Clinical learning spaces: Crucibles for the development of professional practice capabilities.

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I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma at Charles Sturt University or any other educational institution, except where due acknowledgement is made in the thesis. Any contribution made to the research by colleagues with whom I have worked at Charles Sturt University or elsewhere during my candidature is fully acknowledged. I agree that this thesis be accessible for the purpose of study and research in accordance with the normal conditions established by the Executive Director, Library Services or nominee, for the care, loan and reproduction of theses.

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Abstract

The goal of this research was to explore the development of professional practice capabilities in a clinical education context. In this research I have explored development of physiotherapy students' professional practice capabilities as an exemplar of a wider range of professional practices. A hermeneutic approach, incorporating two philosophical hermeneutic studies, was chosen to frame this research. Two text sets were constructed; the first was constructed from theoretical texts and the second from participants’ (physiotherapy students’ and clinical educators’) experiences. The focus of the theoretical study was exploration of the nature of professional practice, the capabilities underpinning professional practice and the influence of workplaces on the development of those capabilities. The focus of the experiential study was exploration of the nature of clinical education and the way it framed the physiotherapy student participants’ development of professional practice capabilities during their clinical placements. By combining my theoretical and experiential understandings I sought to understand clinical education more deeply.

Philosophical hermeneutics produces an interpretation of the research phenomenon. I interpreted professional practice to be a dynamic and experiential phenomenon that is embedded in practice contexts, embodied in and transformed through individual performances and grounded around an ethical aim of doing good for others. This interpretation identified a broad range of capabilities (including abilities and qualities) that extends beyond notions of competence and embraces development of a professional identity that underpins professional practice. This understanding of capability acknowledges that professional practitioners are required to be ready and able to challenge current practices, to act ethically in uncertain and dynamic contexts and to have the courage and insight to constructively challenge and change both themselves and the world for the better.

Through a fine-grained examination of clinical workplaces as education contexts, this research has contributed a rich and deep interpretation of clinical education. Clinical learning spaces formed at the confluences of individual dimensions of clinical workplaces and individual students’ dispositions were found to be complex, fluid, relational and uniquely experienced spaces that sparked powerful and meaningful learning for students. My research revealed that clinical learning spaces could be
envisioned as crucibles that shaped the development of physiotherapy students’ professional practice capabilities.

The key contributions of this research are new knowledge of professional practice capabilities, the nature of clinical learning spaces, and the manner in which professional practice capabilities are developed within those spaces. This knowledge is drawn together in a professional development crucible model. This model allows simultaneous consideration of the complexity of clinical education contexts, the capabilities that underpin professional practice and the manner in which these capabilities are developed and shaped by clinical contexts.

The understanding that clinical learning is shaped by the context or crucible within which it occurs requires a re-imagining of professional and practice-based education pedagogy and curricula. This re-imagined pedagogy moves the focus from acts of teaching within workplaces to student engagement with and participation in workplace activities and relationships. This enhanced understanding of clinical education, not as a set of techniques but as a relational, fluid, composite learning space wherein learning and therapeutic interactions occur and capabilities are catalysed, provides a means to harness the potency of clinical placement experiences to develop physiotherapy graduates capable of flourishing in and constructively contributing to 21st century healthcare contexts.
Chapter 1 Introduction

1.1 Research overview

This thesis reports the findings of research undertaken to deepen understanding of physiotherapy students’ development of professional practice capabilities in a clinical education context. The research was situated in the qualitative paradigm and utilised a Gadamerian philosophical hermeneutic approach. Two text sets constructed for this research strategy, a literature and an experiential text set, were interpreted using hermeneutic strategies of fusion of horizon, hermeneutic circle and dialogue of question and answer.

The focus of the literature text set was exploration of the nature of professional practice, practitioner capabilities underpinning professional practice, and the influence of workplaces on the development of those capabilities, particularly during clinical education. The focus of the experiential text set (derived from interviews and observations in clinical education settings) was exploration of the nature of the clinical education context and the way it was understood to frame the development physiotherapy students’ professional practice capabilities during clinical placements, through the experiences and perspectives of a group of clinical supervisors and physiotherapy students. By combining my theoretical and experiential interpretations I sought to understand clinical education as a place for learning and for the development of students’ professional practice capabilities.

