managed that certain patient better?" It mainly happens when I'm on my way home, or after I've had a shower or something and I'm thinking about the day. *Dorothy, first interview*

By consciously recognising how they had grown personally or professionally, the graduates in my study felt empowered to engage more effectively with subsequent challenges:

You learn from it and then next time you handle it differently or better or whatever. Every time something happens, you learn and you grow from it. *Kylie, first interview*

None of my participants were currently engaging in reflective writing, however two indicated their intention to recommence using reflective journaling as they had done as students. It is not uncommon for new medical radiation science graduates to abandon, at least temporarily, the reflective writing habits they developed as students.⁽²⁶⁵⁾ For most of the graduates in my study, reflective writing was

precluded by lack of time or the sense that engaging in such writing made them feel like a student again.

7.7.4 Faith



Figure 7.31: Property of Beating Inertia – ‘Faith’

Medical radiation science graduates rely upon their faith to beat inertia after encounters with workplace adversity. In the context of this study, ‘faith’ represents both the common usage of the term as a future-oriented, optimistic perspective, that life has purpose, as well as the notion of religious belief (Figure 7.31). Many participants expressed ideas about the former, most commonly by confirming their fundamental optimism for themselves and for their patients: in general, they believed that things would turn out to be okay.

Only two participants indicated that religious practice and formal spiritual ritual played a part in their ability to respond resiliently to workplace adversity. Other studies have reported the role of religion and spirituality as fostering resilience,^(39, 200, 205, 224-226, 334) yet comparatively few of my participants expressed that spiritual practice was of importance to them. This could suggest that spiritual practice is, for most, unimportant or it may be that some participants found the topic too personal or sensitive to relate. For Oliver and Phil, actively practising their religious faith allowed them to regain balance, maintain their optimism and move forward:

Another thing for me is religion, because it’s very good to help other people in my religion...to help people during this time of disease or illness is very

rewarded in my religion, so it gives me a purpose to do so even if I didn't want to...keep my relief about it. *Oliver, first interview*

Prayer and the rituals associated with their religion provided solace and reassurance, and helped them to gain perspective and maintain a sense of purpose. More generally, maintaining a positive view of the future encouraged medical radiation science graduates to act to beat inertia after encountering workplace adversity.

[7.7.5 Section summary](#)

Following the initial impact of workplace adversity, graduates pulled themselves together and persisted through the immediate task or situation. They managed the physical and emotional outcomes by employing strategies to restore equilibrium and to beat inertia and move on from their encounters with adversity. The processes and strategies they employed to move through each phase of resilience as evolution were influenced by a range of personal and environmental conditions that I consider in the remainder of this chapter.

7.8 Conditions that influence resilience as evolution

At every stage of evolution, medical radiation science professionals' capacity for resilience is influenced by a range of conditions (Figure 7.32). These include elements intrinsic to the graduates themselves, or what might be termed personal conditions, as well as environmental conditions in the workplace and their social setting. Of these, my participants spoke most extensively of the role of the environmental condition of support in influencing their potential to respond resiliently to adversity.

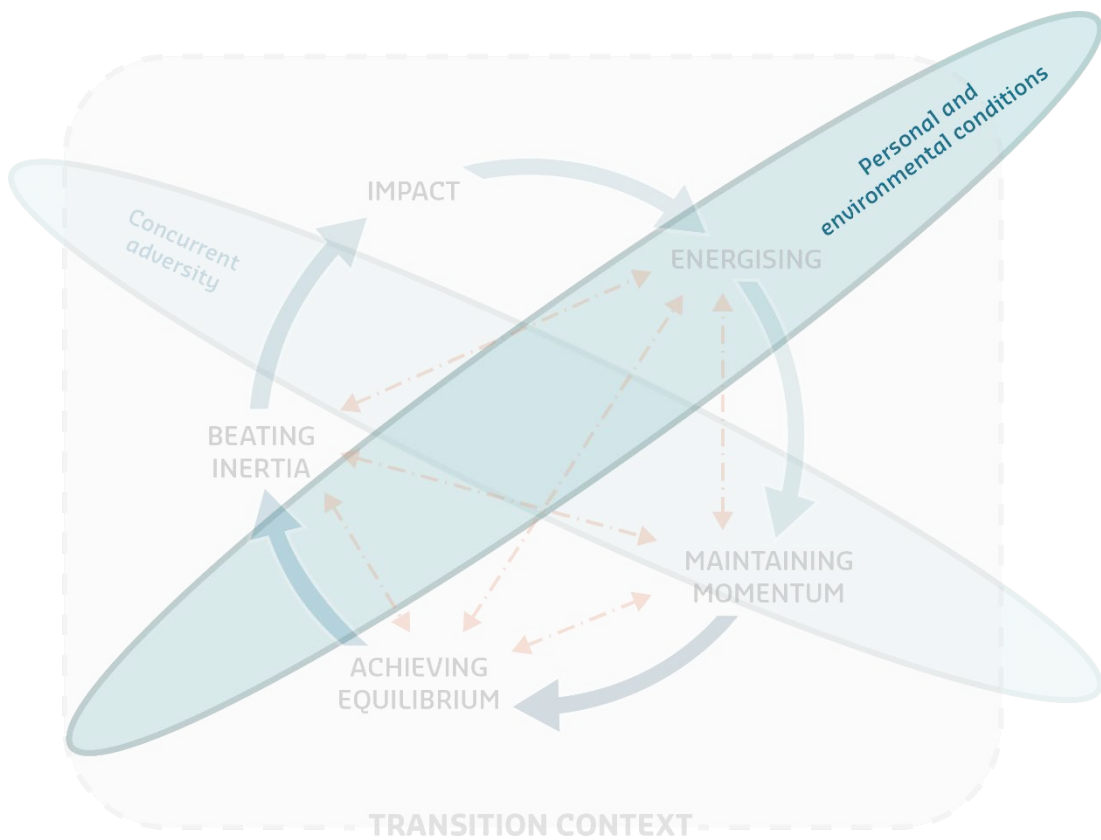


Figure 7.32: Resilience as evolution – Personal and environmental conditions

7.8.1 Personal conditions

A range of personal conditions influence medical radiation science graduates' ability to be resilient in challenging situations. For participants in my study, the personal characteristics underpinning resilient response included many of the characteristics that are identified from the evidence base and summarised in Chapter 3. These personal conditions influenced each stage of resilience as evolution in different ways. In addition to numerous general personal attributes, participants in my study

particularly identified confidence, sociability and reflectivity as important in influencing their capacity to respond resiliently to adversity. Some identified that these same characteristics were the basis of being more generally successful in their roles and careers.

My participants felt that their capacity for resilience was influenced by their own proactivity and action-orientation, reflecting that adaptive response is fostered when people have the capacity to focus on action, or the sense that one can change the situation through action.^(175, 182, 194, 198, 221, 230) By being hardworking and demonstrating initiative, graduates in my study felt inclined to readily energise, and to be willing to act even when they sometimes felt a degree of uncertainty:

Give it a go. Get in and give everything a go. It doesn't matter how scared you are, it doesn't matter if you can't do it. The only way you'll know if you can get through it - and you always can - is to get going and give it a go. Step up, don't step back. *Trudy, first interview*

Enthusiasm for action, balanced with a willingness to stop and think when necessary, enabled medical radiation science graduates to resolve challenges and to act adaptably:

It is quite difficult...you just have to try some other way of approaching it. Stop and rethink, reassess the situation. *Gail, second interview*

For the participants in my study, their willingness to persevere influenced their resilience, including when they energise and determine to enact their responsibilities, when they make decisions and seek help to resolve problems, when they reflect and rebalance themselves by seeking perspective and to keep going, and at many other points in their encounters with adversity. Perseverance and persistence underpin resilient response to adversity.^(170, 195, 196, 201) By being committed to seeing the situation through and succeeding - whether for altruistic motives or to make an impression on others, or for both reasons – graduates in my study approached the challenges they encountered with an attitude of engagement and determination:

The hardest part was actually just getting up, back out of bed and thinking, "Oh gosh, here we go again." The last thing I wanted to do was go back in there....but I had a job to do. No one else was going to do it. One bad situation wasn't going to beat me. I didn't want to be the sook that couldn't cope. Even if, at the time, I wasn't sure I was coping. *Jane, first interview*

Further, many participants felt that their desire to be challenged and to improve themselves influenced their resilience, insofar as they deliberately sought situations where they practised adaptability and further developed their capacity for processes such as problem-solving and decision-making:

I've purposely tried to get my hands dirty with patients I'm not sure about, things I'm a bit nervous about, where I've had to make decisions that are a bit harder or that I'll have to think a bit more about. I want to get all those first times behind me so I know, and everyone else knows, I'm capable of doing this...and more. *Carla, second interview*

This, in turn, built their capacity to act resiliently in subsequent encounters with workplace adversity. Other authors have reported that repeated exposure to adversity, or deliberate controlled exposure, may foster resistance to stressors or resilient responses in subsequent situations.^(170, 176)

Confidence, sociability and reflectivity were perceived as important in fostering and supporting every stage of resilience as evolution. I have previously considered aspects of these personal conditions in the context of the various properties within different stages of the evolution of resilience. In the following sections, I examine and summarise each of these personal conditions individually.

7.8.1.1 Personal conditions - Confidence

Confidence supports medical radiation science graduates to respond resiliently to adversity. In Edward's⁽¹⁹⁰⁾ study of mental health care professionals, she determined that resilience is the product of a range of factors including confidence and clinical expertise. Polk⁽¹⁹⁸⁾ identified confidence as one of the psychosocial attributes underpinning resilience. For medical radiation science graduates, having

confidence and, particularly, having confidence in their competence, underpinned their ability to manage adversity:

Especially working in Emergency, you have no idea what's going to come through those doors and if you go in there freaking out, you're not going to be able to take the pictures, then it's not going to work. So you have to go in there with confidence even if you think that your skills are not quite there yet. You have to have faith that you are competent, you have the piece of paper that says so. Be confident even if you feel some doubt, because if you're not confident that you can do it, you just won't cope with what gets thrown at you. And it'll definitely get thrown at you - thrown hard, lots of the time. *Trudy, first interview*

Confidence in their own competence to care effectively for the patient influenced my participants' degree of hesitation upon encountering a challenge, and their willingness to energise and act:

I just didn't want to make the injury worse pre-surgery....and I wanted to just query whether it couldn't wait two days after his surgery. I wasn't sure what the best thing for the patient was, so I hesitated and wanted a minute to think through all the options....it wasn't an emergency in that sense, so it was okay to stop for a second and think it through, think about how I wanted to approach it and adapt things to what I needed to do. But they saw that pause as me not knowing what I'm doing, not that I was deciding on the best way to do it. *Susan, first interview*

When their confidence faltered, medical radiation science graduates experienced sudden uncertainty about their competence and, in their doubt, sometimes wanted to hand management of the situation over to others. People who possess a sense of confidence in themselves are able to persevere through challenging situations.⁽²¹⁸⁾ With confidence in their own ability to see the task through, graduates in my study could persist and maintain momentum, and were willing to ask questions to facilitate their progress:

Sometimes, though, you're just not 100 percent confident in what you're going to do, so you just need a little, "yep, that's fine" before you go in there and do it. Not actually telling you what to do, just agreeing with what you already thought you'd do. It's like a reminder to yourself that of course you know what you're doing and that you'll get through it fine...sometimes it's just easier to believe it, and keep on believing it, if someone else says it too.

Dorothy, first interview

Asking questions and seeking help, for the most part, does not seem to reflect a lack of confidence – indeed, it may be reflective that the graduate has sufficient confidence in themselves that they feel comfortable to ask. Confidence in their own self-worth allowed my participants to reflect after encounters with challenges, to self-evaluate and to recognise and value what they had learned:

...and by the time I got home I was over it. You take a bit of time to reflect on what happened, what was a disaster, but what you did well too. Remind yourself that you are a good radiographer, that you're giving things your best shot. Kind of refocus on what's good about yourself and how you do your job, and the job itself too. *Jane, second interview*

Self-confidence helped my participants to consider the weaknesses and strengths in their practice and performance in a balanced rather than a diminishing way. Some graduates were influenced by their sense that others had confidence in them, and being considered as worthwhile and trustworthy directly influenced each graduate's own feelings of confidence and self-trust:

It made me feel like they really trusted me and made me feel like they knew that I'm good at what I do. Having that trust makes you feel really good. Knowing they were confident that I could do the job well made me trust myself that I could do it too. *Wilma, first interview*

Feeling valued, valuable and worthy of the trust placed in them was affirming and motivated graduates to persevere. Early research^(166, 198) in resilience identified that a sense of self-worth underpins an individual's resilience.

7.8.1.2 Personal conditions - Sociability

Medical radiation science graduates believe that positive social characteristics influence their ability to manage challenging situations. The ability to engage with others, establish trust, and to fit in socially with others were seen by my participants as important determinants of a graduates' ability to obtain the help, support and resources needed to resolve difficult issues. Friendliness and warmth towards others underpinned their effective interpersonal and communication capabilities, influencing the readiness with which they could engage with others, establish rapport and build relationships:

...and if they're anxious or whatever, trying to talk them down, trying to make them co-operate, trying to gain their co-operation really. Being friendly and warm but firm, that helps to establish trust with your patient, they know that they can have confidence in you and it's more pleasant for them....or as pleasant as it can be. *Gail, first interview*

In the early phases of resilience as evolution, the ability to connect with patients and colleagues, and to communicate to identify and enact a resolution influenced how the situation progressed and, sometimes, how much persistent effort and energy was necessary. Denz-Penhey and Murdoch⁽²⁰⁹⁾ attest that one's connectedness to the social environment influences personal resilience. It may be that sociability, underpinned by specific social characteristics, affects social connectedness. Their social characteristics influenced how the graduates in my study approached patients or co-workers in challenging situations and their ability to obtain compliance, in turn affecting the emotional intensity of the event and the graduate's sense of their own effective practice, contributing to their confidence and self-belief:

I'm a friendly person, I think, and that helps when the patient is very frightened or resistant to what I require them to do. I try to really feel kindness towards my patients, even when they're a bit more difficult than the usual. It helps me keep control of the situation, and I think it helps them to feel confident that I truly care about them. *Emma, first interview*

The participants in my study felt that their positive social characteristics contributed in different ways to their interactions and relationships with colleagues. Where these relationships were stronger, graduates felt more able to seek help and assistance, to ask questions, and to debrief and reflect:

...you don't have to be like close friends, but when you feel connected to people that you are working with, it helps a lot when dealing with different issues. It helps support your confidence, and your personal feeling about asking about something, or asking someone to explain something to you or help you in some work problems. *Oliver, first interview*

Where these positive social attributes were lacking, graduates experienced (or witnessed) a greater sense of isolation, which reduced access to resources, advice and support that would be useful for resolving challenging situations and promoting resilient response.

7.8.1.3 Personal conditions - Reflectivity

Medical radiation science graduates believe that reflectivity is a personal condition that influences their resilience. It is well-established that reflection fosters resilient response to adversity.^(39, 177, 178, 181, 184, 193, 195, 198-201, 215) For my participants, reflective thinking supported resilience at every stage of the evolution process following the impact of workplace adversity. In energising, medical radiation science graduates actively questioned themselves, and reflected on their past experiences and existing knowledge to formulate a plan of action for the current situation:

Sometimes, when something really difficult comes up or something from left field surprises me, I just have to stop and think about what I'm going to do, what I've done before in situations that are similar, what I might be able to do this time to help get through it. I get really focused on what I'm about to do, what I am doing. *Remy, first interview*

They maintained momentum by thinking reflectively about their actions as the situation unfolded, seeking opportunities to respond to the unanticipated:

...you just do it mostly automatically while you're working, while you're doing things. I'll be in the middle of doing something with a patient and something will happen that changes everything, so you have to keep going at the same time that you're busy reflecting, thinking about what you need to change or do, what you learned at uni or what you've seen before. You just do it automatically, every day. *Kylie, first interview*

Graduates achieved equilibrium by reflecting on the situation, discussing it with trusted others to gain new perspectives, and considering their own performance:

It helped to just think through what had happened, to think about what I'd done well and what I could have done differently, to think about how I'd reacted and what I'll do if that ever happens again. I guess one of the good things is that I know now that I'll handle it better if something like that happens again, a patient has a code blue. *Alice, first interview*

To beat inertia and move on, the participants in my study reflected on their growth and achievements, identifying new opportunities for development:

When something really tricky comes up or afterwards when I've got through something and I'm not quite sure how I managed it, I think about it...reflect on it, I guess, and that helps me to work out what things I need to learn next. *Nancy, first interview*

Reflective thinking allowed my participants to plan, enact and progress their resolutions to workplace challenges, to identify learning and future action, and to adopt a more balanced view of self-assessment that promoted rather than diminished their sense of confidence and efficacy. Graduates recognised that reflectivity is inherent throughout the process of evolving resilience and influenced their capacity to respond adaptively to workplace adversity.

[7.8.2 Environmental conditions](#)

In addition to the personal conditions that support resilience as evolution, environmental conditions are also important in influencing how graduates manifest adaptive responses to adversity. Positive workplace culture and staffing have an impact on the strategies graduates employ, however the most influential

environmental condition, by far, is support. I have previously considered aspects of these environmental conditions in the context of the various properties within different stages of the evolution of resilience. In the following sections, I examine and summarise each of these environmental conditions individually.

7.8.2.1 Environmental conditions - Positive workplace culture

The workplace culture influenced my participants' capacity to respond resiliently in various ways, which are elaborated below. More broadly, a positive workplace culture is considered to positively influence transition to professional practice,^(90, 114, 155, 200, 292) thereby contributing to new professionals' experiences of workplace adversity and resilience.

Leaders in the workplace, primarily those people in formal leadership positions, were perceived by graduates in my study as having the greatest influence on the culture:

The leadership of the team is important for anyone because this is the person who can make the workflow very easy and comfy for everyone, and these are the persons who can make the work environment very bad for everyone. *Oliver, first interview*

Other studies have identified the important role of organisational leaders in establishing workplace culture, setting expectations for interaction, modelling practice, and ensuring an appropriate working environment exists to support new graduate satisfaction, safety and engagement.^(24, 121, 126, 233, 282, 339, 340) Where leadership was weak, my participants felt uncertain about the support they would receive to enact solutions to problems. Effective leaders were inspiring and perceived as modelling the types of resilient behaviours that the graduates desired for themselves, such as calmness, reflectivity, collaborative problem-solving, work-leisure balance and optimism. There was a strong sense that medical radiation science graduates wanted to perform well to prove themselves to and impress these effective leaders.

Working in a fun, friendly, team-oriented workplace was important for graduates to respond to workplace adversity with resilience:

I think there's a really great body of staff who work where I work, and interacting with them and having a laugh with them gets me back on track.

Susan, first interview

Whether a pleasant workplace environment supports resilient response for medical radiation science professionals, or that it simply does not diminish limited emotional resources and wellbeing like an unpleasant environment might, is not clear. It is apparent, however, that my participants felt more capable of manifesting resilience in an atmosphere of friendly collegiality. Where graduates had experienced an unpleasant cultural environment at work, they felt less inclined to physically attend. They felt less trusted or trusting to seek challenges and opportunities to learn, and experienced negative feelings about their colleagues:

You're kind of on your own. In a lot of those places you are on your own, and that's it, you've just got to deal with it. They don't really help you in some places, they're just like, "Nuh, you're here to do this, so off you go". They ignore you, don't include you, they want you to do all the crap work but at the same time they don't let you do the one or two interesting things that come through. Just sit on their bums and watch you race around, ready to have a go at you if you forget some tiny thing. *Dorothy, first interview*

When people were valued in their workplaces, graduates felt more confident:

When I first started, I'd never worked with the Charges that I work with now, and it didn't take very long for me to feel comfortable around them, to know that they trusted me and that I trusted them. I felt like they valued me as a member of the team, so my confidence rose once we had that relationship. *Betty, first interview*

It may be that self-worth and self-confidence are interrelated in some way. Many of the participants in my study felt that a workplace culture that encouraged employees to socialise with each other was encouraging relationships and connections with the potential to offer support, validation, assistance and resources during encounters with adversity:

We have drinks at [the local pub]. That matters just so that you get to know people as not just colleagues but as people, outside of the working environment. That helps when you do come up with difficult cases because, if they're quite distressing, they're not just your colleagues but they're your friends. Also, belonging to the environment a bit more. *Gail, first interview*

This perspective is strongly reflective of Grotberg's⁽¹⁹⁴⁾ relational model of resilience, where nurturing and growth-focused connections between people serve as the source of strength, resources and support for adaptive response to adversity.