1.1.1 Research topic and rationale

Clinical education plays a critical role in the experiential construction and testing of physiotherapy students’ professional knowledge, forming a core element within contemporary physiotherapy education programs. The clinical environment is the only setting where a raft of professional skills can be taught as an integrated whole (Spencer, 2003). Only through engagement in professional practice can students become aware of and learn to manage the complexity of professional practice (Ranse & Grealish, 2007) and face the consequences of implementing practice in real-life settings. Despite this centrality of clinical education in the development of physiotherapy graduates, globally there is a growing sense of unease regarding the sustainability of historical models of clinical education (Baldry Currens & Bithell, 2000; Casares, Bradley, Jaff, & Lee, 2003). From
an Australian perspective, this is largely due to funding restrictions in the healthcare and education sectors, an exponential growth of the number of universities providing physiotherapy programs and a decreasing availability of patients in clinical placements (Webb et al., 2009). The effect of this last factor is compounded by changing patterns of population demography and health education and changes in healthcare with, for example, decreasing length of hospital stays and increasing use of day surgery, such that fewer clients are accessible by students, while more students compete for this access.

Much research in the field of physiotherapy clinical education has been directed towards exploring (professional) relationships between students and clinical supervisors and the efficacy of different models of clinical supervision, primarily student:supervisor ratios. There is no current consensus on best practice for clinical education (Lekkas et al., 2007). Although the notion of universal best practice is inherently problematic, it is of real value to clinical education to expand research into ways of providing good teaching and learning practices in clinical education, with relevance to the suitability of such practices for given situations. Clinical education is primarily a situated learning phenomenon.

A pivotal component of understanding physiotherapy students’ development of professional practice capabilities in a clinical education context is recognition of the broad range of contextual factors in clinical workplaces that shape students’ learning. Little research has been designed to understand the influence of a broader range of contextual factors on physiotherapy students’ learning in clinical workplaces. This is despite increasing acknowledgement in workplace learning literature of the significant influence of a broad range of workplace factors on novice learning in workplace contexts. In this thesis I argue that clinical education needs to be better understood by those implementing this complex practice, through research into a broad range of workplace factors that shape learning. Such research should draw on the perspective of those engaged in clinical education (clinical supervisors and physiotherapy students) as well as education and practice theorists and researchers.

1.1.2 Research goals and questions
The goal of this research was to explore the development of physiotherapy students’ professional practice capabilities in a clinical education context. In order to deepen my understanding of the topic I engaged with both literature (theoretical and research) texts and experiential texts. Through
my engagement with the literature I sought to deepen my understanding of professional practice capabilities and of how students learn in a clinical education context through engagement in professional practice. Through gathering of experiential texts I pursued a deeper and richer understanding of the influence of workplace factors, including clinical supervisors’ actions, on the development of physiotherapy students’ professional practice capabilities from the perspective of physiotherapy students and clinical supervisors.

My overarching research question was: How do physiotherapy students develop (and how are they helped to develop) professional practice capabilities in clinical education contexts?

To achieve this understanding, five research sub-questions were devised to guide the research process:

1. What are professional practice capabilities (in general and specifically in the context of physiotherapy graduates)?
2. What is the context of professional practice and clinical education within which professional practice capabilities evolve?
3. How does learning through professional practice during clinical education promote the development of professional practice capabilities?
4. What factors in clinical education influence physiotherapy students’ learning and their development of professional practice capabilities?
5. How could clinical supervisors and students build on these research findings to enhance their workplace teaching and learning?

1.1.3 Scope and boundaries of this research

In this thesis I acknowledge the integral contribution of context to all human endeavours and important influence of context on meaning making. Key literature on situated learning is interpreted in Sections 4.3.3 Situated learning theory and 4.3.4 Workplace learning theory.

This research is located in the context of current practice of physiotherapy clinical education, the broader practice of workplace learning and the wider understanding of professional practice and professional practice capabilities. From the broad range of potential research areas this research focuses on contextual influences on physiotherapy students’ development of professional practice capabilities in clinical workplaces. A broad interpretation of context as including physical, socio-cultural and temporal dimensions underpinned this research.
The emphasis of this research is studying how physiotherapy students develop (and are helped to develop) professional practice capabilities in clinical education contexts, by accessing the knowledge of educational theorists and the knowledge and experiences of those currently involved in clinical education. In particular, I sought to identify the influence of a broad range of contextual factors on physiotherapy students’ learning in clinical workplaces.

Although physiotherapy education encompasses learning and professional practice in a number of settings including university classrooms, simulated environments and clinical workplaces, this research is restricted to exploring clinical education in the form of learning activities undertaken in clinical workplaces. In the experiential component of the research, the texts were constructed from interviews and observations of participants studying and practising/supervising, predominantly in the metropolitan centre of Geelong. This centre was chosen because participants were geographically available for the intensive text construction activities required and were considered able to provide data relevant to the research questions due to their direct experience with extended blocks of clinical education. Their practice was believed to be comparable to practice elsewhere in Australia and in other Western countries. This is in a large part due to the global oversight of physiotherapy practice and education by the World Confederation of Physical Therapists. A more detailed description of the regulated nature of physiotherapy practice is provided in Section 1.2 Contextualising the research in contemporary physiotherapy practice.

Although it is important for research to identify good educational and professional practice, this research was not a judgement of the quality of clinical supervision processes. Rather, the aim was to deepen understanding of the manner in which contextual workplace factors shape physiotherapy students’ learning during periods of clinical placement.

1.1.4 Overview of the research approach

An interpretive paradigm was chosen to frame this research for two key reasons. First, the interpretive paradigm places a major focus on interpreting the human world (Denzin & Lincoln, 2000). Second, the interpretive paradigm embraces context as part of the explanation of how human phenomena are shaped and experienced. Thus it was ideally suited to this research in its exploration of the clinical education context and the impact of this context on capability development. A detailed discussion of the research strategy is provided in Chapter 2.
The interpretive paradigm encompasses a number of approaches, from among which philosophical hermeneutics was chosen to guide this research. Philosophical hermeneutics is a method of interpretation well suited to the understanding of human phenomena; it involves a rigorous process of construction and interpretation of texts (including written, visual, experiential and other media or texts). In my research the process involved interpretation of a collated set of existing texts and the construction of a set of experiential texts derived from the reported and observed experiences of the key clinical education participants in this research (i.e. students and clinical educators), plus a meta-interpretation of both sets. Elements drawn from the Gadamerian philosophical hermeneutics approach, particularly the *hermeneutic circle*, *fusion of horizons*, and *dialogue of question and answer*, were used in the text construction and interpretation processes.

The experiential texts were constructed via use of the techniques of focus groups, observation, semi-structured interviews and photo-elicitation. Twelve physiotherapy students who had completed at least one block (4 weeks or more) clinical placement were recruited to the initial focus group component of the study. Another 12 physiotherapy students who were undertaking a block clinical placement were recruited to the observation, semi-structured interview and photo-elicitation components of the research. Twelve clinical supervisors who had supervised at least one block clinical placement were recruited to the semi-structured interview and final focus group components of the research.

1.2 Contextualising the research within contemporary physiotherapy practice

Physiotherapy in the 21st century is practised in a global context. This global professional practice context is one of increasing complexity and rapid change, particularly in the Western healthcare arena and the volatile international higher education context. Within this context, Australian physiotherapy practice and professional education are both highly dynamic and highly regulated (by accreditation and quality assurance procedures and agencies). Contemporary health and education pressures on the delivery of quality clinical education experiences underscore the need for development of clinical education models that nurture physiotherapists capable of flourishing in complex and dynamic healthcare contexts.
1.2.1 Physiotherapy professional practice in a global context

Global changes in technology, communication and the mobility of people have ensured that physiotherapy in the 21st century is practised in a global context. Physiotherapists may choose to practise in an international arena, access global advances in physiotherapy practice through attendance at international conferences and through access to international journals, or participate in collaborative international research partnerships to further physiotherapy practice. Physiotherapy practice is also influenced by global trends in demography, health and wellness, illness and disability, as well as by international changes in the way health and healthcare provision are perceived (Webb et al., 2009).