Some graduates felt that a workplace where everyone worked hard encouraged their resilience because they were motivated to act similarly, to be committed, persistent, responsible and action-oriented:

Most people here, they work hard. I've seen people, when something really hard comes up, I know they didn't want to have to deal with it. It'd be much easier to just pretend you hadn't noticed, not deal with, leave it to someone else. But other people do it, they step up, man up, work hard, so I'm prepared to make the effort to, to work at the things I need to, to man up because everybody else is prepared to do it as well. *Hugh, first interview*

In this sense, the culture of the workplace aligned with the strategies graduates used to energise and maintain momentum. On the other hand, where graduates experienced culture or behaviours in their workplace that were less aligned with resilience strategies, they were not necessarily discouraged from behaving adaptively. While expressing frustration about colleagues' laziness, my participants felt that they were motivated to differentiate themselves by being active, and that it was much easier for them to make an impression by stepping up:

...you're trying to show that you're conscientious, that you get up and grab every request form, even though you might have been worked to the bone and done everything all day. Even when you're working somewhere where it's okay to sit around, okay to keep the patients waiting. You still get up and you do it, because they notice. *Trudy, first interview*

A culture of mutual respect within the team, irrespective of profession, eliminates unnecessary workplace stressors. Graduates could focus their energy and effort more positively without the distractions and disruptions of managing workplace cliques, incivility or bullying:

This person doesn't like that person, this person yelled at this person last week so don't go up there for the next couple of days because there's tension, and all that kind of thing. You want to remove yourself, I don't want to be involved, I've got too many other things I have to think about and concentrate on and I don't have time to be thinking about who said what or who likes who or who's in or out. *Kylie, first interview*

In turn, participants who viewed that their workplaces encouraged mutual respect were able to identify and access perhaps unexpected resources and support to manage the challenges they encountered:

They respect you for what you can do, and you respect them because of their job and how they do it. And it's funny, when you act respectfully, treat people with respect, all those barriers come down and people start thinking of ways to help you, things to help you learn or think of you first when an opportunity comes up. *Gail, first interview*

It is not difficult to appreciate how an atmosphere where one can direct energy to fulfilling one's responsibilities, with access to the help and resources necessary, might be conducive to success. Safety is an important feature of such a workplace environment. This incorporates safety in the context of competence, patient safety and safe practice, as well as in the sense of a healthy, secure working environment that promotes the wellbeing of employees. Medical radiation science graduates value a workplace culture of safety in supporting their capacity to be resilient. Where my participants felt safe to make decisions, they felt empowered and confident to act:

...it's just about knowing that if you make a decision, you have to have a justification for doing it, and be prepared to justify your decision to other people. People will respect your right to make a decision as long as you can

justify it. They might not agree with it, but the people here will mostly support you for making it. I have to have a reason behind my decision and, if I feel that that's valid enough, I'm happy with my decision and I can go ahead, move on. *Matilda, second interview*

This sense of empowerment supported graduates to energise and to maintain momentum. At the same time, a workplace culture that focused on safe practice supported graduates to take their responsibilities seriously and to base their actions on responsible professional decisions and judgements, sometimes negotiating differences of opinions with colleagues:

I have to be confident in my own decision, and if I'm ever talking to someone about a decision that we're going to make in the clinical setting, if I'm uncomfortable with what they're saying, I have to stand my ground and say, "I don't agree with that, I think we should do it this way", and explain why I feel that way, and then together we need to come to the best decision for the patient. *Wilma, first interview*

Feeling safe to ask questions and to seek help when they needed it fostered my participants' confidence and their sense of efficacy, and was perceived as making a positive impression on others:

They're not expecting us to know everything - we're a Grade 1, a base grade, so we're entitled to ask questions. If you ask questions, they know that you're not just going along with things and you're actually understanding what you're doing. *Betty, first interview*

A workplace culture that embraced learning, encouraged questions, and made it safe to make – and learn from – mistakes encouraged graduates to be reflective,⁽²³³⁾ to seek challenges and experiences, and to be innovative in solving problems:

I feel very safe here and I feel that this environment will allow me to make mistakes without harming my patients. Everyone is very accurate, but we also have to consider that we are all human beings. Human beings make

mistakes. With that idea in mind, you watch yourself and others carefully.

Oliver, first interview

In empowering the graduates to seek the material and other resources necessary to enact and progress resolutions and to reflect on learning, a safe workplace culture supported their capacity to manifest resilience as evolution in response to the impact of workplace adversity.

In summary, the findings from my study closely concur with broad themes in the literature that a positive and supportive workplace culture is important for successful transition to professional practice ^(90, 114, 155, 200, 292) and for fostering resilience among employees. ^(193, 215)

7.8.2.2 Environmental conditions - Staffing

While my participants provided little insight into the influence on their resilience of broader environmental conditions mentioned in the literature such as the physical toll of shift-work, they were equivocal about how staff numbers affected them.

While staff shortages and excessive workloads are well-documented sources of workplace stress, ^(15, 28, 30, 37, 58, 90, 118, 158, 221, 277, 307) it was not apparent that any of the graduates in my study perceived themselves as overworked or their workplaces as unjustifiably short-staffed, although most described their working environment as busy.

Where they worked alone, sometimes my participants felt more empowered to make decisions and solve problems, and more motivated to enact their professional responsibilities:

That sense of responsibility for my work, making the choices...who do I do first, and what do I do? What do I do for this patient, should I move them over onto the bed?...I make my choices through that way, that's why I like being on my own and independent. *Dorothy, first interview*

Once again, the importance of the graduate's own sense of responsibility to their workplace and to their patients was a central factor motivating their actions. With only themselves to rely on to fulfil their duties, the successes and achievement graduates experienced as a result of their own competent practice and problem-

solving gave them a sense of pride and confidence. A recent study⁽³⁴¹⁾ suggested that Western Australian magnetic resonance imaging professionals feel confident and comfortable to work alone: it should be noted that this study did not explore the perspective of new graduates and, as the focus of the study was predominantly related to practice and personal safety, it should not be assumed that Dewland et al.'s⁽³⁴¹⁾ notion of confidence and comfort to work safely in a lone situation is the same conceptually as deriving confidence and empowerment from working independently.

Conversely, working alone sometimes hindered the processes that support resilience. Opportunities to seek help, ask questions and to talk to colleagues about the challenges encountered were precluded, and this sometimes left graduates feeling isolated and helpless:

There were two people in MRI and a receptionist. The receptionist could hear the alarm but didn't know what it meant, the two people in MRI couldn't hear the alarm at all....So I was just sitting there, watching this patient and thinking "Help, somebody." *Jane, first interview*

Medical radiation science graduates valued the support for resilient response that was offered by working in a team. When graduates worked in a pair or as a bigger team, they were able to seek help from their co-workers, derive emotional support and to engage in discussions that supported reflection, problem-solving and decision-making:

I think RTs are lucky that we work in a team, even though we do have one on one patient interaction. I think it's nice that we work in a team, we've always got that extra support and you can always work it out together. I think that's quite good. Other professions, of course, they can go away and talk about it, but we're all there, one team. What we can do as one unit is much better than what anyone could do by themselves. *Carla, first interview*

Working in a team enabled graduates to connect with others for help and moral support, during and after encounters with workplace adversity. These connections, as Grotberg^(194, 203, 206) suggests, fostered their growth and resilience. Conversely,

working with other colleagues sometimes enabled – or required - graduates to assume a passive role that limited their sense of control in solving problems and enacting decisions, or to devolve their professional responsibilities to others:

...whereas when the department's full of radiographers and other people telling you what to do, I don't know, I feel like they've got more responsibility than I do. I feel like a student again, it's kind of like being on prac. *Dorothy, first interview*

These situations diminished my participants' sense of confidence, particularly in perpetuating the sense that they were something less than a 'real' radiographer or radiation therapist. Where the graduate perceived themselves as participating in rather than leading the situations in which they found themselves, following and doing what they were told, they often experienced a diminished sense of efficacy and control.

In summary, staffing numbers certainly influences medical radiation science graduates' capacity for, and experiences of, resilience, but in ways that are variable.

7.8.2.3 Environmental conditions - Support

Support is an environmental condition that has a critical influence on medical radiation science graduates' resilience. Sources of support include their organisation, their colleagues (including peers and senior staff), and their broader social network of friends and family.

Organisational support

The role of the organisation in providing support was perceived as important in general terms but was little discussed by the graduates in my study. The organisation played an overarching role in promoting - or not – leadership and a workplace culture where graduates felt safe, happy and confident:

Yeah, I think that the Chief Radiotherapist has an important issue, maybe not directly related to what you are doing in the unit, but how to make the work environment as a whole an enjoyable experience for you. *Oliver, first interview*

The organisation's policies provided material support, such as equipment and items that graduates needed to perform their task responsibilities or to perform them more easily or less stressfully, and support for graduates to make decisions or solve problems with certainty, such as policies of zero-tolerance of aggressive behaviour:

Your supervisors as well, they'll say, "Look, don't worry about it. If the patient really needs it, they can send them back when they're behaving" ...And there really is a culture here that violence against staff simply won't be tolerated. *Fred, second interview*

Other studies have contended that organisational support and culture directly influence employees' resilience.^(193, 196, 215, 217, 221) Graduates in my study recognised, in general terms, how the organisation's hierarchy, structure and systems influenced or had the potential to influence aspects of workplace culture that might directly affect their capacity for resilience, such as staffing numbers and expectations of leaders. Nevertheless, my participants were ambivalent about the specific role that organisational support had played for them in fostering their resilience or influencing their transition to professional practice experiences.

Some of my participants felt that they worked in supportive organisations and some did not. In either case, few graduates were able to articulate how organisational support influenced their resilience beyond the availability of post-incident counselling. Nevertheless, throughout the course of our interview discussions, graduates repeatedly emphasised how leaders and workplace culture influenced their confidence and their capacity to seek help, solve problems and act decisively. It seems, perhaps, that the notion of organisational support for resilience was more difficult for my participants to deconstruct or specify, although the effects of that support are readily recognised.

[*Support from colleagues*](#)

The participants in my study felt that support from their colleagues influenced their capacity for resilience, reflecting findings from previous studies.^(39, 180, 182, 221, 224)

Colleagues provided access to physical and support resources during and after challenging events, and shared the workload of tasks and activities either by

directly assisting the graduate or by attending to other tasks that might otherwise detract from the graduate's ability to concentrate on resolving their workplace challenges:

I'll have 60 patients in a day, or whatever. I'm expected to do most of those. Sometimes another radiographer will come out and say, "Do you want some help?", and I'll be like, "Yes, please!" Then they'll come out and give me a hand or whatever. I get exhausted on those days. *Dorothy, first interview*

Colleagues provided a source of advice, moral support, reassurance, and answers to questions, and engaged in discussions that assisted the graduate to make decisions and solve problems:

Even if it's somebody who's the same level as me, if you've got someone there to kind of talk you through it or they might have done something similar, it makes a massive difference. They might know something different, but it might just be moral support. *Trudy, first interview*

Connection and affirmation were often important aspects of these discussions that supported graduates to energise, persist and reflect. For some graduates, colleagues supported them by participating in debrief discussions that facilitated emotional venting and reflection:

If it affected me really badly, I guess I would talk about it with certain people that I trust, and it's useful for other people to share their experiences, because everyone has a story like that...and that helps if you see how they got through it, you can take some of their advice. Yeah, take their advice. And also, from a learning perspective, if it was particularly difficult to get the images on that patient because of whatever condition they had, you talk about what you could do for future reference, if you got another case like that. *Susan, first interview*

Formal debrief sessions were perceived with mixed feelings. For many graduates, these sessions provided less freedom, intimacy and security than when they debriefed in smaller groups or alone with trusted people that they had chosen

themselves. Some graduates were cynical about organisational debrief, perceiving such processes as intending to protect the organisation legally rather than as promoting the wellbeing of staff involved in adverse events.

Besides debrief discussions, colleagues support graduates' resilience with feedback. By providing constructive feedback, colleagues supported the participants in my study to reflect upon their performance, identify learning needs and to recognise growth:

Taking the time out to show me things or giving me the opportunity to ask questions or even calling me up on things that I might not be doing right - that's actually a big one. Constructive feedback, definitely. I think I learn the most off constructive feedback. I don't want to disappoint, I try my best, so if there's something that I'm not doing right, I like to be told so I don't do it again. *Hugh, first interview*

This feedback was commonly related to technical performance and, mostly, graduates were satisfied with this. Such feedback contributed to their development, provided an opportunity to affirm their competence or performance, and encouraged connection with supportive others.

Finally, colleagues contributed to supportive environmental conditions by playing their part in maintaining a mutually respectful, happy and safe workplace culture:

And also just making little jokes and nicknames and different things like that, making it a friendly place. And making you feel like you were involved in the group and that you were valued. Sometimes there can be downtime and just having a...being able to have a conversation, being included, just knowing what everyone is talking about. *Susan, first interview*

Peers

Peers, specifically those colleagues who graduated from the same university program at the same or similar time, represent a specific group of colleagues that medical radiation science graduates recognise as especially important in providing support. Peer relationships have been identified as important in supporting transition to professional practice and in supporting resilience,^(181, 201, 205, 215)

although I note that it is sometimes difficult to judge whether particular authors are referring to all colleagues as peers, or whether the authors have taken a more narrow delineation as I have done. While providing the same types of support as other colleagues, the participants in my study felt that their special, close relationships with their peers allowed them to provide support in other ways too, such as in feeling socially connected in the workplace:

We sit and have lunch together, the three new grads here, because you're not in some other group. This little peer group is really valuable, really good support, absolutely. *Nancy, first interview*

Medical radiation science graduates feel that their peers offer a unique depth of understanding and empathy because of their similarity in experiences. Peers are more able to support the graduates because they are going through the same things themselves:

Now, it's having somebody there that you know, that you've grown up with a bit, that just knows you for you and you're not trying to have to tell them about yourself, where you live, all the background stuff. I'm lucky that my friends work here too. They're in the same boat, the same experiences. *Betty, first interview*

In most cases, my participants had peer relationships that dated from long before they had met other colleagues, so the depth of those relationships, and the trust within them, was very strong (comparatively, at least) and provided a safe place where the graduate could be completely honest. Peers represented very particular trusted others to whom the graduate could turn for emotional support, consolation, understanding and reflective discussion:

Also just talking to the other new grads that I came with. See how they're coping and maybe vent a little bit about how stressed you are or how they're getting on... feel a lot closer to them now than I ever thought I would be...It's really useful and really good that there's a lot of young staff, having your friendship group as well as other people for support. *Susan, second interview*

My participants also used their observations and discussions with their peers to self-evaluate and reflect on their own performance, allowing them to identify learning needs and to put things into perspective:

The only thing really is that there's no one my age or that graduated with me. We were a really close group, and I miss that. Whenever I talk to them, they tell me all these things they've done and stuffed up, and it makes me feel better. I think, "Oh yeah, I did that too". We stay in contact, that's important to me. Everyone else here has a lot more experience than me so they don't generally make the same kind of stuff ups that I do, so it's good to talk to people who are at the same place as me. They're my mates and everything, but it also gives me the chance to compare a bit and think, "Oh yeah, I am doing okay", because I can't really compare my progress with anyone else that I work with. *Violet, first interview*

Most of the graduates remained closely aligned with and bonded to the same group of peers from their time at university. Participants in my study had not been working for extended periods, so it was not possible to examine how their views of their peer relationships or, indeed, how the group of peers with which they identified had changed. As they gain experience, change jobs, mature and diversify, perhaps their perceptions of their peer group and peer support will change too.

[Support from friends and family](#)

Graduates received support from the people in their broader social networks, specifically their friends and family. Resilience is fostered where individuals experience supportive relationships and a sense of connectedness with the people that they care about,^(182, 187, 194, 198, 203, 205, 209) and this was true of the medical radiation science graduates in my study. Strong connections with their loved ones were seen as crucial to resilience – when I asked about the factors that had supported them to manage the challenges they had confronted during their transition to professional practice, almost all my participants responded immediately about the role that support from their family or friends had played. The graduates in my study commonly identified that their loved ones provided opportunities and a safe place for emotional release:

You try not to take it home with you, but you do. Sometimes its patients, sometimes its people at work. If you've had a bad day, you just need to get it off your chest. It's a good thing because you get a different perspective. You're talking to someone that doesn't have any other interest or they don't know who you're talking about so you can say whatever you want. *Alice, first interview*

My participants felt secure that they would not be judged for their feelings, that they could express their emotions honestly, that they would be treated with compassion and, importantly, that they would be assisted to gain perspective. Friends and family listened and shared perspectives about the graduates' experiences that contributed to their reflective thinking:

...as opposed to my parents who don't really understand half the things that I do, but they just...they listen, which is very important...their outside perspective, perhaps more of a patient's point of view as opposed to a technologist's point of view. *Emma, first interview*

These perspectives were particularly valued as graduates saw them as being non-judgemental, but also removed from the context or politics of the workplace. In some cases, family members were identified as role models, and my participants strove to mimic qualities such as perseverance and determination:

In my culture, it's important to be hardworking, reliable. My father has a very strong work ethic. He works hard, he's very determined. I try to be like him...I'd like to be more like him in that way. *Phil, first interview*

Grotberg⁽¹⁹⁴⁾ identified that having supportive role models who demonstrate the behaviour and characteristics that underpin resilient response serves to foster those same elements in others and, potentially, within the community. Loved ones supported the participants in my study by encouraging them, providing relief and boosting their morale during challenging times:

Sometimes I might talk to my family members, my sister. I'm very close to my sister. I'll talk to her about something and she's like, "Oh, that's really

sad"...I just tell her about the situation. We just talk about it and that makes me feel better. *Carla, first interview*

Activities with friends and family provided distraction and sanctuary to graduates as they rebalanced and recharged:

...I bring it home to my partner. Talking to him about my day and how it's been. Having a nice weekend away from work, not having to think about work or all the things to do with that. Taking your mind off the whole situation, refreshing and resetting, and then starting again on Monday. I switch off by spending time with family... find out how they're going, what's going on in their lives, that helps, and so does taking myself away from here...Putting some distance between yourself and work, geographical distance, emotional distance, or even just time. *Wilma, first interview*

[7.8.3 Section summary](#)

From providing a non-judgemental ear to safe sanctuary and distraction, support from loved ones is perceived by medical radiation science graduates as crucial to their resilience. Universally, graduates in my study perceived that support was a critical condition that influenced their experience of resilient adaptation to workplace adversity. Sources of support included, to varying degrees, their organisation, their colleagues and peers, and their family and friends.

[7.9 Chapter summary](#)

In this chapter, I have explored the nature of workplace adversity experienced by participants in my study, and identified that graduates experienced challenges relating to their patients, to their colleagues, and to embarking on their medical radiation science careers. The impact of this adversity was sometimes profound, and they were affected emotionally and physically in various ways. Using my participants' data to examine how new medical radiation science professionals experience each aspect of resilience as evolution, I have identified a range of strategies and processes that graduates employ to manifest resilience. In energising, medical radiation science graduates pull themselves together, recall their responsibilities and gain control of their emotions. This phase involves a focus

on action, and graduates experience normalisation and desensitisation, and actively seek help from others. To maintain momentum, medical radiation science graduates solve problems and make decisions, employing strategies to distance themselves and recalling their sense of purpose and realism. Graduates talk about their experiences with others, use humour and distancing, and actively maintain perspective to achieve equilibrium. To beat inertia, medical radiation science graduates use relaxation strategies, engage with the people they love, reflect and recognise their own growth, and rely upon their faith. Finally, in considering the personal and environmental conditions that influence resilience, I have identified the key roles that graduates perceive for conditions such as confidence, sociability, reflectivity, workplace culture and support.

In the following chapter, I consider how this conceptualisation of resilience as evolution compares with other theoretical depictions of resilience, and how my study compares with other studies of resilience in the caring professions.

Chapter 8 – Discussion

[8.1 Chapter introduction](#)

In the previous chapters, I have thoroughly described my theoretical model of resilience among new medical radiation science professionals, using the findings that emerge directly from my participants' data to explore the key elements of my substantive theory.

In this chapter, I consider the theory I have developed in light of the existing literature. Firstly, I compare my substantive theory with other theories of resilience. Finally, I present a comparison of my study with core findings from other studies of resilience among caring professionals.