Physiotherapists practise worldwide, with the World Confederation for Physical Therapy (WCPT) representing more than 350,000 physiotherapists around the globe through its 106 member organisations (WCPT 2013). The WCPT was founded in 1951, Australia being one of 11 founding member organisations (WCPT 2013). While there is a large variation in the standing and practices of the physiotherapy profession among member organisations, the WCPT has produced international standards to guide and support the education and development of the physiotherapy profession around the world (WCPT 2011). Physiotherapy is thus a single profession, practised worldwide with regional variations, with professional entry degree programs, representing the completion of curricula that qualify physiotherapists to use the professional title and to practise as independent professional practitioners.

1.2.2 Physiotherapy professional practice in the Australian context

Physiotherapy in Australia is a dynamic and rapidly evolving profession that has progressed from a repertoire of a limited range of techniques and modalities under medical prescription to fully autonomous practice in a range of specialist areas, each characterised by high levels of clinical reasoning, expertise and skills (Baxter & Nall, 2009). Australian physiotherapy involves a holistic approach to the prevention, diagnosis and therapeutic management of pain and disorders of movement, or optimising function to enhance the health and welfare of the community from an individual or population perspective (Australian Physiotherapy Council (APC), 2006). Australian physiotherapists work in contexts such as acute care, rehabilitation, health promotion and prevention, and embrace
physical, psycho-social and emotional aspects of wellbeing. The practice of physiotherapy in Australia uses a clinical reasoning approach and is informed by physiotherapy-specific research and the general scientific literature (APC, 2006).

In Australia, physiotherapists operate in an increasingly complex and rapidly changing healthcare landscape. While the Australian healthcare system has much strength, it is a system under increasing pressure, particularly as the healthcare needs of the Australian population are rapidly expanding and changing. Australia’s population is growing, aging and living longer, with health expenditure (as a percentage of gross domestic product) rapidly rising (Health Workforce Australia (HWA), 2011). National reports since 2006 foreshadow growing burdens of chronic disease, higher numbers of people needing long-term care and support, and higher community expectations from healthcare services (HWA, 2011).

Physiotherapists in Australia are working in a healthcare system with increasing focus on working as part of a healthcare team to provide an integrated service, delivery of client-centred care, accountability and duty of care, evidence-based practice, quality and continuous improvement processes and Indigenous health (APC, 2006). Apart from increased demand (i.e. quality and quantity) for healthcare, the Australian healthcare system also faces unacceptable inequities in health outcomes and access to services for particular community groups, growing concerns about safety and quality, and workforce shortages and inefficiencies (National Health & Hospitals Reform Commission (NHHRC), 2009). Finally, the Australian healthcare system is a fragmented system, with a complex division of funding responsibilities and performance accountabilities between different levels of government reducing its ability to respond to current and future challenges (NHHRC, 2009). Physiotherapists working in Australia must have the requisite skills and abilities to navigate these current and emerging challenges in order to provide quality healthcare for the individuals with whom they work.

Physiotherapy in Australia is an established and regulated profession, with characteristic professional aspects of clinical practice and education, which is continually evolving in response to changes in health, illness, society and the economic realities of health and disability services. Australian physiotherapists are registered health professionals with university degree qualifications. They are primary contact practitioners who work independently and also within multidisciplinary healthcare teams. In
Australia the Allied Health Practitioner Regulation Agency (AHPRA) manages the registration of health practitioners and students nationwide. AHPRA aims to regulate health practitioners in Australia in the public interest and in so doing develop a competent and flexible health workforce that meets the current and future needs of the Australian community (AHPRA 2011). The Physiotherapy Board of Australia (PBA), with the support of AHPRA, develops standards, codes and guidelines for the physiotherapy profession, handles notifications, complaints and disciplinary hearings and approves accreditation standards and accredited courses of study (PBA, n.d.).