[8.2 Comparison with other theories of resilience](#)

In the following section, I consider my substantive theory of resilience as evolution in comparison with the three theoretical depictions of resilience I described in Chapter 3, specifically Richardson et al.'s⁽¹⁷²⁾ resiliency model, Jordan's⁽²¹⁰⁾ relational theory, and Grotberg's⁽¹⁹⁴⁾ resilience framework.

[8.2.1 Richardson et al.'s resiliency model](#)

Richardson et al.'s⁽¹⁷²⁾ resiliency model was developed as an explanation of the process of interaction between individuals and their environment that leads to resilience in young people (described by the authors as 'youth'), which aligns only partially with the subjects of my study. Richardson et al. did not specifically focus on a professional group as my study has done, so the applicability of their model in the context of workplace adversity can only be speculative. My study extends these authors' model by providing a rich description and examples of people's experiences of disruption, disorganisation and reintegration. Participants in my study demonstrated homeostatic reintegration in some cases but, for the most part, they exemplified the resilient reintegration described by these authors. Like Richardson et al., I determined that resilience for my participants was manifested as a process of disruption and reintegration, which I have further explored as a process of evolution.

Protective factors played an important role in Richardson et al.'s⁽¹⁷²⁾ model, and the protective factors relating to support were important aspects of resilience for my participants. My participants experienced similar negative emotions to negatively perceived disruptions as these authors described, although I have had the opportunity to explore these emotions and experiences in more detail. As Richardson et al.⁽¹⁷²⁾ found for their subjects, my participants often focused on actions and took a future-oriented perspective in order to progress from disorganisation to reintegration, although I was not able to clearly determine, due to the reflective nature of my discussions with participants, whether this action-orientation was a conscious process involving the act of adopting a particular mindset, or whether the process was more unconscious.

It was the aim of my study to explore resilience and adaptive response to workplace adversity, not to specifically examine maladaptive response. While incidental findings in this regard would not necessarily have been unwelcome, as it eventuated I could not achieve any useful comparison with Richardson et al.'s⁽¹⁷²⁾ notions of maladaptive or dysfunction reintegration because I was unable to identify suitable participants whose experiences reflected these situations. This may be because my participants self-selected, and perhaps individuals with more painful or difficult experiences of workplace adversity were disinclined to volunteer to participate, or it may be, as my participants suggested, that only those that adapt resiliently 'survive' in the job: in any case, my study only allows me to speculate.

Richardson et al.'s⁽¹⁷²⁾ model has subsequently been criticised by Richardson⁽¹⁸⁶⁾ himself as too linear to represent reality. My model represents the process of resilience as evolution as more fluid and, while depicted broadly as cyclical, I have considered the role of context and acknowledged the importance of concurrent adversity. For my participants, adversity did not occur in isolation, and while they could readily describe their experiences of working through a particular challenge, they frequently identified other events and difficulties that affected their response to it. My exploration, therefore, has more fully addressed the broader context of encounters with adversity among a very specific professional group. Unlike Richardson et al.,⁽¹⁷²⁾ I have deliberately considered the role and nature of support

in fostering or enhancing resilience. Informed by these authors' model, I have explored the underpinning processes relevant to medical radiation science graduates that are associated with the disruption, disorganisation and reintegration that Richardson et al.⁽¹⁷²⁾ described.

8.2.2 Jordan's relational theory

Reflecting the relational focus of Jordan's⁽²¹⁰⁾ model of resilience, my model of resilience incorporates relational aspects within the processes of the various stages of evolution. Like Jordan,⁽²¹⁰⁾ I have considered the aspects of self and the environment that encouraged and empowered my participants to act to adapt to adversity. There is considerable similarity between the underpinning processes I have identified and those that Walsh⁽¹⁶⁸⁾ derived based upon Jordan's⁽²¹⁰⁾ work. Most significantly, my model of resilience as evolution strongly acknowledges the role of supportive relationships that foster personal growth and success, just as Jordan⁽²¹⁰⁾ identified in her model of relational resilience.

Unlike Jordan's⁽²¹⁰⁾ model of resilience, I have provided a theoretical depiction that is detailed and specific to the context of medical radiation science transition to professional practice – in other words, a representation that is situated in a particular context rather than an abstraction. In this way, my study and the resultant model of resilience provides a means to better understand the medical radiation science professional workforce, and graduates in particular. Depending upon the purpose for which one might wish to apply my model of resilience, this could be perceived as either a strength or a weakness. As a member of the medical radiation science profession, I predictably perceive this as a strength. My model elaborates upon the processes Walsh⁽²⁰⁶⁾ described, exploring the points and stages in resilient adaptation where those processes are used or useful. While reflecting Jordan's⁽²¹⁰⁾ argument of resilience grounded in relatedness to others, my participants often emphasised that their resilience occurred and was, sometimes, fostered in situations where they were autonomous, independent and alone. Perhaps, as Jordan⁽²¹⁰⁾ alludes, growth-fostering connections do not always have to manifest as the immediate presence, or access to others in order to support resilience or, perhaps, it was simply not apparent that such connections were a

single-defining feature of resilience among my participants. In either case, my model incorporates the spirit of Jordan's⁽²¹⁰⁾ work – that relationships with supportive others serve as an important means of fostering resilience, albeit that I could not reasonably conclude a similar primary focus.

8.2.3 Grotberg's resilience framework

My study strongly echoes many of the features of Grotberg's⁽¹⁹⁴⁾ framework of resilience, emphasising both the internal (personal) and external strengths and assets that support the manifestation of resilience. Like Grotberg,⁽¹⁹⁴⁾ I have identified some of the individual assets and attributes that serve as a source of strength, and how other people and factors in the environment can reinforce or complement these sources. I have considered these assets and sources of support for the processes I have described within the various phases of resilience as evolution, or as more general support.

Unlike Grotberg's⁽¹⁹⁴⁾ framework, my theory presents a conceptualisation of resilience that is contextualised within a specific professional context and for a specific group of adults - respectively, medical radiation science and beginning professionals experiencing transition to professional practice. I have identified an overarching explanatory process (evolution) for resilience within this context, and explored the underpinning processes by which new graduate medical radiation science professionals adaptively respond to workplace adversity. In this way, my study extends upon Grotberg's⁽¹⁹⁴⁾ work in a comprehensive and specific manner, and reconsiders its application in an adult context.

8.3 Comparison with other research in the caring professions

Having considered my substantive theory of resilience as evolution in comparison with the other theoretical depictions of resilience, in the remainder of this chapter I consider my study in comparison with other research about resilience in the caring professions. The unique contribution that I have made through my study is to bring together elements identified elsewhere and to explore them comprehensively in a single, specific context.

8.3.1 Workplace adversity and its impact

Medical radiation science graduates experience workplace adversity in many ways, in the challenging situations they encounter that relate to patients, to colleagues and to starting out in their new careers. An appreciation of the nature and diversity of workplace adversity supports understanding of how new medical radiation science professionals experience resilience as a process of evolution. As has been previously reported for caring professionals⁽¹⁸²⁾, these encounters with adversity can result in profound pain and suffering. Glass⁽¹⁷⁸⁾ reported that, for new nurses, the prompt to trigger resilience was psychological emptiness. While it is true that, in certain instances of adversity experienced by medical radiation science graduates, there may be a feeling of substantially diminished inner balance that prompts them to act in adaptive and restorative ways, resilience is commonly also prompted by situations that have apparently minor negative emotional consequences. Even when the impact is less severe, graduates employ strategies to respond resiliently to manage the situations they encounter, to persist through to a resolution, and to restore themselves afterward.

8.3.2 Energising

Following the initial impact of workplace adversity, graduates pull themselves together and get on with the job at hand. This energising phase of resilience as evolution involves a number of processes including recalling their responsibility, gaining control of their emotions, adopting an action-focus, becoming used to challenging situations, and seeking help. In recalling their responsibility, graduates are reminded of the values and beliefs that underpin their practice and their lives, such as doing the right thing or doing what has to be done. Being guided in decision-making and actions by one's values is characteristic of resilient caring professionals.^(219, 224)

Medical radiation science graduates gain control of their emotions using conscious strategies that support resilience through active coping⁽¹⁹⁶⁾ and the management of their initial reactions of stress and upset. Some strategies, such as deep breathing, are simple to enact and for graduates to articulate. Others, such as adopting an unperturbed persona in front of their patients, are surely more complex.

Controlling their emotions fosters a sense of emotional hardiness and of being more in control of the situation, and these have been found to support caring professionals' capacity for resilience.^(180, 196)

Action-focused strategies that enable medical radiation science graduates to direct their attention very specifically to the task at hand serve to eliminate or detach from distracting feelings and thoughts. Detachment may allow caring professionals to provide care in difficult situations while protecting themselves from excessive emotional harm.⁽¹⁸⁰⁾ Graduates use a focus on action, therefore, to progress adverse situations to a resolution and as a means to protect themselves from the emotional aspects of the adversity they encounter. Aligned with this action-focus is a sense of personal agency, that one possesses the necessary capacities to perform the required procedure or task and to manage any issues that emerge. My study supports that personal agency,^(181, 182, 196, 200, 221) underpinned by a sense of one's competence^(39, 182, 196, 200) is important in fostering resilience among caring professionals.

Over time, and with repeated experience, medical radiation science graduates become used to the adversity they encounter. Through processes of normalisation and desensitisation, the impact of confronting situations is lessened and graduates are able to anticipate and plan for adverse events, which may enable them to avoid the event altogether or to moderate its effect. Normalisation and desensitisation are known to foster resilience in caring professionals,^(180, 310) and my study has demonstrated that beginning professionals can learn to use these strategies to manage adversity through incidental experience and deliberate, strategic participation.

Seeking help allows medical radiation science graduates to obtain the resources and information they need to plan and enact their resolutions to challenging situations. Help-seeking also provides an opportunity for them to gain reassurance and bolstered confidence as they prepare to act. Help-seeking fosters resilience in caring professionals^(193, 221) and supports a sense of personal agency and efficacy.⁽²²¹⁾ The importance of the presence of, or access to, supportive others is implicit in help-seeking – one cannot seek help if there is no one from whom to

seek it. In fact, support and collegiality from others consistently recurs as the pivotal environmental condition that underpins multiple resilience strategies employed by medical radiation science professionals. The importance of support and collegiality in fostering resilience amongst other caring professionals is an almost ubiquitous theme in the literature.^(39, 175, 181, 182, 190, 193, 210, 219, 225) For medical radiation science graduates, the work team serves as a critical source of support in stressful situations - they do not, however, perceive the team as specifically functioning to protect them from stress, as has been found elsewhere.⁽¹⁹⁰⁾ In fact, in some situations, my study indicates that the work team can represent a source of workplace adversity.

8.3.3 Maintaining momentum

Having pulled themselves together, medical radiation science graduates focus on persisting and persevering through the immediate task or situation. Persistence is characteristic of resilient caring professionals.⁽²⁰⁰⁾ In this phase of resilience as evolution, they maintain momentum through a number of processes including problem-solving, making decisions, recalling a sense of purpose, being realistic and distancing themselves emotionally.

Solving problems involves seeking and enacting the graduates' own solutions to adverse situations. This sense of ownership of the problem, of identifying and acting upon their own chosen solution allows medical radiation science graduates to commit to and persist in solving challenges, and further reflects a sense of commitment to personal and professional values.^(219, 224) Effective problem-solving is, therefore, underpinned by their sense of confidence, competence, efficacy and agency, as has been demonstrated in other studies.⁽²²¹⁾ At the same time, following each effective problem resolution, graduates gain confidence in their capacity to solve problems in the future. My study confirms that problem-solving fosters resilient response in caring professionals.^(219, 221, 224) Ownership is important, too, in medical radiation science graduates' decision making. While seeking help and asking questions is valued and accepted, graduates enact their professional responsibilities and values by making –and owning – their decisions. In doing so, they are able to progress adverse situations towards resolution and to persevere.

The findings of my study support the notion that values-based decision making fosters resilience in caring professionals.⁽²²⁴⁾

Recalling their sense of purpose and being realistic supports medical radiation science graduates to persevere through adverse situations. This sense of purpose, again, reflects their personal and professional values in their desire and satisfaction at doing the best they can for their patients, that they are acting in their patient's best interests, and that they are acting to make a difference in each patient's care. Cameron and Brownie⁽³⁹⁾ found that a sense of making a difference in the lives of patients fostered resilience among aged-care nurses, a notion that is certainly similar but not quite the same. Medical radiation science graduates emphasised their impact on their patients' care, rather than on their lives. It may be that this sense is less strongly developed because medical radiation science professionals do not share the long-term, deep, more continuous relationships with the people in their care that Cameron and Brownie's participants enjoyed. These long-term relationships were noted by the authors as fostering resilience, and it is intriguing that my findings suggest that resilience among medical radiation science professionals is enhanced because of the short-term, transient nature of the patient-practitioner relationship. This appears a contradiction, and it may be that resilience is fostered in different ways by different types of relationships between caring professionals and the people for whom they care.

Medical radiation science graduates use emotional distancing to maintain focus on the immediate tasks that will progress adverse situations towards resolution and, in doing so, facilitate perseverance and, perhaps, emotional protection. Emotional distancing of this type, specifically emotional detachment, has been previously reported⁽¹⁸⁰⁾ as critical in the resilience of burns nurses, and assumes particular relevance when the caring professional is required to perform tasks that cause their patient pain, distress or discomfort.

[8.3.4 Achieving equilibrium](#)

With the immediacies of the adverse situation largely passed, medical radiation science graduates manage the physical and emotional outcomes by employing

strategies to restore equilibrium. These strategies include talking about things, using humour, distancing themselves and maintaining perspective.

When medical radiation science graduates talk about things with trusted others, they gain emotional relief and the opportunity to learn from their experiences of adversity. Both of these aspects foster their resilience. In gaining emotional relief, graduates are able to heal. By discussing what has happened, they are able to reflect on their experiences, recognise what they have learned, and identify or confirm actions for future encounters with adversity. The presence of resilient role models^(219, 225) and supportive others with whom one can share reflective discussions fosters resilience. My findings indicate that such role models exist in certain situations for medical radiation science graduates, but that the dominant culture does not encourage – and may sometimes discourage – the type of discussions and sharing that would allow new graduates to actively learn from more experienced, resilient others.^(193, 219, 225) While graduates can certainly actively observe their colleagues, there is a need for greater explicit acknowledgement of workplace adversity and its impact, so that new professionals can learn from the experiences of their colleagues.

Humour allows medical radiation science graduates to rebalance the emotions prompted by encounters with adversity, helping them to find the capacity to persist, thereby fostering their resilience. Sharing a laugh with their colleagues relieves the pressure of difficult situations and simply makes graduates feel better. In Edward's⁽¹⁹⁰⁾ study of resilience amongst mental health professionals, it was similarly found that humour relieved anxiety and stress.

Just as distancing strategies support persistence during the early stages of an adverse encounter, medical radiation science graduates are able to restore their equilibrium, or restore it more readily, when they are able to achieve distance from the source of adversity. Distancing occurs in the context of time, as medical radiation science professionals encounter their patients only relatively briefly, so deep emotional engagement is less likely to occur than it might for other caring professionals who spend extended periods with particular people in their care. Distance is also achieved in the context of physical space between the graduate and

their work. Unlike people in some other occupations, medical radiation science graduates cannot take their work with them when they depart each day, enabling them to leave their work behind them, figuratively and literally. This type of distancing has been reported by others^(190, 221) as a self-preservation strategy that fosters resilience amongst teaching and health professionals. Whether medical radiation science graduates are able to leave their work behind simply because of the nature of their job responsibilities, rather than through any deliberate proactive strategy on their part, is a moot point – the fact is that physical separation occurs, and this distance is recognised as fostering resilience.

In regaining their equilibrium, medical radiation science graduates employ strategies to maintain or regain their perspective. As heightened emotions resolve, graduates are able to think more rationally and less reactively, allowing them to regain their sense of the big picture. Reflection underpins their ability to consider this broader perspective.

8.3.5 Beating inertia

Following experiences of adversity, medical radiation science graduates manage the physical and emotional outcomes by employing strategies to beat inertia and move on from their encounters with adversity. These strategies include relaxing, engaging with loved ones, reflecting, recognising growth and having faith.

To beat inertia, medical radiation science graduates employ a range of strategies to relax and to overcome their sense of being overwhelmed by the effects of their encounters with adversity. These strategies include activities that restore their physical selves or promote health and those that engage their minds or creativity. The types of activities in which medical radiation science graduates engage for the specific purpose of relaxation are similar to that reported for other caring professionals,^(39, 190, 221, 225) including exercise, team sports, listening to music, reading, yoga and spending time with friends. In engaging in relaxation activities, graduates have the opportunity to achieve distance and perspective, to consciously or unconsciously reflect, and to invest in caring for themselves. Graduates seek work-leisure balance as part of caring for and protecting themselves from stress and, as has been reported amongst other caring professionals,^(175, 221) they believe

that an imbalance reduces their capacity for resilience. The use of strategies that might be construed as maladaptive nevertheless allows graduates to recover from the emotional harm caused by adversity and to restore their willingness to persist, thereby supporting their resilience.

Medical radiation science graduates seek solace and comfort from their loved ones, helping them to heal from the hurtful emotions prompted by adversity. This helps to restore and increase their capacity to persist, and to re-engage in their practice. A sense of safety and security enables discussions with loved ones that help the graduate to recover emotionally, gain reassurance, gather different perspectives, reframe their experiences positively, and generate new ideas or confirm their existing thoughts about how they can better manage encounters with adversity in the future. In this way, graduates develop and grow through their reflections^(190, 193, 198, 219, 225) upon repeated experiences of managing challenging situations.

Graduates also employ reflection to beat inertia by recognising their growth and acknowledging how much they have developed. Reflection inspires them to persist, to try again, and to pursue new learning opportunities, fostering further resilient responses in the future. Previous research has repeatedly demonstrated that reflectivity fosters resilience.^(190, 193, 219, 225) In addition to helping plan future action, reflection allows graduates to identify new learning and to gain a sense of pride in their achievements. Recognising the positive things that have emerged in spite of – or because of – the hard times, particularly when those positive things are new or improved personal or professional strengths, is highly motivating for medical radiation science graduates. Howard and Johnson⁽¹⁸²⁾ also identified that a sense of pride in one's achievements is important to making meaning of and recovering from adversity. My findings suggest this sense of pride also encourages medical radiation science professionals to persist in their roles – to go back to work and do it all again despite the risk of further adversity.

Medical radiation science graduates use faith to foster resilience. Their positive expectations for the future, that everything will turn out to be okay, motivates them to persist and to try again after encounters with adversity, thereby promoting resilient adaptation. Faith, in the sense of optimism, hopefulness and positive

expectations for the future, has been repeatedly demonstrated as characteristic of resilient caring professionals.^(178, 182, 190, 193, 196, 219, 225) Graduates temper this sense of positivity with realism, understanding that there is a limit to their capacity to influence outcomes, and such 'managed optimism'⁽¹⁹³⁾ assists them to keep moving forward. Some medical radiation science graduates are further motivated to respond resiliently by their religious faith. Spiritual practices may serve to inspire, motivate, comfort and support graduates at all stages of resilience as evolution.

[8.4 Chapter summary](#)

In this chapter, I have considered the theory I have developed in light of the existing literature in two ways. Firstly, I compared my substantive theory with other theories of resilience and, secondly, I compared my study with themes from other studies of resilience among caring professionals.

Chapter 9 Conclusion

[9.1 Chapter introduction](#)

In this final chapter, I draw upon all previous chapters to outline the significance and implications of my study. I provide recommendations from my substantive theory of resilience as evolution for educational institutions, employing organisations and professional associations. Finally, I consider the limitations of my study and opportunities for further research.

[9.2 Significance and implications](#)

I have presented a description of transition to professional practice for medical radiation science professionals, a topic previously undescribed in the literature for this group of caring professionals. Unlike many other explorations of transition to professional practice, I have considered the perspective of the graduates themselves, illuminating an aspect of transition experiences that has been under-examined in the existing literature. While there are some similarities to the transition to professional practice experiences of other caring professionals, as I examined in Chapter 6, the findings from my study indicate that medical radiation science professionals experience their progression to independent practice in a unique way. By appreciating the unique experiences of this group, it is possible to better grasp their potential needs for resources, opportunities and support.

The experience of workplace adversity among new graduate health professionals has not previously been well documented.^(200, 201) Using the voices of my study participants, I have considered a wide array of the challenges experienced by new graduate medical radiation science professionals as they commence their professional practice. While some of these challenges are arguably common to other beginning caring professionals,^(181, 193, 195, 200, 201, 221) my study has illuminated the particular challenges and experiences of workplace adversity from the perspective of the medical radiation sciences, and presented a comprehensive exploration of the nature of adversity among this group. Identification and appreciation of these challenges present the opportunity for interventions that

prevent the adverse event from occurring, that moderate its impact, or that provide for relevant post-hoc support or resources.

The processes by which medical radiation science professionals respond resiliently to workplace adversity were previously unexplored. I have presented the unique perspectives of Australian graduate professionals and considered how they perceive their experiences of adaptive response to challenging situations in their workplaces, using a process of evolution to explain how they manifest resilience. The theoretical model of resilience I have developed reflects some aspects of established theories, but is uniquely reflective of the experiences of medical radiation science professionals by specifically considering workplace adversity in the context of medical radiation science transition to professional practice. Further, my study makes a unique contribution by drawing together and comprehensively exploring a large range of elements identified in other research, presenting, for the first time, a depiction of the experiences of resilience among medical radiation science professionals during their transition to professional practice. By understanding these experiences, the resilience processes, and the skills, attributes and resources that underpin them, educational institutions, employing organisations and professional bodies are better equipped to respond with appropriate education, resources and support. More broadly, better understanding of the impact of adversity and the way in which graduates manifest resilience allows for better understanding and, ultimately, prediction and prevention of risk to medical radiation science professionals.

[9.3 Recommendations from substantive theory](#)

[9.3.1 Mind the gap](#)

My study demonstrates that transition to professional practice and experience of workplace adversity occurs during periods when the individual is a student and following graduation when they are an employed professional. Transition to professional practice straddles the educational and the employment domains, as does the new medical radiation science professional's need for support and resources. Upon completion of their studies, new professionals disconnect, to a greater or lesser degree, from their educational institution and must reconnect, or

establish a new connection, with their employing organisation. If a new medical radiation science professional does not commence employment straight away, there may be a gap between the two when no support or advice is available. In any event, the result is that new professionals experience additional change and inconsistency, often at a point when they feel most vulnerable.

While it would be ideal for educational institutions and employing organisations to work together in some way to avoid this disconnection,⁽²¹⁾ such a recommendation is unrealistic and somewhat glib. Staffing and financial resources at educational institutions are under pressure,⁽³⁴²⁾ and there is little capacity to implement extended interventions to support students after they complete their studies. Practically, too, students finish their final year studies at the conclusion of the academic year, when many academic staff take their recreational leave and when educational institutions often close for the Christmas season,⁽³⁴³⁻³⁴⁷⁾ further limiting the resources available to support a direct intervention. Employing organisations often do not make their appointment of new graduates until toward the end of the year, frequently after students have completed their studies. It is unlikely that employers could or would fund an intervention to support final year students who may not ultimately work for them. So while the notion of bridging interventions is appealing at some levels, it is difficult to envisage how they could be funded and operated as a universal support mechanism for all new professionals. Potentially, government may fund a bridging intervention: in the current economic climate,⁽³⁴⁸⁾ however, this seems improbable.

Once employment selections have taken place, employing organisations could provide outreach to their future employees. Provision of information in preparation for formal orientation activities may assist new graduates to engage more actively in the face-to-face components of their orientation programs, analogous to the use of flipped-classroom, blended-learning model in tertiary education.⁽³⁴⁹⁻³⁵²⁾ Practical preliminary information such as advice about car-parking, public transport, work hours or a map of the hospital or facility may relieve some of the small irritations and concerns about attending work for the first time. A congratulatory telephone call or email from the future manager provides a simple opportunity to make future

employees feel welcomed and accepted. Invitations to participate in social activities and professional development and educational sessions that occur prior to the new graduate's employment commencement may provide opportunities for connection and reconnection with the workplace and the people within it. It should be acknowledged, of course, that even seemingly simple strategies can sometimes present difficulties. For example, there may be organisational confidentiality policies that restrict the nature of information that can be shared prior to the commencement date of an employee's contract. Attendance at in-house educational events may be limited because of concerns about non-employees insurance coverage in the event of an accident or injury. Unfortunately, such issues are a frustrating reality of the contemporary workplace.

9.3.2 Fostering resilience – Recommendations for education

9.3.2.1 Preparation for transition to professional practice

My study has demonstrated that transition to professional practice for medical radiation science professionals commences well before completion of studies, most commonly around the middle of the final year. While it is likely that most Australian medical radiation science educational programs would attest to guiding students toward independent practice, it is difficult to find evidence that transition to professional practice is specifically considered by students in any depth, nor how they are supported to recognise the skills and knowledge they will require to manage their own transition, or how they are encouraged to plan for and develop these areas. Ideally, students would be encouraged to consider their transition to professional practice from the commencement of their studies. Deliberate opportunities from the commencement of final year for reflection and preparation for the realities of professional practice⁽²²⁻²⁴⁾ and employment may provide useful support to raise students' awareness and increase their sense of confidence and capacity to manage the upcoming changes.

Medical radiation science educational programs capably support the development of a wide range of professional skills and capacities,⁽⁷²⁾ yet my findings suggest that graduates feel inadequately prepared for the clinical supervision of learners in the workplace, leading to adversity. It is impractical to suggest that new graduates –

who, after all, are legally and professionally recognised as competent, independent practitioners – should avoid or, in some way, be excluded from supervisory roles. The simple reality of the contemporary workplace is that many new professionals are required to perform supervisory functions, as evidenced by the participants in my study. While there is onus on employing organisations to support all professional employees in developing the skills necessary for the broader aspects of their professional roles, educational institutions must take seriously their part in ensuring that graduates are effectively prepared with the underpinning knowledge for elements of their future professional practice such as clinical supervision and teaching. This is likely to entail learning interventions and activities that extend beyond one-off experiences of peer tutoring or coaching junior students.

9.3.2.2 Preparation for workplace adversity

The findings of my study clearly indicate that medical radiation science professionals experience workplace adversity as students and as new graduates. Because of extended clinical practicum experiences, many of the participants in my study felt that they had encountered particular challenges and found ways to manage them as students, thereby contributing to their sense of being prepared for the realities of professional practice as a new graduate. Despite this, few were able to identify specifically how their education had prepared them to manage the adversity they encountered beyond technical considerations for the medical radiation procedure or its adaptation. Those that identified a link between what they had learned and practiced as part of their studies and their experiences of adverse events focused on managing the effects of challenging situations, such as general strategies for managing stress or group debrief sessions held upon the students' return to university.

Educational institutions have the opportunity to familiarise students with workplace adversity^(24, 353) and to articulate clearly to students not just how the procedural complexity escalates as they progress through their clinical practicum experiences, but also how the student is being progressively exposed to adverse situations in the workplace, and how this exposure is being controlled to ensure their safety. Students can be encouraged to reflect beyond the technical or

procedural elements of their clinical experiences to specifically focus on their experiences of workplace adversity⁽¹⁹⁷⁾ and how they might develop for the future. Increasing students' awareness and recognition of workplace adversity serves several purposes. Students might also practice their responses and gain a degree of familiarity with adversity through exposure to scenario-based learning or simulated experiences in the controlled environment of the classroom,⁽⁸⁹⁾ where prompt support and feedback is available. Firstly, they may be better prepared with more realistic expectations for the realities of professional practice, and with ideas of strategies to manage what they encounter. Secondly, having considered the possibility of, or potential for, particular workplace challenges, students may be less shocked should they eventually encounter such a situation, and may possess knowledge or resources that they otherwise would not have considered. Thirdly, recognition of workplace adversity as students may provide a foundation for their greater openness as working professionals, potentially contributing to a workplace and professional culture where discussion and support are more acceptable and accessible.

9.3.2.3 Preparation for resilient response

In promoting students' awareness of workplace adversity, educational programs can support the development of students' capacity to respond resiliently.^(184, 197) This might start with providing students with the opportunity to build self-awareness^(215, 354) by examining their personal strengths in responding to challenges and areas for development. Educational programs can provide scaffolding to students' reflective thinking,^(355, 356) supporting them to identify strategies to manage challenging situations and the emotional aftereffects, to consider the resources and support that they might require, and to identify strategies to access what they need. Education about coping and self care^(16, 215) may already exist in many medical radiation science programs,^(75, 77, 272) however students need to be supported to recognise the practical ways that they can implement relevant strategies in their own practice and lives.⁽³⁵³⁾ Importantly, students should be encouraged not just to know about but to value their own wellbeing and the need

to care for themselves, helping to lessen any sense that their profession's culture discourages emotional considerations as weakness.

My findings have demonstrated that capacities such as decision-making,⁽²²¹⁾ effective communication,^(8, 205, 281, 357) reflection,^(178, 190, 354) critical thinking and judgement^(15, 184, 357) are important for new professionals to respond adaptively in the face of workplace adversity. Such attributes are commonly identified as expected learning for students or outcomes for graduates in medical radiation science programs.^(75-77, 273-276) While participants in my study expressed an overall sense that their education had helped them to develop these capacities, none could articulate specifically what it was that they learned or did for development. Articulating, developing and evaluating such intangible capacities may be difficult for educators, so perhaps it is not surprising that students and graduates, too, find this challenging. Nevertheless, substantial work has now been completed that considers not only how these capabilities can be developed and scaffolded during educational programs, but also how effectively they have been learned.⁽³⁵⁸⁻³⁶⁰⁾ If medical radiation science students were provided with explicit understanding of how these capacities were to be progressively developed during their studies, and opportunities to consider how they might be applied in challenging situations, their confidence in their capability to respond resiliently to adversity may be bolstered. Educational institutions have the opportunity to foster in their students the processes that underpin resilience by enacting teaching and learning strategies that provide practice in and reflection upon those processes.⁽¹⁸⁴⁾ For example, adopting learning activities where students must articulate their rationale in choosing between rival solutions to a problem may allow for practice of critical thinking and decision-making.

9.3.2.4 Debrief

Debrief following clinical placement experiences was reported as a common feature by the participants in my study. While all were aware that they could contact individual academic staff for support, generally the debrief experiences were group discussion sessions held as face-to-face or on-line, asynchronous discussions. Often

these debrief discussions were informal and brief, using a small portion of a scheduled teaching session.

Most of my participants who spoke of their debrief experiences were ambivalent about the usefulness of these sessions. Students may find it difficult to elaborate emotional situations or personal concerns in a group setting,⁽³⁶¹⁾ particularly where maintaining status with their peers concerns them. Academic staff, although genuinely concerned, may not be adequately trained to appropriately counsel students in non-technical areas.⁽³⁶²⁾ Medical radiation science programs tend to have smaller cohort sizes with fewer staff than other university programs, and students may perceive risk in exposing their vulnerabilities or potential weaknesses to staff who will subsequently assess their academic work or, perhaps, provide employment references. Where clinical placements are scarce, as is the case in the medical radiation sciences, students may feel cynical that genuine issues will be addressed with clinical staff at the risk of losing placement positions.

Educational institutions should consider the effectiveness, sensitivity and intent of the debrief opportunities provided to students and adopt strategies to ensure that genuine opportunity exists to address students' concerns and to assist them to identify the meaning of their experiences, what they can learn from them and how they might respond more resiliently in the future.⁽³⁶²⁾ Academic staff facilitating debrief discussions should possess the skills and knowledge⁽³⁶²⁾ to respond to and guide students appropriately, and to create an atmosphere of safety, confidentiality and openness.

9.3.3 Fostering resilience – Recommendations for employing organisations

9.3.3.1 Mentoring and leadership

Employers can support new graduates and students to act resiliently by encouraging mentoring relationships with colleagues who possess both clinical expertise and the appropriate behaviours and aptitudes to act as an effective mentor, and who model the behaviours that foster resilience. Within these relationships, new graduates may establish the connections that support their access to resources and further support,^(194, 205) and that provide a source of help, advice and encouragement. These might be formal relationships, but the findings

from my study suggest that graduates gain more from being able to choose their own mentors – sometimes choosing someone different in different situations. Rather than providing rigid or prescriptive mentorship programs, organisations may better support effective mentorship relationships by promoting a culture that values collaboration, encourages questions, and provides leadership and mentorship development to all staff. In supporting effective mentoring, the organisational leadership must recognise, value and support the role, time and work of those providing guidance to new graduates.^(23, 141)

Employers may support resilience to workplace adversity by providing organisational leaders, formal or informal, with education and development opportunities that promote their own resilience and that encourage them to model behaviours and attitudes that support resilient responses in others^(16, 184, 309) and foster a supportive learning environment.⁽³³¹⁾ A new graduate or less experienced staff member may be encouraged to reflect or to discuss their concerns when their leaders demonstrate reflection or where they demonstrate that humanness and emotion are valued and perceived as professional strengths, rather than as frailties.

9.3.3.2 Workplace culture and programs

Employing organisations have a critical opportunity to support positive transition experiences and to foster resilience by providing a nurturing workplace culture.^(101, 148) It is concerning that new professionals - often young people with little adult life experience – perceive that talking about their fears and concerns, or seeking emotional support are considered as unacceptable in their workplace, or that they might appear stupid or weak. It is well-established that workplace cultures that value people, mutual respect and learning also support safety for patients and for staff.^(228, 233, 296, 363-366) Simple strategies such as encouraging informal debriefing,⁽³⁶²⁾ emphasising multi-directional and constructive feedback,^(23, 138, 294) promoting discussion of professional issues⁽²³⁾ that extend beyond technical or procedural considerations, encouraging questions,⁽¹⁸⁴⁾ or implementing no-blame, learning-focused procedures to address errors might provide organisational support to the processes underpinning individual's resilient responses. Encouraging practices that foster a culture of collegial support and understanding provides a sense of safety

for new graduates to make decisions and solve problems, and promotes growth-fostering connections that are known to support resilience.^(203, 206, 210, 211) Promoting an environment that welcomes newcomers and supports them to gain a sense of belonging may mediate the level of stress and anxiety experienced when new professionals enter the workplace. This can be achieved with very simple, practical strategies such as displaying a bulletin board in a non-public area with the photos and names of all staff,⁽¹⁰³⁾ thereby helping newcomers to become familiar with their work colleagues.

The wide range of examples of workplace adversity identified by participants in my study suggest that workplace adversity is ubiquitous. It is surprising, then, that employing organisations seem reluctant to address potential risks to staff beyond institutional programs focused on bullying, physical violence and hazards. By proactively acknowledging sources of workplace adversity, employers have the opportunity to address inappropriate systemic or cultural situations, and to provide education to staff about harm minimisation and prevention, coping⁽¹⁹⁶⁾ and self care. Moreover, new or less experienced staff may develop an appreciation that they are not alone in their various experiences of workplace adversity, and may better understand how to access the resources and support they need to manage these challenges resiliently.

As new employees, graduates need and desire to fit in and belong.^(10, 85, 200, 277, 284, 308) Welcoming cultures that embrace learners and learning may support them through the anxiety of finding their place.⁽¹⁴⁸⁾ Encouraging and educating all employees to embrace and contribute toward building such a culture is important.⁽⁵⁷⁾ It is critical that leaders recognise that, despite their independent status, new graduates face considerable adversity by virtue of their newness and their transition experiences: providing support to the graduates themselves, and education to other staff^(24, 55, 138, 309) to empower them to provide support, is critical to fostering success and resilient response. Employing organisations can further support these more vulnerable members of staff by minimising unnecessary transfers and rotations to different work units,⁽¹¹⁷⁾ allowing new medical radiation

science graduates to experience increased stability and certainty, and maximising the opportunity for them to establish a sense of confidence in their practice.

It is not uncommon for employers to provide cost-free access to counselling and support for employees who encounter difficulty in coping with some aspect of their work or life. Most of the participants in my study either had not felt the need to access such counselling or perceived that they received the support they needed in other ways in their life. Nevertheless, employer-sponsored programs provide an important option for support,⁽¹⁹⁷⁾ and should be promoted to staff, and implemented as genuinely confidential and accessible.

9.3.3.3 Orientation and socialisation

New graduates or, indeed, new employees, may be unaware of local procedures, resources and systems that directly impact on their work tasks. Feeling unfamiliar or constantly having to ask questions may affect feelings of confidence. In turn, this may impact upon a new medical radiation science professional's ability to respond resiliently to workplace challenges.

Formal organisational orientation programs seem almost ubiquitous, yet my findings suggest these were largely irrelevant in terms of my participants' day-to-day work responsibilities and their needs when confronting adversity. Some of the participants in my study identified that certain of their supervisors had provided them with informal orientation to the particular work area in a way that boosted their confidence, allowing them to practice independently but with the certainty of back-up when required, and providing them with detailed feedback to support reflection upon their developmental needs. For many, these informal strategies seemed to resonate more with their needs, and to provide the resources and knowledge that fostered their resilient responses. This suggests that employers have the opportunity to support resilience and positive transition to professional practice by implementing orientation that moves beyond organisational policies and procedures, to reinforce healthy coping skills^(16, 161) and self-awareness^(161, 162), and providing controlled and scaffolded exposure to new experiences and local idiosyncratic practices, underpinned by meaningful support from leaders.^(89, 138)

9.3.4 Fostering resilience – Recommendations for professional bodies

Beyond providing credentialing upon graduation, findings in my study suggest that professional associations are perceived as irrelevant to the transition to professional practice for new graduates or in supporting them to respond resiliently to workplace adversity. For regulatory authorities such as the MRPBA and radiation licensing organisations, this may be of little consequence as their focus is upon public safety and radiation protection.

Organisations such as the AIR face a more serious situation. The financial security and relevance of such organisations is underpinned by membership, so engaging the professionals that the organisation purports to represent is critical. Based on the data available in February 2014,^(326, 367) active members of the AIR account for less than 52% of the medical imaging and radiation therapy professionals registered for practice with the MRPBA. Individual professionals have many choices as to the associations with which they will align, and ready access to the internet means that Australian professionals are not limited to choosing only Australian organisations. Moreover, if a professional association seeks to be recognised as relevant in the professional education and entry of medical radiation science practitioners, this must be backed up with strategies that address the needs of students and graduates and provides relevant professional support and opportunities. Importantly, these strategies, support and opportunities must respond to the actual needs of new professionals, not the needs as perceived by the professional association, otherwise new professionals will continue to feel disenfranchised from their professional associations or to consider them irrelevant.

It is conceivable, based on my findings, that a substantial proportion of new medical radiation science graduates experience early disengagement from, and disillusionment with, their roles and their profession. The associated risk of their rapid attrition from the workforce seems significant. As the overarching body that represents the professional workforce, it is incumbent upon the AIR to assume a leadership role in establishing the underpinning causes and facilitating suitable remediation strategies among educational institutions, employing organisations and the AIR itself. A continued focus on simply increasing membership numbers or

delivering poorly designed and targeted professional development activities seems unlikely to engage – or re-engage – significant numbers of new or younger graduate professionals. Further, promoting realistic portrayals of medical radiation science professional roles, and identifying and implementing clear, achievable career pathways⁽⁵⁴⁾ that cater to diverse contexts of practice would support future students in making career decisions and provide guidance and scaffolding for early career professionals.

9.4 Limitations

Like every research project, my study was subject to limitations. In this section, I consider some of the main limitations, their implications and, where relevant, how I managed their impact.

9.4.1 Limitations related to the novice researcher

The pace at which I engaged in data analysis was, initially, slowed because I was a novice in using Charmazian⁽¹⁾ grounded theory. While this was, at times, very frustrating, continuously engaging with the methodological literature allowed me to develop my understanding of the relevant practices and procedures. Because of the diversity of grounded theory approaches, the methodological literature sometimes further confused me and caused me to question my own analysis and emerging ideas. Ultimately, this promoted and enhanced my reflective thinking albeit that, at times, my sense of confidence was challenged. In addition to printed publications, recorded lectures and videos with experts such as Charmaz,^(1, 252, 255, 368) Glaser^(254, 264) and Gibbs⁽²⁵³⁾ enabled me to build my understanding and confirm the manner in which I was applying grounded theory methods.

Similarly, the pace at which I transcribed and coded was initially slow because I was a first time user of the QSR International nVivo software. By initially completing an intensive training workshop, I established basic skills that developed with further practice and self-paced learning. Ultimately, it is unlikely to have had any real impact upon the quality of my research – in fact, my steadier pace may have allowed me more time to reflect and ruminate upon my data and the emerging findings.

My experiences have prompted me to consider how other novice researchers might be better supported in rapidly establishing the skills and underpinning understanding required. While published reference books and online resources are useful, my perception is that there remains a need to 'practice the practice'. Exploring this further is not related to my study, but I believe there is an opportunity for me to consider how I could engage with methodological experts in my own workplace to better identify strategies to support skills development for new research colleagues.