The Australian Physiotherapy Association (APA) is the peak national body representing the physiotherapy profession in Australia (APA, n.d.). All members (registered physiotherapists who join this professional association) of the APA are expected to participate in continuing professional development. Some physiotherapist members undertake a formal specialisation pathway and are recognised as titled members of the APA, or with further experience and education as specialists or Fellows of the Australian College of Physiotherapists (APA, n.d.). The APA Code of Conduct establishes the basis for ethical and professional conduct that meets community expectations and justifies community trust in the standing, judgement and integrity of APA members (APA, 2008). The APA Code of Conduct is founded on the following ethical principles: to respect the rights and autonomy of the individual; to cause no harm and to advance the common good (APA, 2008).

The physiotherapy workforce in Australia is expanding due to increasing numbers of physiotherapy programs graduating increased numbers of physiotherapists each year. Physiotherapy in Australia remains a female-dominated profession. As of June 2013, the physiotherapy workforce in Australia numbered 24,703, of whom 70% were female and 30% male (PBA, 2013).

Occupational stress is prevalent among physiotherapists, with burnout well documented as early as 5 years post-graduation (Struber, 2003). Frequently cited work stressors include feelings of inadequacy regarding patients and patient outcomes, role conflict and ambiguity, lack of management and support, staff shortages, long work hours and high work demands (Struber, 2003).

The future of physiotherapy practice in Australia will be determined by challenges, both external and internal to the profession, and by how well
our education programs equip graduates to face these challenges (Higgs et al., 1999).

1.3 Physiotherapy education in Australia

In Australia, entry-level education of physiotherapists takes place within universities, which offer courses at bachelor, honours, graduate entry masters, masters extended and doctoral levels. Contemporary physiotherapy education in Australia is grounded in research, scholarship and clinical practice (APC, 2013). There are currently more than 20 physiotherapy programs in Australia (APC, 2013). This represents a rapid escalation over the past two decades in the number of programs preparing graduates for the physiotherapy profession. Early in the 1990s there were only six physiotherapy programs in Australia (Chipchase et al., 2006).

Physiotherapy education in Australia is highly regulated. In the first instance, all Australian university courses must comply with the standards provided by the Australian Qualification Framework (AQF). The AQF underpins national regulatory and quality assurance arrangements for education and training through provision of learning outcomes for each AQF level and qualification type (AQF Council 2013). These learning outcomes are constructed as a taxonomy of what graduates are expected to know, understand and be able to do as a result of learning and are expressed in terms of the dimensions of knowledge, skills and the application of knowledge and skills (AQF Council, 2013). For example, graduates at the level of bachelor degree will have broad and coherent knowledge and skills for professional work and/or for further learning (AQF Council, 2013).

In Australia, the title “physiotherapist” is protected under national law: to practise physiotherapy and use the title “physiotherapist”, a person must be registered with AHPRA. Only graduates from a program of study leading to a physiotherapy qualification that has been accredited by the Australian Physiotherapy Council (APC) are eligible for general registration as physiotherapists (APC, 2013). The purpose of accreditation is to assure the quality of education and training in physiotherapy, so the community and the profession can be confident that Australian physiotherapy graduates have the appropriate knowledge, skills, professional attributes and experience for independent practice (APC, 2013). The Australian Standards for Physiotherapy provide the physiotherapy profession with a benchmark for the knowledge, skills and professional attributes of safe and effective entry-level physiotherapists in
Australia (APC, 2006). The Accreditation Standards include elements that embed the Australian Standards for Physiotherapy in entry-level physiotherapy education programs (APC, 2013).

1.3.1 Contemporary clinical education frameworks

Clinical education forms a core element of contemporary physiotherapy education (Jones & Sheppard, 2008). Clinical education programs provide authentic and engaging learning experiences for students, as well as opportunities for them to demonstrate achievement of competencies within a wide range of clinical contexts (Webb et al., 2009). Physiotherapy workplace experiences are highly regulated regarding learning outcomes, length and timing of placements. Clinical education is increasingly acknowledged as transformative for students, clinical educators, host organisations and professions (Rodger, et al., 2008).