9.4.2 Limitations related to my study sample

Participants in my study were self-selected. This potentially affected the diversity of my data collection as, hypothetically, I was unable to consider less motivated individuals, with possibly different perspectives than their more motivated peers. As my primary initial contact was not with the graduates themselves, I relied upon managers or academics to liaise with prospective participants on my behalf. With the implementation of a central data base of all registered medical radiation professionals and students, this issue will be less troublesome for future researchers.

Similarly, because of the limited avenues I had to employ for contacting participants, I had no means to specifically identify graduates who had experienced a poor transition to professional practice. In my discussions with a number of managers and academic professionals, they reported that certain graduates had commenced and then quickly resigned from their first jobs, or had immediately embarked on further study or a different career. For privacy reasons, they could not facilitate any contact with these graduates. While my study ultimately incorporated a diverse range of perspectives on many subjects, I remain convinced that the views of graduates with less positive transition experiences would contribute significant insights. Future research in this area may require identification of 'at risk' individuals during their final year of studies, or the use of other networks, such as social networks, to identify participants.

While my study size was adequate for – in fact, driven by – theoretical saturation, I was not able to obtain sufficient gender diversity to enable me to draw meaningful conclusions as to whether and how gender might have influenced the perspectives and experiences of my participants. The ability to consider the influence of gender would, undoubtedly, have strengthened my study, but I do not believe it is weak without such exploration. Similarly, my participants were all aged between 22 and 32 years, and the majority were in their early twenties. It may be that older graduates with more life experience engage differently with workplace adversity. Once again, the implementation of a central data base of all registered medical radiation professionals and students may allow future investigations to consider samples that better represent the characteristics profile of the medical radiation science population.

When I embarked upon this study, I had hoped to develop a strong sense of how resilience changed over time by considering each participant's experience at two distinct time points. As it eventuated, I obtained only nine usable second interviews. Undoubtedly, I would have preferred to have included second interviews with each of my participants. Nevertheless, even though the second interview sample was considerably smaller, I was able to obtain rich and useful data that informed my findings and reflections, and I am reminded that qualitative research is not limited by sample size issues in the same way as quantitative research. As my participants were volunteers, it is difficult to identify how similar studies could be conducted differently in the future to achieve a larger follow-up sample. Offering a material incentive might have assisted, but comes at the risk of introducing bias. With an appreciation, now, that medical radiation science transition to professional practice commences well before completion of studies, research projects situated within this context could incorporate participants during the final year of study, when it might be easier to secure follow-up interviews.

[9.4.3 Limitations related to pragmatic realities](#)

Technological malfunction with my recording device meant that one second interview was eliminated, and one other participant had to be eliminated from the study altogether. In preparing for my data collection, I had read of other

researchers' experiences with recorder batteries going flat or tapes being damaged, so I routinely used two voice recorders that saved directly as a .wav audio file. It was only after the second malfunction that I discovered the large degree of radiofrequency interference caused by proximity to certain medical radiation generators was apparently causing my two voice recorders to malfunction. From that point, I simply ensured that my meeting location with my participants was located at a distance to clinical work units. I considered repeating these interviews, but I was concerned that their responses might have been less spontaneous and more rehearsed. While this was frustrating, the use of a theoretical saturation approach ensured that my findings were not compromised by this issue.

As some of my participants were located in places at considerable distance from my home, I could not maintain an identical data collection and analysis approach for each participant. In collecting data during my visit to Victoria, my limited time meant that I could not employ the same process of immediate transcription, initial coding and reflection that I employed for the other interviews. While I attempted to actively reflect on each interview promptly, the reality during this time was that, with seven interviews in a little over 36 hours, I could not dedicate the same reflective time to each as I would normally have done. Similarly, this period was physically and intellectually tiring, and perhaps my degree of engagement and enthusiasm in the latest of these seven interviews was less than when my visit commenced, and it is likely that I did not pursue cues in the interviews that I may have in other circumstances. I sought permission from each of these participants to contact them subsequently to follow up missed leads or to clarify key points. The reflective and iterative nature of Charmazian⁽¹⁾ grounded theory gives me confidence that any deficiencies caused by this unfortunate scheduling of interviews would not have unduly affected my findings.

Distance played a further role in changing my data collection approach insofar as one of my second interviews, and all of the first interviews with graduates located in South Australia, were conducted by telephone rather than face-to-face. These interviews made no less of a contribution to my study than others, but I found it more difficult to establish rapport with these participants and to gain a sense of

their reactions and non-verbal cues. This may have led to my missing some subtle observation that may have influenced my interpretation or understanding, although the iterative nature of grounded theory suggests I would have detected substantial misunderstandings through constant comparison with other data. On the positive side, I was able to take copious field notes during these interviews without concerning participants. Ideally, I would employ face-to-face interviews for all similar data collection in the future however I acknowledge that this may be impractical where the project extends across diverse geographical locations.

My ability to critically consider my findings in light of other research was limited by the lack of existing literature relating to medical radiation science, and the lack of resilience research that adopts a Charmazian⁽¹⁾ grounded theory approach. While contrasting my study with those from other contexts provides a degree of insight, I was continually frustrated by the fact that the population type or context was never quite the same as mine, so I could never be certain why I might be observing similarities or differences. In an effort to mediate this limitation, I aimed to read as widely as possible, but sometimes this led me to lose focus on my immediate research area. It is difficult to identify how this limitation might be addressed, except with a somewhat glib recommendation that more researchers, including myself, need to publish more of their work to better inform future research.

9.4.4 Summary of limitations

Like most research studies, my study was subject to limitations due to my initial inexperience with grounded theory research, factors associated with my sample, and the realities of applying research practice in the real world. By employing the core tenets of grounded theory - including reflection, constant comparison and theoretical saturation^(245, 246, 252) - and the criteria for research quality established for Charmazian⁽¹⁾ grounded theory, I have managed these limitations to eliminate or minimise their influence.

9.5 Opportunities for future research

Given the lack of literature that explores transition to professional practice or resilience among medical radiation science graduates, there is considerable scope

for further research in these areas alone. It may be useful to consider how different organisational structures, educational experiences, demographic characteristics, leadership, and personal and environmental conditions influence experience of transition to professional practice and the manifestation of resilience. Given the social nature of medical radiation science workplaces, it might be useful to explore what capacities, strategies or approaches are necessary for more experienced professionals to promote positive and effective transition to professional practice. The potential for, and nature of, secondary or phased transition to professional practice in the medical radiation sciences or, specifically, in radiation therapy may lead to opportunities for increased transitional support and retention.

Further, my participants have highlighted that, even as their experience grew, new transitions appeared on the horizon, such as changing organisational structure, changing responsibilities, changing practice and changing jobs. This suggests that medical radiation science professionals experience many professional transitions throughout their careers. Better understanding of new graduate transition to professional practice may enable a better appreciation of these later transitions, and this area warrants further investigation.

There was considerable diversity as to the orientation and transition programs encountered by graduates in my study, and it would be intriguing to explore this area further, particularly the contrasting needs of work ready and non-work ready professionals and the effectiveness of programs in addressing them. No published research exists that rigorously evaluates the effectiveness of medical radiation science orientation and transition programs, or the need for or effectiveness of supervised practice programs.

More generally, the limited published research that considers resilience among new graduate caring professionals provides opportunities for further research. The area I find most personally intriguing is the development and implementation of learning strategies to build resilience during professional education, and the subsequent evaluation of their effectiveness in developing capacity for postgraduate practice. Further, there is considerable opportunity to explore what educational initiatives

might be useful for promoting resilience among more experienced medical radiation professionals, and how they might develop the capacities necessary to promote resilience in their more junior colleagues.

I could identify no contemporary, useful literature relating to attrition in the medical radiation sciences. While conversations with my professional acquaintances suggests that there is a perception the profession loses many new and recent graduates, I could find no data that either supported or negated this view. There is an opportunity to explore the scale of direct and indirect attrition from the medical radiation science profession. It may also be useful to explore the experiences of students and graduates who do not successfully complete their transition to professional practice, or who have negative experiences, to determine whether the medical radiation sciences do, indeed, 'eat our young'.

My study has demonstrated that the nature of the contemporary medical radiation science workplace and professional culture remain poorly explored. Without a clear understanding of the working and professional context, it is difficult to fully appreciate more specific processes and phenomena, such as how medical radiation science professionals make decisions or manifest clinical leadership. There is considerable opportunity to explore this cultural landscape, and my study has identified a number of specific areas for future examination, such as the prevalence of a 'boys club' culture, the prevalence of workplace incivility and horizontal violence, and the effectiveness of feedback in medical radiation science professional learning.

Finally, I have developed a substantive theory which has not been tested empirically. While this is entirely appropriate for a grounded theory study, there are opportunities for further research to confirm my theory of resilience as evolution among other groups of medical radiation graduates, to test the theory's applicability among more experienced medical radiation science professionals, and to examine the theory's relevance for other graduate caring professionals.

9.6 Conclusion

Medical radiation science transition to professional practice, previously undescribed in the literature, is a challenging period for beginning professionals. Like other health professionals, new graduates encounter substantial workplace adversity during their transition to professional practice. The purpose of my study was to determine how new professionals experience resilience in their encounters with workplace adversity, how they adapt to the confronting situations they encounter, how they persist through emerging incidents, and how they restore themselves to remain as practising professionals.

Using a Charmazian⁽¹⁾ grounded theory, I have developed a conceptualisation of resilience as evolution that provides, for the first time, a comprehensive theoretical model that explains medical radiation science professionals' resilience, and the processes they employ to adapt, persist and rejuvenate. In doing so, I have provided the first known description of the unique context for medical radiation science transition to professional practice. This transition commences during professional studies and concludes soon after first postgraduate employment. During the transition period, new medical radiation science professionals experience staking their independence, performing with confidence, feeling, and finding their place.

In responding adaptively to workplace adversity during transition to professional practice, my theoretical model explains that beginning medical radiation science professionals experience resilience as a process of evolution, with phases of impact, energising, maintaining momentum, achieving equilibrium, and beating inertia. Generic capabilities such as decision-making, problem-solving, reflection, communication, and critical thinking underpin many of these resilience processes. Resilience can be fostered through support from colleagues, employers and professional organisations. My conceptualisation of resilience as evolution is the first to have been described for medical radiation science graduates, and the first known exploration of resilience in the medical radiation science profession.

Medical radiation science professionals who work with students and new graduates, developers of organisational orientation or transition programs, and medical radiation science educators, employers and professional associations have the opportunity to implement the strategies I recommend to support resilience during transition to professional practice, including providing opportunities to students and graduates that promote the development of the capacities that underpin resilience as evolution. By fostering resilience among beginning professionals, we promote their ability to adapt and persist.

References

1. Charmaz K. Constructing grounded theory: a practical guide through qualitative analysis. London, England: Sage Publications Ltd; 2006.
2. Australian Institute of Health and Welfare. Health and community services labour force. Canberra, ACT: 2009.
3. Australian Institute of Health and Welfare. Australia's health 2012. Canberra, ACT: 2012.
4. Atencio BL, Cohen J, Gorenberg B. Nurse retention: is it worth it? *Nursing Economic\$*. 2003;21(6):262-8.
5. Chang EM, Hancock KM, Johnson A, Daly J, Jackson D. Role stress in nurses: review of related factors and strategies for moving forward. *Nursing & Health Sciences*. 2005;7(1):57-65.
6. Cowin LS, Hengstberger-Sims C. New graduate nurse self-concept and retention: a longitudinal survey. *International Journal of Nursing Studies*. 2006;43(1):59-70.
7. Halfer D, Graf E, Sullivan C. The organizational impact of a new graduate pediatric nurse mentoring program. *Nursing Economic\$*. 2008;26(4):243-9.
8. Hart PL, Brennan JD, De Chesnay M. Resilience in nurses: an integrative review. *Journal of Nursing Management*. 2014;22(6):720-34.
9. Park M, Jones CB. A retention strategy for newly graduated nurses. *Journal for Nurses in Staff Development*. 2010;26(4):142-9.
10. Santucci J. Facilitating the transition into nursing practice: concepts and strategies for mentoring new graduates. *Journal for Nurses in Staff Development*. 2004;20(6):274-84.
11. Creakbaum EL. Creating and implementing a nursing role for RN retention. *Journal for Nurses in Staff Development*. 2011;27(1):25-8.
12. Thomas M. Understanding new graduates: discovering program models that aid in transition and retention. *Nurse Leader*. 2009;7(5):51-3.
13. Almada P, Carafoli K, Flattery JB, French DA, McNamara M. Improving the retention rate of newly graduated nurses. *Journal for Nurses in Staff Development*. 2004;20(6):268-73.
14. Clark CM, Springer PJ. Nurse residents' first-hand accounts on transition to practice. *Nursing Outlook*. 2012;60(4):e2-8.
15. Feng R-F, Tsai Y-F. Socialisation of new graduate nurses to practising nurses. *Journal of Clinical Nursing*. 2012:2064-71.
16. Miller PA, Solomon P, Giacomini M, Abelson J. Experiences of novice physiotherapists adapting to their role in acute care hospitals. *Physiotherapy Canada*. 2005;57(2):145-53.
17. Cubit KA, Ryan B. Tailoring a graduate nurse program to meet the needs of our next generation nurses. *Nurse education today*. 2011;31(1):65-71.
18. Hatler C, Stoffers P, Kelly L, Redding K, Carr LL. Work unit transformation to welcome new graduate nurses: using nurses' wisdom. *Nursing Economic\$*. 2011;29(2):88.
19. Kramer M. Reality shock: why nurses leave nursing. St Louis, Missouri, USA: The C.V. Mosby Company; 1974.
20. Kowalski S, Cross CL. Preliminary outcomes of a local residency programme for new graduate registered nurses. *Journal of Nursing Management*. 2010;18(1):96-104.
21. Calhoun SK. Overcoming: a theory of accelerated second-degree baccalaureate graduate nurse transition to practice: East Tennessee State University; 2010.
22. Duke CR. The lived experience of nurse practitioner graduates' transition to hospital-based practice: East Carolina University; 2010.
23. Foster-Seargeant E. The lived experience of new graduate physiotherapists in the first year of practice: mentorship and program management: Lakehead University; 2001.

24. Kelly J, Ahern K. Preparing nurses for practice: a phenomenological study of the new graduate in Australia. *Journal of Clinical Nursing*. 2009;18(6):910-8.
25. Maddox KR. A case for preceptorship: the role of identity development and acquisition of knowledge and skills in socialization of new graduate nurses during orientation: University of Cincinnati; 2009.
26. Sullivan Palladino J. New graduate nurses' perceptions of their received support in the first year work transition: University of Hartford; 2009.
27. Smith R, Pilling S. Supporting the transition from student to professional: a case study in allied health. *Australian Health Review*. 2008;32(1):134-8.
28. Tryssenaar J, Perkins J. From student to therapist: exploring the first year of practice. *American Journal of Occupational Therapy*. 2001;55(1):19-27.
29. van der Putten D. The lived experience of newly qualified midwives: a qualitative study. *British Journal of Midwifery*. 2008;16(6):348.
30. Parker V, Giles M, Lantry G, McMillan M. New graduate nurses' experiences in their first year of practice. *Nurse education today*. 2014;34(1):150-6.
31. Spence Laschinger HK, Leiter M, Day A, Gilin D. Workplace empowerment, incivility, and burnout: impact on staff nurse recruitment and retention outcomes. *Journal of Nursing Management*. 2009;17(3):302-11.
32. Manzano Garcia G, Ayala Calvo JC. Emotional exhaustion of nursing staff: influence of emotional annoyance and resilience. *International Nursing Review*. 2012;59:101-7.
33. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annual Review of Psychology*. 2001;52:397-422.
34. Girgis A, Hansen V, Goldstein D. Are Australian oncology health professionals burning out? A view from the trenches. *European Journal of Cancer*. 2009;45(3):393-9.
35. Glasberg AL, Eriksson S, Norberg A. Burnout and 'stress of conscience' among healthcare personnel. *Journal of Advanced Nursing*. 2007;57(4):392-403.
36. Mollart L, Skinner VM, Newing C, Foureur M. Factors that may influence midwives work-related stress and burnout. *Women and Birth*. 2013;26(1):26-32.
37. Probst H, Griffiths S. Job satisfaction of therapy radiographers in the UK: results of a phase I qualitative study. *Radiography*. 2009;15(2):146-57.
38. Hooper C, Craig J, Janvrin DR, Wetsel MA, Reimels E. Compassion satisfaction, burnout, and compassion fatigue among emergency nurses compared with nurses in other selected inpatient specialties. *Journal of Emergency Nursing*. 2010;36(5):420-7.
39. Cameron F, Brownie S. Enhancing resilience in registered aged care nurses. *Australasian Journal on Ageing*. 2010;29(2):66-71.
40. Yoder EA. Compassion fatigue in nurses. *Applied Nursing Research*. 2010;23:191-7.
41. Bolden L, Cuevas N, Raia L, Meredith E, Prince T. The use of reflective practice in new graduate registered nurses residency program. *Nursing Administration Quarterly*. 2011;35(2):134-9.
42. Health Workforce Australia. Health Workforce Australia annual report 2012-13. Adelaide, SA: 2013.
43. Chang E, Daly J. Managing the transition from student to graduate nurse. In: Chang E, Daly J, editors. *Transitions in nursing: preparing for professional practice*. 3rd ed. Chatswood, NSW: Churchill Livingstone; 2012.
44. Ellerton M-L, Gregor F. A study of transition: the new nurse graduate at 3 months. *The Journal of Continuing Education in Nursing*. 2003;34(3):103-7.
45. Levett-Jones T, FitzGerald M. A review of graduate nurse transitions programs in Australia. *Australian Journal of Advanced Nursing*. 2005;23(2):40-5.
46. Harrison TM, Stewart S, Ball K, Meyer Bratt M. Clinical Focus Program: enhancing the transition of senior nursing students to independent practice. *Journal of Nursing Administration*. 2007;37(6):311-7.

47. North N, Leung W, Lee R. New graduate separations from New Zealand's nursing workforce in the first 5 years after registration: a retrospective cohort analysis of a national administrative data set 2005–2010 *Journal of Advanced Nursing*. 2014;70(8):1813-24.
48. Booth BE. Alarming rise of new graduate nurse attrition. *Journal of Practical Nursing*. 2011;61(1):3-5.
49. Bland Jones C. The costs of nurse turnover: part 1: an economic perspective. *Journal of Nursing Administration*. 2004;34(12):562-70.
50. Bland Jones C. The costs of nurse turnover: part 2: application of the nursing turnover cost calculation methodology. *Journal of Nursing Administration*. 2005;35(1):41-9.
51. Goode CJ, Lynn MR, Krsek C, Bednash GD. Nurse residency programs: an essential requirement for nursing. *Nursing Economic\$*. 2009;27(3):142-7.
52. Hillman L, Foster RR. The impact of a nursing transitions programme on retention and cost savings. *Journal of Nursing Management*. 2011;19(1):50-6.
53. Buffum AR, Brandon DH. Mentoring new nurses in the neonatal intensive care unit: impact on satisfaction and retention. *Journal of Perinatal & Neonatal Nursing*. 2009;23(4):357-62.
54. Cottingham S, DiBartolo MC, Battistoni S, Brown T. Partners in nursing: a mentoring initiative to enhance nurse retention. *Nursing Education Perspectives*. 2011;32(4):250-5.
55. Friedman MI, Cooper AH, Click E, Fitzpatrick JJ. Specialized new graduate RN critical care orientation: retention and financial impact. *Nursing Economic\$*. 2011;29(1):7-14.
56. Kooker BM, Kamikawa C. Successful strategies to improve RN retention and patient outcomes in a large medical centre in Hawaii. *Journal of Clinical Nursing*. 2011;20(1-2):34-9.
57. Marcum EH, West RD. Structured orientation for new graduates: a retention strategy. *Journal for Nurses in Staff Development*. 2004;20(3):118-24.
58. Adams EJ, Cox JM, Adamson BJ, Schofield DJ. Truncated careers in nuclear medicine technology: increased job control may improve retention. *Australian Health Review*. 2011;35(2):124-9.
59. Atyeo J. Factors influencing the workforce attrition of Australian radiation therapists: University of Sydney; 2008.
60. Australian Bureau of Statistics. Australian census of population & housing 2006. Canberra, ACT: Australian Bureau of Statistics, 2006.
61. Australian Health Workforce Advisory Committee. The Australian allied health workforce: an overview of workforce planning issues. Canberra, ACT: Australian Health Workforce Advisory Committee, 2006.
62. Medical Radiation Practice Board of Australia. Medical radiation practitioner registration data: June 2014 2014 [10 August 2014]. Available from: <http://www.medicalradiationpracticeboard.gov.au/About/Statistics.aspx>.
63. Oxford University Press. Oxford dictionaries 2013 [20 Oct 2013]. Available from: <http://oxforddictionaries.com/definition/english/resilience>.
64. Collins. Collins English dictionary 2013 [20 Oct 2013]. Available from: <http://www.collinsdictionary.com/dictionary/english/resilience>.
65. Medical Radiation Practice Board of Australia. Medical radiation practitioner registration data: June 2013 2013 [15 October 2013]. Available from: <http://www.medicalradiationpracticeboard.gov.au/About/Statistics.aspx>.
66. Australian Institute of Radiography. Career 2012 [16 January 2012]. Available from: <http://www.air.asn.au/career.php>.
67. Department of Immigration & Border Protection. Group Unit 2512: Medical Imaging Professionals 2014 [30 October 2014]. Available from: <http://www.immi.gov.au/Work/Pages/asri/medical-imaging-professionals.aspx>.

68. The Royal Australian & New Zealand College of Radiologists. A Career In Radiation Oncology 2014 [30 October 2014]. Available from: <http://www.ranzcr.edu.au/radiation-oncology/a-career-in-radiation-oncology>.
69. Medical Radiation Practice Board of Australia. Medical Radiation Practice Board of Australia 2014 [30 October 2014]. Available from: <http://www.medicalradiationpracticeboard.gov.au/>.
70. Australian Institute of Radiography. Welcome to the Australian Institute of Radiography 2014 [30 October 2014]. Available from: <http://www.air.asn.au/>.
71. Australian and New Zealand Society of Nuclear Medicine. Australian and New Zealand Society of Nuclear Medicine 2014 [30 October 2014]. Available from: <http://www.anzsnm.org.au/cms/about-us/>.
72. Medical Radiation Practice Board of Australia. Accreditation standards: medical radiation practice. Melbourne, Vic2013.
73. Australian Institute of Radiography. Competency based standards for the accredited practitioner. Melbourne, Vic2005.
74. Medical Radiation Practice Board of Australia. Professional capabilities for medical radiation practice. Melbourne, Vic2014.
75. Curtin University. Courses handbook 2014 - Bachelor of Science (Medical Imaging Science) 2014 [12 February 2014]. Available from: <http://handbook.curtin.edu.au/courses/30/309868.html>.
76. Monash University. Bachelor of Radiography and Medical Imaging degree course (honours) 2014 [12 February 2014]. Available from: <http://monash.edu.au/pubs/2014handbooks/courses/4526.html>.
77. Monash University. Master of Medical Radiations 2014 [12 February 2014]. Available from: <http://monash.edu.au/pubs/handbooks/courses/3889.html>.
78. University of South Australia. Bachelor of Medical Radiation Science (Medical Imaging) IBRS 2014 [12 February 2014]. Available from: <http://programs.unisa.edu.au/public/pcms/program.aspx?pageid=181&sid=294>.
79. University of South Australia. Bachelor of Medical Radiation Science (Radiation Therapy) IBRS 2014 [12 February 2014]. Available from: <http://programs.unisa.edu.au/public/pcms/Program.aspx?pageid=181&sid=296&y=2015>.
80. Australian Institute of Radiography. Submission from the Australian Institute of Radiography to the Medical Radiations Practice Board of Australia on supervised practice. Melbourne, Vic2012.
81. Australian Nursing and Midwifery Accreditation Council. Registered nurse accreditation standards 2012. Canberra, ACT2012.
82. Australian and New Zealand Podiatry Accreditation Council. Accreditation standards for podiatry programs for Australia and New Zealand. St Kilda South, Vic2009.
83. Australian Psychology Accreditation Council. Rules for accreditation & accreditation standards for psychology courses. Flinders Lane, Vic2010.
84. Occupational Therapy Council (Australia & New Zealand) Ltd. Accreditation standards for entry-level occupational therapy education programs December 2013. South Perth, WA2013.
85. Malouf N, West S. Fitting in: a pervasive new graduate nurse need. *Nurse education today*. 2011;31(5):488-93.
86. Hughes AJ, Fraser DM. 'SINK or SWIM': the experience of newly qualified midwives in England. *Midwifery*. 2011;27(3):382-6.
87. Keller JL, Meekins K, Summers BL. Pearls and pitfalls of a new graduate academic residency program. *Journal of Nursing Administration*. 2006;36(12):589-98.

88. Krugman M, Bretschneider J, Horn PB, Krsek CA, Moutafis RA, Smith MO. The national post-baccalaureate graduate nurse residency program: A model for excellence in transition to practice. *Journal for Nurses in Staff Development*. 2006;22(4):196-205.
89. Nelson JL, Arjes M, Bushman K, Carlson M, Czaplewski L, Derby K, et al. Correlating novice nurses' perceptions of nursing orientation and first-year support with direct preceptor interventions. *The Journal of Continuing Education in Nursing*. 2012;43(2):59-64.
90. Fenwick J, Hammond A, Raymond J, Smith R, Gray J, Foureur M, et al. Surviving, not thriving: a qualitative study of newly qualified midwives' experience of their transition to practice. *Journal of Clinical Nursing*. 2012;21(13-14):2054-63.
91. Decker S. The lived experience of newly qualified radiographers (1950–1985): an oral history of radiography. *Radiography*. 2009;15(Supplement 1):e72-e7.
92. Wangenstein S, Johansson IS, Nordström G. The first year as a graduate nurse - an experience of growth and development. *Journal of Clinical Nursing*. 2008;17(14):1877-85.
93. Newhouse RP, Hoffman JJ, Suflita J, Hairston DP. Evaluating an innovative program to improve new nurse graduate socialization into the acute healthcare setting. *Nursing Administration Quarterly*. 2007;31(1):50-60.
94. Newton JM, McKenna L. The transitional journey through the graduate year: a focus group study. *International Journal of Nursing Studies*. 2007;44(7):1231-7.
95. Scott ES, Keehner Engelke M, Swanson M. New graduate nurse transitioning: necessary or nice? *Applied Nursing Research*. 2008;21(2):75-83.
96. Shur Coyle J. Development of a model home health nurse internship program for new graduates: key lessons learned. *The Journal of Continuing Education in Nursing*. 2011;42(5):201-14.
97. Thomson S. Transition into practice: a comparison of outcomes between associate- and baccalaureate-prepared nurses participating in a nurse residency program. *Journal for Nurses in Staff Development* 2011;27(6):266-71.
98. Altier ME, Krsek CA. Effects of a 1-year residency program on job satisfaction and retention of new graduate nurses. *Journal for Nurses in Staff Development*. 2006;22(2):70-7.
99. Anderson T, Linden L, Allen M, Gibbs E. New graduate RN work satisfaction after completing an interactive nurse residency. *Journal of Nursing Administration*. 2009;39(4):165-9.
100. Beyea SC, Von Reyn L, Slattery MJ. A nurse residency program for competency development using human patient simulation. *Journal for Nurses in Staff Development*. 2007;23(2):77-82.
101. Bratt MM, Felzer HM. Perceptions of professional practice and work environment of new graduates in a nurse residency program. *The Journal of Continuing Education in Nursing*. 2011;42(12):559-68.
102. Casey K, Fink R, Krugman M, Propst J. The graduate nurse experience. *Journal of Nursing Administration*. 2004;34(6):303-11.
103. Fink R, Krugman M, Casey K, Goode C. The graduate nurse experience: qualitative residency program outcomes. *Journal of Nursing Administration*. 2008;38(7-8):341-8.
104. Forneris SG, Peden-McAlpine C. Creating context for critical thinking in practice: the role of the preceptor. *Journal of Advanced Nursing*. 2009;65(8):1715-24.
105. Fox KC. Mentor program boosts new nurses' satisfaction and lowers turnover rate. *The Journal of Continuing Education in Nursing*. 2010;41(7):311.
106. Komaratat S, Oumtane A. Using a mentorship model to prepare newly graduated nurses for competency. *Journal of Continuing Education in Nursing*. 2009;40(10):475-80.
107. Leigh JA, Douglas CH, Lee K, Douglas MR. A case study of a preceptorship programme in an acute NHS Trust - using the European Foundation for Quality

- Management tool to support clinical practice development. *Journal of Nursing Management*. 2005;13:508-18.
108. Sorensen HAJ, Yankech LR. Precepting in the fast lane: improving critical thinking in new graduate nurses. *Journal of Continuing Education in Nursing*. 2008;39(5):208-16.
 109. Williams CA, Goode CJ, Krsek C, Bednash GD, Lynn MR. Postbaccalaureate nurse residency 1-year outcomes. *Journal of Nursing Administration*. 2007;37(7-8):357-65.
 110. Hoffart N, Waddell A, Young MB. A model of new nurse transition. *Journal of Professional Nursing*. 2011;27(6):334-43.
 111. Doelling J, Levesque M, Clifford J. Transitions into nursing: the new graduate nurse experience. *Nursing Management*. 2010;41(7):12-5.
 112. Fielden JM. Managing the transition of Saudi new graduate nurses into clinical practice in the Kingdom of Saudi Arabia. *Journal of Nursing Management*. 2012;20(1):28-37.
 113. Halfer D. A magnetic strategy for new graduate nurses. *Nursing Economic\$*. 2007;25(1):6-11.
 114. Craig C, Moscato S, Moyce S. New BSN nurses' perspectives on the transition to practice in changing economic times. *Journal of Nursing Administration*. 2012;42(4):202-7.
 115. Hobbs JA. Newly qualified midwives' transition to qualified status and role: assimilating the 'habitus' or reshaping it? *Midwifery*. 2012;28(3):391-9.
 116. Hinton A, Chirgwin S. Nursing education: reducing reality shock for graduate Indigenous nurses - it's all about time. *Australian Journal of Advanced Nursing*. 2010;28(1):60-6.
 117. Boychuk Duchscher J. A process of becoming: the stages of new nursing graduate professional role transition. *The Journal of Continuing Education in Nursing*. 2008;39(10):441-50.
 118. Boychuk Duchscher JE, Cowin LS. The experience of marginalization in new nursing graduates. *Nursing Outlook*. 2004;52(6):289-96.
 119. McCune LM. Supporting new graduate nurses during transition to practice: Royal Roads University; 2004.
 120. Grochow D. From novice to expert: transitioning graduate nurses. *Nursing Management*. 2008;39(3):10,2.
 121. Morrow S. New graduate transitions: leaving the nest, joining the flight. *Journal of Nursing Management*. 2009;17(3):278-87.
 122. Mulholland J, Anionwu EN, Atkins R, Tappern M, Franks PJ. Diversity, attrition and transition into nursing. *Journal of Advanced Nursing*. 2008;64(1):49-59.
 123. Yeh M-C, Yu S. Job stress and intention to quit in newly-graduated nurses during the first three months of work in Taiwan. *Journal of Clinical Nursing*. 2009;18(24):3450-60.
 124. Ulrich B, Krozek C, Early S, Ashlock CH, Africa LM, Carman ML. Improving retention, confidence, and competence of new graduate nurses: results from a 10-year longitudinal database. *Nursing Economic\$*. 2010;28(6):363-75.
 125. Welding NM. Creating a nursing residency: decrease turnover and increase clinical competence. *MEDSURG Nursing*. 2011;20(1):37-40.
 126. Rhéaume A, Clément L, LeBel N. Understanding intention to leave amongst new graduate Canadian nurses: a repeated cross sectional survey. *International Journal of Nursing Studies*. 2011;48(4):490-500.
 127. Salt J, Cummings GG, Profetto-McGrath J. Increasing retention of new graduate nurses: a systematic review of interventions by healthcare organizations. *Journal of Nursing Administration*. 2008;38(6):287-96
 128. Fenwick T. Understanding transitions in professional practice and learning: towards new questions for research. *Journal of Workplace Learning*. 2013;25(6):352-67.

129. Mills JF, Mullins AC. The California nurse mentor project: every nurse deserves a mentor. *Nursing Economic\$*. 2008;26(5):310-5.
130. Costello J, Livett M, Stride PJO, West M, Premaratne M, Thacker D. The seamless transition from student to intern: from theory to practice. *Internal Medicine Journal*. 2010;40(10):728-31.
131. Curren D, Cleland L. Transition to practice - supporting resilience, reform and consumers. *International Journal of Mental Health Nursing*. 2010;19(Supplement 1):A8-A9.
132. Forneris SG, Peden-McAlpine C. Evaluation of a reflective learning intervention to improve critical thinking in novice nurses. *Journal of Advanced Nursing*. 2007;57(4):410-21.
133. Grindel CG, Hagerstrom G. Nurses nurturing nurses: outcomes and lessons learned. *MEDSURG Nursing* 2009;18(3):183-7.
134. Gardner C, Babin A, Romero K, Trull K, Turpin PG. S.T.R.O.N.G.: supporting the retention of new grads. *Nursing Management*. 2009;40(6):9-12.
135. Klein GS. Beyond orientation: developing and retaining new graduate nurses. *Nursing Management*. 2009;40(1):10-3.
136. Eigsti JE. Graduate nurses' perceptions of a critical care nurse internship program. *Journal for Nurses in Staff Development*. 2009;25(4):191-8.
137. Faron S, Poeltler D. Growing our own: inspiring growth and increasing retention through mentoring. *Nursing for Women's Health*. 2007;11(2):139-43.
138. Allen L. On the road to a meaningful, cost-effective orientation program. *Nursing Management*. 2011;42(5):10-2.
139. Cooper CA. Forged in the fire: a case study comparison of the career path of baccalaureate registered nurses and their professional education: University of St Thomas; 2008.
140. Haggerty C, McEldowney R, Wilson D, Holloway K. 'We need to grow our own': an evaluation of nurse entry to practice programmes. *Whitireia Nursing Journal*. 2010(17):16-20.
141. Koffel CS. Graduate nurses' perception of hospital orientation: a case study: Capella University; 2011.
142. Schoessler M, Waldo M. Organizational infrastructure to support development of newly graduated nurses. *Journal for Nurses in Staff Development*. 2006;22(6):286-93.
143. Cheeks P, Dunn PS. A new-graduate program. *Journal for Nurses in Staff Development*. 2010;26(5):223-7.
144. Cook C. The process of becoming: a case study exploration of the transition from student teacher to ESL teacher: McGill University; 2003.
145. Rider LL. Transition to professional practice in baccalaureate nursing: a multiple case study approach using the middle range theory of transition: University of Mary Hardin-Baylor; 2009.
146. Peterson KK. Exploration of transition and socialization periods: an evidence-based educational pamphlet for graduate nurses: Montana State University; 2010.
147. Im E-O. Transitions theory: a trajectory of theoretical development in nursing. *Nursing Outlook*. 2011;59(5):278-85.e2.
148. Romyn DM, Linton N, Giblin C, Hendrickson B, Limacher LH, Murray C, et al. Successful transition of the new graduate nurse. *International Journal of Nursing Education Scholarship*. 2009;6(1):17.
149. Sullivan-Bentz M, Humbert J, Cragg B, Legault F, Laflamme C, Bailey PH, et al. Supporting primary health care nurse practitioners' transition to practice. *Canadian Family Physician*. 2010;56:1176-82.
150. Procter N, Beutel J, Deuter K, Curren D, de Crespigny C, Simon M. The developing role of transition to practice programs for newly graduated mental health nurses. *International Journal of Nursing Practice*. 2011;17(3):254-61.

151. Theobald K, Mitchell M. Mentoring: improving transition to practice. *Australian Journal of Advanced Nursing*. 2002;20(1):27-33.
152. Morley M. Moving from student to new practitioner: the transitional experience. *British Journal of Occupational Therapy*. 2006;69(5):231-3.
153. Nuttall CM. A comparative study evaluating the impact of participation in a VALOR nurse externship on job satisfaction, sense of belonging, role socialization and sense of professionalism: transition from graduate to registered nurse: The University of New Mexico; 2010.
154. Butler MR, Felts J. Tool kit for the staff mentor: strategies for improving retention. *The Journal of Continuing Education in Nursing*. 2006;37(5):210-3.
155. Johnstone M-J, Kanitsaki O, Currie T. The nature and implications of support in graduate nurse transition programs: an Australian study. *Journal of Professional Nursing*. 2007;24(1):46-53.
156. Collins R, Zournazis H. From undergraduate student to graduate registered nurse: tips for surviving the transition. *Australian Journal of Rural Health*. 2005;13(6):369-71.
157. Gregg MF, Wakisaka T, Hayashi C. Nurse managers' strategies for the integration of newly graduated nurses into clinical units in Japan: a qualitative exploratory study. *The Open Nursing Journal*. 2013;7:157-64.
158. Morley M. Contextual factors that have an impact on the transitional experience of newly qualified occupational therapists. *British Journal of Occupational Therapy*. 2009;72(11):507-14.
159. Smith RA, Pilling S. Allied health graduate program: supporting the transition from student to professional in an interdisciplinary program. *Journal of Interprofessional Care*. 2007;21(3):265-76.
160. Hegney DG, Craigie M, Hemsworth D, Osseiran-Moisson R, Aoun S, Francis K, et al. Compassion satisfaction, compassion fatigue, anxiety, depression and stress in registered nurses in Australia: study 1 results. *Journal of Nursing Management*. 2014;22(4):506-18.
161. Meyer RML, Li A, Klaristenfeld J, Gold JI. Pediatric novice nurses: examining compassion fatigue as a mediator between stress exposure and compassion satisfaction, burnout, and job satisfaction. *Journal of Pediatric Nursing*. 2014;In press.
162. Bullock A, Fox F, Barnes R, Doran N, Hardyman W, Moss D, et al. Transitions in medicine: trainee doctor stress and support mechanisms. *Journal of Workplace Learning*. 2013;25(6):368-82.
163. Goodwin M. From school to practice: the meaning of nurse's holistic comfort: University of Nevada; 2009.
164. Zeller EL, Doutrich D, Guido GW, Hoeksel R. A culture of mutual support: discovering why new nurses stay in nursing. *The Journal of Continuing Education in Nursing*. 2011;42(9):409-14.
165. Rutter M. Resilience in the face of adversity: protective factors and resistance to psychiatric disorder. *British Journal of Psychiatry*. 1985;147(6):598-611.
166. Rutter M. Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*. 1987;57(3):316-31.
167. Greene RE. Chapter 1 - Human behavior theory: a resilience orientation. In: Greene RE, editor. *Resiliency: an integrated approach to practice, policy and research*. 2nd ed. Washington, DC, USA: NASW Press; 2012. p. 1-28.
168. Walsh F. Family resilience: a framework for clinical practice. *Family Process*. 2003;42(1):1-18.
169. Tusaie K, Dyer J. Resilience: a historical review of the construct. *Holistic Nursing Practice*. 2004;18(1):3-8.
170. Gillespie BM, Chaboyer W, Wallis M. Development of a theoretically derived model of resilience through concept analysis. *Contemporary Nurse*. 2007;25(1-2):124-35.

171. Connor KM, Davidson JRT. Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*. 2003;18:76-82.
172. Richardson GE, Neiger BL, Jensen S, Kumpfer KL. The resiliency model. *Health Education*. 1990;21(6):33-9.
173. Beale Spencer M, Harpalani V, Cassidy E, Jacobs CY, Donde S, Goss TN, et al. Chapter 16 - Understanding vulnerability and resilience from a normative developmental perspective: implications for racially and ethnically diverse youth. In: Cicchetti D, Cohen DJ, editors. *Developmental psychopathology: volume 1 theory and method*. 2nd ed. Hoboken, New Jersey, USA: John Wiley & Sons Inc; 2006. p. 627-72.
174. Block J, Kremen A. IQ and ego-resiliency: conceptual and empirical connections and separateness. *Journal of Personality and Social Psychology*. 1996;70(2):349-61.
175. Gu Q, Day C. Teachers resilience: a necessary condition for effectiveness. *Teaching and Teacher Education*. 2007;23(8):1302-16.
176. Rutter M. Implications of resilience concepts for scientific understanding. *Annals of the New York Academy of Sciences*. 2006;1094(1):1-12.
177. Jackson D, Firtko A, Edenborough M. Personal resilience as a strategy for surviving and thriving in the face of workplace adversity: a literature review. *Journal of Advanced Nursing*. 2007;60(1):1-9.
178. Glass N. An investigation of nurses' and midwives' academic/clinical workplaces: a healing model to improve and sustain hope, optimism, and resilience in professional practice. *Holistic Nursing Practice* 2009;23(3):158-70.
179. Warelow P, Edward K-I. Caring as a resilient practice in mental health nursing. *International Journal of Mental Health Nursing*. 2007;16(2):132-5.
180. Kornhaber RA, Wilson A. Building resilience in burns nurses: a descriptive phenomenological inquiry. *Journal of Burn Care and Research* 2011;32(4):481-8.
181. Le Cornu R. Building resilience in pre-service teachers. *Teaching and Teacher Education*. 2009;25(5):717-23.
182. Howard S, Johnson B. Resilient teachers: resisting stress and burnout. *Social Psychology of Education*. 2004;7:399-420.
183. Margalit M. Second-generation research on resilience: social-emotional aspects of children with learning disabilities. *Learning Disabilities Research and Practice*. 2004;19(1):45-8.
184. McAllister M, McKinnon J. The importance of teaching and learning resilience in the health disciplines: a critical review of the literature. *Nurse education today*. 2009;29(4):371-9.
185. Werner EE. Chapter 5 - Protective factors and individual resilience. In: Meisels SJ, Shonkoff JP, editors. *Handbook of early childhood intervention*. New York, USA: Cambridge University Press; 1990. p. 97-116.
186. Richardson GE. The metatheory of resilience and resiliency. *Journal of Clinical Psychology*. 2002;58(3):307-21.
187. Felton BS, Hall J. Conceptualizing resilience in women older than 85. *Journal of Gerontological Nursing*. 2001;27(11):46-53.
188. Turner SG. Resilience and social work practice: three case studies. *Families in Society*. 2001;82(5):441-8.
189. Sinclair V, Wallston K. The development and psychometric evaluation of the Brief Resilient Coping Scale. *Assessment*. 2004;11(1):94-101.
190. Edward K-I. The phenomenon of resilience in crisis care mental health clinicians. *International Journal of Mental Health Nursing*. 2005;14:142-8.
191. Ungar M. Resilience across cultures. *British Journal of Social Work*. 2006;38(2):218-35.

192. Jordan JV. Chapter 5 - Relational resilience in girls. In: Goldstein S, Brooks RB, editors. *Handbook of resilience in children*. 2nd ed. New York, USA: Springer Science + Business Media; 2013. p. 73-85.
193. Kearns S, McArdle K. 'Doing it right?'- accessing the narratives of identity of newly qualified social workers through the lens of resilience: 'I am, I have, I can'. *Child and Family Social Work*. 2011.
194. Grotberg E. *A guide to promoting resilience in children: strengthening the human spirit*. The Hague, The Netherlands: Bernard van Leer Foundation; 1995.
195. Mansfield CF, Beltman S, Price A, McConney A. "Don't sweat the small stuff:" understanding teacher resilience at the chalkface. *Teaching and Teacher Education*. 2012;28(3):357-67.
196. Gillespie BM, Chaboyer W, Wallis M, Grimbeek P. Resilience in the operating room: developing and testing of a resilience model. *Journal of Advanced Nursing*. 2007;59(4):427-38.
197. Grafton E, Gillespie B, Henderson S. Resilience: the power within. *Oncology Nursing Forum*. 2010;37(6):698-705.
198. Polk LV. Toward a middle-range theory of resilience. *Advances in Nursing Science*. 1997;19(3):1-13.
199. Hodges HF, Keeley AC, Grier EC. Professional resilience, practice longevity, and Parse's Theory for baccalaureate education. *Journal of Nursing Education*. 2005;44(12):548-54.
200. Hodges HF, Keeley AC, Troyan PJ. Professional resilience in baccalaureate-prepared acute care nurses: first steps. *Nursing Education Perspectives*. 2008;29(2):80-9.
201. Hodges HF, Troyan PJ, Keeley AC. Career persistence in baccalaureate-prepared acute care nurses. *Journal of Nursing Scholarship*. 2010;42(1):83-91.
202. Dyer JG, Minton McGuinness T. Resilience: analysis of the concept. *Archives of Psychiatric Nursing*. 1996;10(5):276-82.
203. Hartling LM. Strengthening resilience in a risky world: it's all about relationships. *Women and Therapy*. 2008;31(2-4):51-70.
204. Gillespie BM, Chaboyer W, Wallis M. The influence of personal characteristics on the resilience of operating room nurses: a predictor study. *International Journal of Nursing Studies*. 2009;46(7):968-76.
205. Jensen PM, Trollope-Kumar K, Waters H, Everson J. Building physician resilience. *Canadian Family Physician*. 2008;54:722-9.
206. Walsh F. Crisis, trauma, and challenge: a relational resilience approach for healing, transformation, and growth. *Smith College Studies in Social Work*. 2003;74(1):49-71.
207. Glantz MD, Sloboda Z. Chapter 6 - Analysis and reconceptualization of resilience. In: Glantz MD, Johnson JL, editors. *Resilience and development: positive life adaptations*. New York, USA: Kluwer Academic / Plenum Publishers; 1999. p. 109-26.
208. Tarter RE, Vanyukov M. Chapter 4 - Re-visiting the validity of the construct of resilience. In: Glantz MD, Johnson JL, editors. *Resilience and development: positive life adaptations*. New York, USA: Kluwer Academic / Plenum Publishers; 1999. p. 85-100.
209. Denz-Penhey H, Murdoch JC. Personal resiliency: serious diagnosis and prognosis with unexpected quality outcomes. *Qualitative Health Research*. 2008;18(3):391-404.
210. Jordan JV. A relational-cultural model: healing through mutual empathy. *Bulletin of the Menninger Clinic*. 2001;65(1):92-103.
211. Jordan JV. Recent developments in relational-cultural theory. *Women and Therapy*. 2008;31(2-4):1-4.
212. Kaplan HB. Chapter 3 - Toward an understanding of resilience: a critical review of definitions and models. In: Glantz MD, Johnson JL, editors. *Resilience and development:*

- positive life adaptations. New York, USA: Kluwer Academic / Plenum Publishers; 1999. p. 17-83.
213. Lyons JA. Strategies for assessing the potential for positive adjustment following trauma. *Journal of Traumatic Stress*. 1991;4(1):93-111.
214. Greene RE, Conrad AP. Chapter 2 - Resilience: basic assumptions and terms. In: Greene RE, editor. *Resiliency: an integrated approach to practice, policy and research*. 2nd ed. Washington, DC, USA: NASW Press; 2012. p. 29-62.
215. Beddoe L, Davys A, Adamson C. Educating resilient practitioners. *Social Work Education*. 2011;1-18.
216. Kaplan HB. Chapter 3 - Reconceptualizing resilience. In: Goldstein S, Brooks RB, editors. *Handbook of resilience in children*. 2nd ed. New York, USA: Springer Science + Business Media; 2013. p. 39-55.
217. Zander M, Hutton A, King L. Coping and resilience factors in pediatric oncology nurses. *Journal of Pediatric Oncology Nursing*. 2010;27(2):94-108.
218. Carver C. Resilience and thriving: issues, models, and linkages. *Journal of Social Issues*. 1998;54(2):245-66.
219. Mealer M, Jones J, Newman J, McFann KK, Rothbaum B, Moss M. The presence of resilience is associated with a healthier psychological profile in intensive care unit (ICU) nurses: results of a national survey. *International Journal of Nursing Studies*. 2012;49(3):292-9.
220. Beltman S, Mansfield C, Price A. Thriving not just surviving: a review of research on teacher resilience. *Educational Research Review*. 2011;6(3):185-207.
221. Castro AJ, Kelly J, Shih M. Resilience strategies for new teachers in high-needs areas. *Teaching and Teacher Education*. 2010;26(3):622-9.
222. Barton WH. Chapter 4 - Resilience research: methodological square pegs and theoretical black holes. In: Greene RE, editor. *Resiliency: an integrated approach to practice, policy and research*. 2nd ed. Washington, DC, USA: NASW Press; 2012. p. 95-116.
223. Mallack L. Putting organisational resilience to work. *Industrial Management*. 1998;40(6):8-14.
224. Patterson JH, Collins L, Abbott G. A study of teacher resilience in urban schools. *Journal of Instructional Psychology*. 2004;31(1):3-11.
225. Mealer M, Jones J, Moss M. A qualitative study of resilience and posttraumatic stress disorder in United States ICU nurses. *Intensive Care Medicine*. 2012;38:1445-51.
226. Rothenberg NJ. Chapter 7 - Surviving violence and trauma: resilience in action at the micro level. In: Greene RE, editor. *Resiliency: an integrated approach to practice, policy and research*. 2nd ed. Washington, DC, USA: NASW Press; 2012. p. 159-82.
227. Scholes J. Coping with the professional identity crisis: is building resilience the answer? *International Journal of Nursing Studies*. 2008;45(7):975-8.
228. Armstrong AR, Galligan RF, Critchley CR. Emotional intelligence and psychological resilience to negative life events. *Personality and Individual Differences*. 2011;51(3):331-6.
229. Carver CS, Scheier MF, Weintraub JK. Assessing coping strategies: a theoretically based approach. *Journal of Personality and Social Psychology*. 1989;56(2):267-83.
230. Lazarus RS, Folkman S. *Stress, appraisal, and coping*. New York, USA: Springer Publishing Company; 1984.
231. Humphreys JC. Turnings and adaptations in resilient daughters of battered women. *Journal of Nursing Scholarship*. 2001;33(3):245-51.
232. Holaday M, McPhearson R. Resilience and severe burns. *Journal of Counseling and Development*. 1997;75(5):346-56.
233. Fulmer TT, Cathcart E, Glassman KK, Budin WC, Naegle MA, VanDevanter N. A narrative of the attending nurse model implementation. *Journal of Nursing Education and Practice*. 2014;4(3):94-100.

234. Bryman A. Social research methods. 4th ed. New York, USA: Oxford University Press Inc; 2012.
235. Creswell JW. Qualitative inquiry & research design : choosing among five approaches Thousand Oaks, California, USA: Sage Publications Inc; 2007.
236. Corbin JM, Strauss A. Basics of qualitative research: techniques and procedures for developing grounded theory. 3rd ed. Thousand Oaks, California, USA: Sage Publications Inc; 2008.
237. Streubert HJ, Carpenter DR. Qualitative research in nursing : advancing the humanistic imperative. 5th ed. Philadelphia, Pennsylvania, USA: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2011.
238. Antoniazzi CD. Respect as experienced by registered nurses. *Western Journal of Nursing Research*. 2011;33(6):745-66.
239. Bartolone PD. Perspectives of professional competence by newly licensed, registered nurses: Florida Atlantic University; 2008.
240. Lea J, Cruickshank M. Factors that influence the recruitment and retention of graduate nurses in rural health care facilities. *Collegian*. 2005;12(2):22-7.
241. Seah CH, Mackenzie L, Gamble J. Transition of graduates of the Master of Occupational Therapy to practice. *Australian Occupational Therapy Journal*. 2011;58(2):103-10.
242. Bearman M, Lawson M, Jones A. Participation and progression: new medical graduates entering professional practice. *Advances in health sciences education : theory and practice*. 2011;16(5):627-42.
243. Newell R, Burnard P. Research for evidence-based practice in healthcare. 2nd ed. Chichester, England: Wiley-Blackwell; 2011.
244. Moustakas C. Phenomenological research methods. Thousand Oaks, California, USA: Sage Publications; 1994.
245. Birks M, Mills J. Grounded theory: a practical guide. London, England: Sage Publications Ltd; 2011.
246. Glaser B, Strauss A. The discovery of grounded theory: strategies for qualitative research Chicago, Illinois, USA: Aldine Publishing Company; 1967.
247. Strauss A. Qualitative analysis for social scientists. Cambridge, England: Cambridge University Press; 1987.
248. Paley J. Phenomenology as rhetoric. *Nursing Inquiry*. 2005;12(2):106-16.
249. Paley J. Misinterpretive phenomenology: Heidegger, ontology and nursing research. *Journal of Advanced Nursing*. 1998;27(4):817-24.
250. Barkway P. Michael Crotty and nursing phenomenology: criticism or critique? *Nursing Inquiry*. 2001;8(3):191-5.
251. Crotty M. Phenomenology and nursing research. Melbourne, Vic: Churchill Livingstone; 1996.
252. Charmaz K. Grounded theory - objectivist and constructivist methods. In: Denzin NK, Lincoln YS, editors. *Handbook of qualitative research*. 2nd ed. Thousand Oaks, California, USA: Sage; 2000.
253. Gibbs GR. Analyzing qualitative data. London, England: Sage Publications Ltd; 2007.
254. Glaser B. Basics of grounded theory analysis: emergence vs forcing. Mill Valley, California, USA: Sociology Press; 1992.
255. Charmaz K, Bryant A. Grounded theory. *Qualitative Research*. 2010:406-12.
256. Heath H, Cowley S. Developing a grounded theory approach: a comparison of Glaser and Strauss. *International Journal of Nursing Studies*. 2004;41:141-50.
257. Heath H. Exploring the influences and use of the literature during a grounded theory study. *Journal of Research in Nursing*. 2006;11(6):519-28.

258. National Health & Medical Research Council. National statement on ethical conduct in human research 2007 [5 May 2012].
259. Nagy Hesse-Biber S, Leavy P. The practice of qualitative research 2nd ed. Thousand Oaks, California, USA: Sage Publications Inc; 2011.
260. Kvale S, Brinkmann S. *InterViews : learning the craft of qualitative research interviewing* 2nd ed. Thousand Oaks, California, USA: Sage Publications Inc; 2009.
261. Guest G, Bunce A, Johnson L. How many interviews are enough? *Field Methods*. 2006;18(1):59-82.
262. Baker SE, Edwards R. How many qualitative interviews is enough? Expert voices and early career reflections on sampling and cases in qualitative research. Southampton, UK: National Centre for Research Methods,, 2012.
263. Western Australia University Sector Disposal Authority. Western Australia University Sector Disposal Authority SD2011011. Perth, WA2011.
264. Glaser B. Opening talk by Dr. Barney Glaser at the June 2010 troubleshooting seminar. Mill Valley, California: Sociology Press; 2010.
265. Brackenridge SA. Perceptions of reflective practice among recent Australian radiation therapy graduates. *The Radiographer*. 2007;54(2):18-23.
266. Morse JM, Field PA. *Qualitative research methods for health professionals* 2nd ed. Thousand Oaks, California, USA: Sage Publications Inc; 1995.
267. Baker C, Wuest J, Noerager Stern P. Method slurring: the grounded theory/phenomenology example. *Journal of Advanced Nursing*. 1992;17(11):1355-60.
268. Guba EG, Lincoln YS. Competing paradigms in qualitative research. In: Denzin NK, Lincoln YS, editors. *Handbook of qualitative research*. Thousand Oaks, California, USA: Sage; 1994.
269. Yardley L. Dilemmas in qualitative health research *Psychology and Health* 2000;15(2):215-28.
270. Darwin C. Chapter III - Struggle for existence. *On the origin of the species by means of natural selection*. 5th ed. London, England: John Murray.
271. Walker A, Yong M, Pang L, Fullarton C, Costa B, Dunning AMT. Work readiness of graduate health professionals. *Nurse education today*. 2013;33(2):116-22.
272. Curtin University. *Courses handbook 2014 - Master of Radiation Therapy Science 2014* [12 February 2014]. Available from: <http://futurestudents.curtin.edu.au/all-courses.cfm?cFinderSearch=radiation+therapy&cFinderSearchSubmit=&search=1&type=Go>
273. The University of Newcastle. *Bachelor of Medical Radiation Science (Diagnostic Radiography) 2014* [12 February 2014]. Available from: <http://www.newcastle.edu.au/degrees/bachelor-of-medical-radiation-science-diagnostic-radiography/what-you-will-study>.
274. The University of Newcastle. *Bachelor of Medical Radiation Science (Radiation Therapy) 2014* [12 February 2014]. Available from: <http://www.newcastle.edu.au/degrees/bachelor-of-medical-radiation-science-radiation-therapy/what-you-will-study>.
275. RMIT University. *Master of Medical Radiations (Medical Imaging) 2014* [12 February 2014]. Available from: <http://www.rmit.edu.au/browse/;CURPOS=1?programCode=medical+imaging&STYPE=ENTIRE&CLOCATION=Current+Students%252FAdministration%252FCourse+and+program+information%252FStudent+Program+Guides%2F&QRY=%2Btype%3Dflexible+%2Bsubtype%3Dspg+%2Bnotes%3D%28%2B%28medical+imaging%29+%2B%28%29+%2B%28%29%29+&studyType=&campus=&submit=Search>.
276. RMIT University. *Master of Medical Radiations (Radiation Therapy) 2014* [12 February 2014]. Available from:

<http://www.rmit.edu.au/browse/;CURPOS=1?programCode=radiation+therapy&STYPE=EN TIRE&CLOCATION=Current+Students%252FAdministration%252FCourse+and+program+information%252FStudent+Program+Guides%2F&QRY=%2Btype%3Dflexible+%2Bsubtype%3D spg+%2Bnotes%3D%28%2B%28radiation+therapy%29+%2B%28%29+%2B%28%29%29+&studyType=&campus=&submit=Search>.

277. Barnitt R, Salmond R. Fitness for purpose of occupational therapy graduates: two different perspectives. *British Journal of Occupational Therapy*. 2000;63(9):443-8.

278. Maxwell KL. The Implementation of the UHC/AACN new graduate nurse residency program in a community hospital. *Nursing Clinics of North America*. 2011;46(1):27-33.

279. Duddle M, Boughton M. Intraprofessional relations in nursing. *Journal of Advanced Nursing*. 2007;59(1):29-37.

280. Wing T, Regan S, Spence Laschinger HK. The influence of empowerment and incivility on the mental health of new graduate nurses. *Journal of Nursing Management*. 2013;1-12.

281. Fergusson L, Shahtahmasebi S. Enabling new graduate midwives to manage emergencies confidently: a pilot study. *Dynamics of Human Health*. 2014;1(2):1-9.

282. Giallonardo LM, Wong CA, Iwasiw CL. Authentic leadership of preceptors: predictor of new graduate nurses' work engagement and job satisfaction. *Journal of Nursing Management*. 2010;18(8):993-1003.

283. Morley M. An evaluation of a preceptorship programme for newly qualified occupational therapists. *British Journal of Occupational Therapy*. 2009;72(9):384-92.

284. Black LL, Jensen GM, Mostrom E, Perkins J, Ritzline PD, Hayward L, et al. The first year of practice: an investigation of the professional learning and development of promising novice physical therapists. *Physical Therapy*. 2010;90(12):1758-73.

285. Davis D, Foureur M, Clements V, Brodie P, Herbison P. The self reported confidence of newly graduated midwives before and after their first year of practice in Sydney, Australia. *Women and Birth*. 2012;25(3):e1-10.

286. Crosswell L, Beutel DA, editors. A way forward to managing the transition to professional practice for beginning teachers. 3rd International Conference on Teaching and Learning 2011; 2011; Penang, Malaysia.

287. Maxwell C, Brigham L, Logan J, Smith A. Challenges facing newly qualified community nurses: a qualitative study. *British Journal of Community Nursing*. 2011;16(9):428-34.

288. Benner P. From novice to expert: excellence and power in clinical nursing practice. Menlo Park, California, USA: Addison Wesley; 1984.

289. Hecimovich M, Volet S. Development of professional confidence in health education: research evidence of the impact of guided practice into the profession. *Health Education*. 2011;111(3):177-97.

290. Holland K, Middleton L, Uys L. Professional confidence: a concept analysis. *Scandinavian Journal of Occupational Therapy*. 2012;19(2):214-24.

291. Jindal-Snape D, Holmes EA. A longitudinal study exploring perspectives of participants regarding reflective practice during their transition from higher education to professional practice. *Reflective Practice*. 2009;10(2):219-32.

292. Chandler GE. Succeeding in the first year of practice. *Journal for Nurses in Staff Development*. 2012;28(3):103-7.

293. Beldham-Collins R, Milinkovic D. A new graduate education program in radiation therapy. *Radiography*. 2009;15(1):26-33.

294. Phillips C, Kenny A, Esterman A, Smith C. A secondary data analysis examining the needs of graduate nurses in their transition to a new role. *Nurse Education in Practice*. 2014;14(2):106-11.

295. Sutton G, Griffin MA. Transition from student to practitioner: the role of expectations, values and personality. *British Journal of Occupational Therapy*. 2000;63(8):380-8.
296. Ebright PR, Urden L, Patterson E, Chalko B. Themes surrounding novice nurse near-miss and adverse-event situations. *Journal of Nursing Administration*. 2004;34(11):531-8.
297. Gaynor L, Gallasch T, Yorkston E, Stewart S, Turner C. Where do all the undergraduate and new graduate nurses go and why? A search for empirical research evidence. *Australian Journal of Advanced Nursing*. 2006;24(2):26-32.
298. Happell B, Gough K. Employment through residency programs: a strategy to address the workforce crisis in psychiatric nursing. *Archives of Psychiatric Nursing*. 2007;21(3):126-31.
299. Beecroft PC, Dorey F, Wenten M. Turnover intention in new graduate nurses: a multivariate analysis. *Journal of Advanced Nursing*. 2008;62(1):41-52.
300. Lavoie-Tremblay M, O'Brien-Pallas L, Gelinas C, Desforges N, Marchionni C. Addressing the turnover issue among new nurses from a generational viewpoint. *Journal of Nursing Management*. 2008;16(6):724-33.
301. Lavoie-Tremblay M, Wright D, Desforges N, Gelinas C, Marchionni C, Drevniok U. Creating a healthy workplace for new-generation nurses. *Journal of Nursing Scholarship*. 2008;40(3):290-7.
302. Reinsvold S. Nursing residency: reversing the cycle of new graduate RN turnover. *Nurse Leader*. 2008;6(6):46-9.
303. Kovner CT, Brewer CS, Greene W, Fairchild S. Understanding new registered nurses' intent to stay at their jobs. *Nursing Economic\$*. 2009;27(2):81-98.
304. Peterson JZ. Job stress, job satisfaction and intention to leave among new nurses: University of Toronto; 2009.
305. Lavoie-Tremblay M, Paquet M, Marchionni C, Drevniok U. Turnover intention among new nurses: a generational perspective. *Journal for Nurses in Staff Development*. 2011;27(1):39-45.
306. Trassare HL. Exploring the experience of the new graduate nurse: San Diego State University; 2011.
307. Unruh LY, Nooney J. Newly licensed registered nurses' perceptions of job difficulties, demands and control: individual and organizational predictors. *Journal of Nursing Management*. 2011;19(5):572-84.
308. Wright D, Lavoie-Tremblay M, Drevniok U, Racine H, Savignac H. Relational dimensions of a positive integration experience for new mental health nurses. *Archives of Psychiatric Nursing*. 2011;25(3):164-73.
309. Clendon J, Walker L. 'Being young': a qualitative study of younger nurses' experiences in the workplace. *International Nursing Review*. 2012;59(4):555-61.
310. Lamdin RJ. The professional socialisation of medical students through the preclinical to clinical transition: The University of Auckland; 2006.
311. Phillips C, Kenny A, Smith C, Esterman A. Pre-registration paid employment choice: the views of newly qualified nurses. *Nurse education today*. 2012;32(1):10-4.
312. Weaver Moore L, Kelly CW, Schmidt S, Miller M, Reynolds M. Second-degree prelicensure master's graduates and their transition to practice. *Journal of Nursing Administration*. 2010;40(5):219-25.
313. Thompson PM. Professional entry experiences of primary care physicians: a narrative inquiry: The Pennsylvania State University; 2008.
314. Department of Human Services. Medicare Australia Statistics I3 Diagnostic Radiology processed from July 2012 to June 2014 2014 [21 July 2014]. Available from: http://www.medicareaustralia.gov.au/cgi-bin/broker.exe?_PROGRAM=sas.mbs_group_aged_gender_report.sas&_SERVICE=default&

_DEBUG=0&VAR=services&STAT=count&PTYPE=finyear&START_DT=201207&END_DT=201406&RPT_FMT=by+state&GROUP=grp=l3.

315. Department of Human Services. Medicare Australia Statistics T2 Radiation Oncology processed from July 2012 to June 2014 [21 July 2014]. Available from: http://www.medicareaustralia.gov.au/cgi-bin/broker.exe?_PROGRAM=sas.mbs_group_aged_gender_report.sas&_SERVICE=default&_DEBUG=0&VAR=services&STAT=count&PTYPE=finyear&START_DT=201207&END_DT=201406&RPT_FMT=by+state&GROUP=grp=T2.

316. Khong P-L, Ringertz H, Donoghue V, Frush D, Rehani M, Appelgate K, et al. Radiological protection in paediatric diagnostic and interventional radiology: ICRP publication 121. *Annals of the ICRP*. 2013;42(2).

317. Eckert SA. Preparation, teacher efficacy and retention: how novice teachers negotiate urban schools The Pennsylvania State University; 2011.

318. Davenport LA, Hall JM. To cry or not to cry: analyzing the dimensions of professional vulnerability. *Journal of Holistic Nursing*. 2011;29(3):180-8.

319. Leiter MP, Price SL, Spence Laschinger HK. Generational differences in distress, attitudes and incivility among nurses. *Journal of Nursing Management*. 2010;18(8):970-80.

320. Meleis AI, editor. *Transitions theory: middle-range and situation-specific theories in nursing research and practice*. New York, USA: Springer Publishing Company; 2010.

321. Jenkins T. A descriptive study to explore the adaptation of culturally and linguistically diverse (CaLD) nurses to the nursing workforce in South Australia: the first three months: University of South Australia; 2009.

322. Australian Health Practitioner Regulation Agency. Guidelines for mandatory notifications. Melbourne, Vic 2014.

323. Bendinelli MR. The relationship of disruptive behaviour and intent to leave current nursing position: California State University San Marcos; 2013.

324. Jackson D, Hutchinson M, Everett B, Mannix J, Peters K, Weaver R, et al. Struggling for legitimacy: nursing students' stories of organisational aggression, resilience and resistance. *Nursing Inquiry*. 2011;18(2):102-10.

325. Doherty G, Stagnitti K, Schoo AMM. From student to therapist: follow up of a first cohort of Bachelor of Occupational Therapy students. *Australian Occupational Therapy Journal*. 2009;56(5):341-9.

326. Medical Radiation Practice Board of Australia. Medical radiation practitioner registration data: October 2013 2013 [12 January 2014]. Available from: <http://www.medicalradiationpracticeboard.gov.au/About/Statistics.aspx>.

327. Medical Radiation Practice Board of Australia. Medical radiation practitioner registration data: September 2012 2012 [15 October 2013]. Available from: <http://www.medicalradiationpracticeboard.gov.au/About/Statistics.aspx>.

328. Killion JP, Todnem GR. A process for personal theory building. *Educational Leadership*. 1991;48(6):14-6.

329. Schön DA. *The reflective practitioner : how professionals think in action*. New York, USA: Basic Books; 1983.

330. Baird M, Winter J. Reflection, practice and clinical education. In: Rose M, Best D, editors. *Transforming practice through clinical education, professional supervision and mentoring*. Sydney, NSW: Elsevier Churchill Livingstone; 2005. p. 143-59.

331. Adriaenssens J, De Gucht V, Maes S. Causes and consequences of occupational stress in emergency nurses, a longitudinal study. *Journal of Nursing Management*. 2013;1-13.


332. Bakker AB, Demerouti E, Euwema MC. Job resources buffer the impact of job demands on burnout. *Journal of Occupational Health Psychology*. 2005;10(2):170-80.

333. Cancer Council Australia. Understanding radiotherapy. Melbourne, Vic: Cancer Council Australia; 2012.
334. Weiner EL, Swain GR, Wolf B, Gottlieb M. A qualitative study of physicians' own wellness-promotion practices. *Western Journal of Medicine*. 2001;174(1):19-23.
335. Australian Institute of Health and Welfare. 2010 National Drug Strategy household survey report. Canberra, ACT: 2011.
336. Sun W, Fu J, Chang Y, Wang L. Epidemiological study on risk factors for anxiety disorder among Chinese doctors. *Journal of Occupational Health*. 2012;54(1):1-8.
337. Fedoruk M. Belongingness and teamwork. In: Fedoruk M, Hofmeyer A, editors. *Becoming a nurse: transition to practice*. South Melbourne, Vic: Oxford University Press; 2012.
338. Seligman MEP, Pawelski JO. Positive psychology: FAQs. *Psychological Inquiry*. 2003;14(2):159-63.
339. Gill B, Deagan E, McNett M. Expectations, perceptions, and satisfaction of graduate nurses. *Journal for Nurses in Staff Development*. 2010;26(2):E11-E7.
340. Halfer D, Graf E. Graduate nurse perceptions of the work experience. *Nursing Economic\$*. 2006;24(3):150-5.
341. Dewland TA, Hancock LN, Sargeant S, Bailey RKM-A, Sarginson RA, Ng CKC. Study of lone working magnetic resonance technologists in Western Australia. *International Journal of Occupational Medicine and Environmental Health*. 2013;26(6):837-45.
342. Universities Australia. Universities Australia 2014 [6 November 2014]. Available from: <https://www.universitiesaustralia.edu.au/>.
343. Curtin University. Curtin calendar 2014 [6 November 2014]. Available from: https://hr.curtin.edu.au/curtin_calendar.cfm.
344. The University of Newcastle. Christmas closedown 2014 [6 November 2014]. Available from: <http://www.newcastle.edu.au/current-staff/working-here/benefits-and-conditions/leave/christmas-closedown>.
345. Monash University. University closedown and holidays 2014 [6 November 2014]. Available from: <http://adm.monash.edu.au/human-resources/calendar/holiday-closedown.html>.
346. RMIT University. Staff public holidays 2014 [6 November 2014]. Available from: http://www.rmit.edu.au/browse;ID=kwfxuowpeybn1;STATUS=A;PAGE_AUTHOR=Penny%20Mercer;SECTION=1;
347. University of Sydney. Important dates 2014 2014 [6 November 2014]. Available from: <http://sydney.edu.au/about/dates/>.
348. Reserve Bank of Australia. The Australian economy and financial markets - November 2014. Sydney, NSW2014.
349. McLaughlin JE, Griffin LM, Esserman DA, Davidson CA, Glatt DM, Roth MT, et al. Pharmacy student engagement, performance, and perception in a flipped satellite classroom. *American Journal of Pharmaceutical Education*. 2013;77(9):196.
350. McDonald K, Smith CM. The flipped classroom for professional development: part I - benefits and strategies. *The Journal of Continuing Education in Nursing*. 2013;44(10):437-8.
351. Missildine K, Fountain R, Summers L, Gosselin K. Flipping the classroom to improve student performance and satisfaction. *Journal of Nursing Education*. 2013;52(10):597-9.
352. Stoner SCP, Fincham JEP. Faculty role in classroom engagement and attendance. *American Journal of Pharmaceutical Education*. 2012;76(5):1-75.
353. Dyrbye LN, Thomas MR, Huntington JL, Lawson KL, Novotny PJ, Sloan JA, et al. Personal life events and medical student burnout: a multicenter study. *Academic Medicine*. 2006;81(4):374-84.

354. Chen J-Y. Problem-based learning: developing resilience in nursing students. The Kaohsiung Journal of Medical Sciences. 2011;27(6):230-3.
355. Harris M. Scaffolding reflective journal writing – negotiating power, play and position. Nurse education today. 2008;28(3):314-26.
356. Maresse S, McKay J, Grellier J. Supporting and promoting reflective thinking processes in an undergraduate Medical Imaging program. In: Brown N, Jones SM, Adam A, editors. Research and Development in Higher Education: Connections in Higher Education; Hobart, Tas2012. p. 160-9.
357. McDonald G, Jackson D, Wilkes L, Vickers MH. A work-based educational intervention to support the development of personal resilience in nurses and midwives. Nurse education today. 2012;32(4):378-84.
358. Oliver B. Assuring graduate outcomes. Surrey Hills, NSW: Australian Learning and Teaching Council, 2011.
359. Ryan RM, Deci EL, Grolnick WS, La Guardia JG. Chapter 20 - The significance of autonomy and autonomy support in psychological development and psychopathology. In: Cicchetti D, Cohen DJ, editors. Developmental psychopathology: volume 1 theory and method. 2nd ed. Hoboken, New Jersey, USA: John Wiley & Sons Inc; 2006. p. 795-849.
360. University of Sydney Institute for Teaching and Learning. The national graduate attributes project 2014 [12 February 2014]. Available from: <http://www.itl.usyd.edu.au/projects/nationalgap/resources/gamap/introduction.htm>.
361. Armstrong K, Zatzick D, Metzler T, Weiss DS, Marmar CR, Garma S, et al. Debriefing of American Red Cross personnel: pilot study on participants' evaluations and case examples from the 1994 Los Angeles earthquake relief operation. Social Work in Health Care. 1998;27(1):33-50.
362. Tannenbaum SI, Goldhaber-Fiebert SN. Chapter 22 - Medical team debriefs: simple, powerful, underutilized. In: Salas E, Frush K, Baker DP, Battles JB, King HB, Wears RL, editors. Improving patient safety through teamwork and team training. Oxford, England: Oxford University Press; 2012. p. 249-53.
363. Armstrong K, Laschinger H, Wong C. Workplace empowerment and magnet hospital characteristics as predictors of patient safety climate. Journal of Nursing Care Quality. 2009;24(1):55-62.
364. Firth-Cozens J. Cultures for improving patient safety through learning: the role of teamwork. Quality in Health Care. 2001;10(4):ii26-ii31.
365. Feng X, Bobay K, Weiss M. Patient safety culture in nursing: a dimensional concept analysis. Journal of Advanced Nursing. 2008;63(3):310-9.
366. Spence Laschinger HK, Leiter MP. The impact of nursing work environments on patient safety outcomes: the mediating role of burnout/engagement. Journal of Nursing Administration. 2006;36(5):259-67.
367. Australian Institute of Radiography. Member Numbers September 2013 E13 15 9 16. Melbourne, Vic2013.
368. Charmaz K. Premises, principles, and practices in qualitative research: revisiting the foundations. Qualitative Health Research. 2004;14(7):976-93.

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Appendix 1 – Ethical approval


Curtin University

Curtin HREC Form

Memorandum

To	Sharon Maresse, Department of Imaging and Applied Physics
From	Miss Linda Teasdale, Manager, Research Ethics
Subject	Protocol Approval RD-29-12
Date	15 June 2012
Copy	Associate Professor Jan McKay, Department of Imaging and Applied Physics

Office of Research and Development
Human Research Ethics Committee

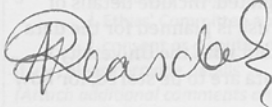
 TELEPHONE 9266 2784
 FACSIMILE 9266 3793
 EMAIL hrec@curtin.edu.au

Thank you for your "Form C Application for Approval of Research with Low Risk (Ethical Requirements)" for the project titled *"The experience of transition to professional practice for Australian medical imaging and radiation therapy graduates"*. On behalf of the Human Research Ethics Committee I am authorised to inform you that the project is approved.

Approval of this project is for a period of twelve months **30-05-12 to 30-05-13**.

The approval number for your project is **RD-29-12**. *Please quote this number in any future correspondence.* If at any time during the twelve months changes/amendments occur, or if a serious or unexpected adverse event occurs, please advise me immediately.

- Your project has the following special conditions: NIL



Miss Linda Teasdale
 Manager, Research Ethics
 Office of Research and Development

Please Note: The following standard statement must be included in the information sheet to participants:
*This study has been approved under Curtin University's process for low-risk Studies (Approval Number **RD-29-12**). This process complies with the National Statement on Ethical Conduct in Human Research (paragraph 5.1.7 and paragraphs 5.1.18-5.1.21). For further information on this study contact the researchers named above or the Curtin University Human Research Ethics Committee. c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth 6845 or by telephoning 9266 9223 or by emailing hrec@curtin.edu.au.*

APPROVED: _____ DATE: _____
 Chair HREC/Executive Officer

CRICOS Provider Code 00301J

Appendix 2 – Participant Information sheet



Medical Imaging Science

GPO Box U1987
Perth Western Australia 6845

Telephone +61 8 9266 7192
Email sharon.brackenridge@curtin.edu.au
Web curtin.edu.au

Project title

The experience of transition to professional practice for Australian medical imaging and radiation therapy graduates

INFORMATION TO PARTICIPANTS

You are invited to participate in this study because you have graduated since December 2011 from an Australian medical imaging or radiation therapy programme and you are currently a practising medical imaging or radiation therapy professional. You should read the information contained in this document carefully and ensure you understand fully prior to signing the written consent form. Please do not sign the consent form if there is any aspect of this information that you do not understand. You are welcome to raise any questions you may have about the project at any time.

This project is being conducted as part of the Principal Investigator's PhD research thesis at the Medical Imaging Science Discipline at Curtin University.

Background

New graduate medical imaging and radiation therapy professionals experience an intense period of change as they make the transition from university to the workplace, and from student to independent professional. Graduates who encounter poor experiences during their transition to practice may quit their workplace or even their profession.

Little is understood of the transition to practice experiences of Australian medical imaging and radiation therapy graduates from the perspectives of the graduates themselves. This project aims to investigate the transition to practice experiences of newly graduated medical imaging and radiation therapy professionals to gain an understanding of the nature of the transition period, and to determine what factors help or hinder success during this challenging time.

Commitment to the project

The project involves your commitment to two face-to-face interviews of approximately 60 minutes duration, spaced three months apart. The interviews will take place at a time and location mutually agreed between you and the Principal Investigator.

Participation in this project is entirely voluntary. You may withdraw your consent to participate at any time and no reason is required for your decision.

Project design and confidentiality

The interviews will take an unstructured format and you will be asked to describe your experiences during your transition from university to the workplace. The interviews will be audio-recorded to optimise interaction between you and the Principal Investigator. Each interview will be transcribed by the Principal Investigator, who will allocate a pseudonym to each participant to mask their identity. Your contact details and the interview transcriptions will be stored securely but separately, to prevent disclosure of your identity. Data is accessible only by the Principal Investigator and Chief Supervisor. Stored items will be destroyed in a confidential manner after five years.

Findings will be presented in a research thesis manuscript and may be incorporated in professional conference presentations or as publications in professional journals. Participants will not be identifiable in any presented or published material.

If you decide to withdraw from the project, all recordings and transcriptions from your interviews will be destroyed in a confidential manner.

Benefits of the project

This project will provide a foundation for understanding the experiences of new graduates during transition to practice. The findings of this study have the potential to support the development and implementation of support strategies for new graduates, and to increase awareness of the factors that hinder new graduates' success.

Your time and commitment as a participant is very valuable and is greatly appreciated.

Risks of the project

There are no significant identifiable risks associated with participation in the project. In the process of discussion about past experiences, participants may re-examine aspects of incidents or memories that may be discomfoting. It is very unlikely that the theme of this project will provoke anything other than minor transitory emotions of this type. Should you experience any discomfoting emotions following the interview discussions, you are encouraged to telephone Lifeline Australia 13 11 14 or beyondblue 1300 22 46 36.

Ethics approval

This study has been approved under Curtin University's process for lower-risk Studies (Approval Number RD-29-12). This process complies with the National Statement on Ethical Conduct in Human Research (Chapter 5.1.7 and Chapters 5.1.18-5.1.21).


For further information on this study contact the researchers named above or the Curtin University Human Research Ethics Committee. c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth 6845 or by telephoning 9266 9223 or by emailing hrec@curtin.edu.au.

Project management and contact information

<p><u>Principal Investigator</u> Mrs Sharon Brackenridge Maresse Sharon.brackenridge@curtin.edu.au 0401 593 693</p>	<p><u>Chief Supervisor</u> Associate Professor Jan McKay j.mckay@curtin.edu.au 08 9266 3151</p>
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Department of Imaging and Applied Physics
School of Science
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Appendix 3 – Participant consent form

 Curtin University

Medical Imaging Science
GPO Box U1987
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Telephone +61 8 9266 7192
Email sharon.brackenridge@curtin.edu.au
Web curtin.edu.au

WRITTEN CONSENT FORM

Project title
The experience of transition to professional practice for Australian medical imaging and radiation therapy graduates

<u>Principal Investigator</u> Mrs Sharon Brackenridge Maresse Sharon.brackenridge@curtin.edu.au 0401 593 693	<u>Chief Supervisor</u> Associate Professor Jan McKay j.mckay@curtin.edu.au 08 9266 3151
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Medical Imaging Science
Department of Imaging and Applied Physics
School of Science
Faculty of Science & Engineering
Curtin University
GPO Box U1987
Perth WA 6845

- I have been informed of and understand the purpose of the research project.
- I have been given the opportunity to ask questions.
- I understand I can withdraw at any time without prejudice.
- I understand that information that may potentially identify me will not be used in any publication or presentation.
- I agree to participate in the project as outlined to me.

Name: _____

Signature: _____

Date: _____

1 of 1

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