Clinical education is the practice of assisting students to acquire the required skills, attitudes and knowledge in practice settings to meet the standards defined by a university or professional accrediting board (Rose & Best, 2005). Students undertake practical client activities in a health setting with the educational support of a qualified physiotherapy clinician who is employed by the health service. These clinicians are usually responsible for clinical assessment and education and are prepared for these roles by universities (McMeekin, 2007). Despite clinicians’ wealth of practice knowledge, increasing workloads, staff shortages and job dissatisfaction often hinder the clinical teaching process (Davey, 2002).

Clinical education has long been acknowledged as a vital and irreplaceable component in the preparation of students for the reality of professional life (McAllister, 1997). Learning in the clinical environment provides students with opportunities to test theories and facts learned in academic study and to refine skills through client interaction under the supervision of qualified personnel (Casares, Bradley, Jaffe, & Lee, 2003). Students can also broaden their practice knowledge through client interaction and the richness provided by clients’ lived experience of their condition.

Students are expected during clinical practice to construct professional knowledge within the complex social context of the workplace and to be accepted by the community of practice (Cope, Cuthbertson & Stoddart, 2000; Redding & Graham, 2006). The goal of clinical education is to expose students to the reality of professional practice that cannot be appreciated from a textbook or simulated in a classroom (Davey, 2002). Further, clinical
education aims to produce independent clinicians capable of self-evaluation, participation in lifelong learning and ethical professional practice, with the potential to inspire the next generation of professional leaders (see e.g. Eraut, 1994).

In contemporary clinical education contexts, workplace pressures on clinical supervisors combined with increased student numbers necessitate the development of alternative models of clinical education (McAllister, 2005). Clinicians in the Australian healthcare system are currently under increased pressure to treat more clients, treat clients with more complex needs, work with more workplace policies and legislative rules, assess and treat in shorter time frames, decrease length of hospital stay, and document accountability and productivity (McAllister 2005). Course requirements, agency policies and work demands do not always allow the flexibility to meet students’ individual learning needs (Cloutier, Shandro, & Hycak, 2004). Thus there is a need to identify alternative, effective models of clinical education capable of developing physiotherapy professionals who can flourish in uncertain, dynamic and increasingly demanding professional contexts.

Contemporary models of clinical education largely focus on one key aspect of clinical education programs, the ratio of clinical supervisors to students. A one student to one clinical supervisor education model is commonly used in physiotherapy clinical education (Baldry Currens & Bithell, 2000; Plack, 2008; Rindflesch et al., 2009). This model of clinical education is based on the supposition that excellent mentor support is key to helping students progress from novice to expert (Field, 2004); thus the model foregrounds the importance of student–clinical educator relationships to the quality of students’ clinical learning. Reported advantages of the one-to-one clinical educator model include increased time for students, more consistent supervision, decreased stress for both students and clinical educators (Stiller, Lynch, Phillips, & Lambert, 2004) and fostering of clinical education skills in final year students (Collins & Mowder-Tinney, 2012). This one to one model of clinical education fails to acknowledge or intentionally utilise the potential significant contribution of practice communities to student learning identified in workplace learning literature.

Collaborative models of clinical education, where one primary supervisor supervises two or more students, have recently received increased attention. In these models students collaborate with each other, develop
teamwork skills, share learning experiences, adopt the role of teacher as well as the student role, take on some of the responsibility for their legal and ethical supervision, and benefit from peer support (Baldry Currens & Bithell, 2003; Dawes & Lambert, 2010; Rindflesch et al., 2009). Students value the opportunity to be autonomous in their learning in preparation for graduation, to share ideas with each other and discuss new experiences with peers (Bartholomai & Fitzgerald, 2007). However, reports of positive effects of collaborative models for clinical supervisors are conflicting. Improvements in clinical supervisors’ productivity and level of supervision experience have been reported (Rindflesch et al., 2009). Yet the extra work, significant planning and administration, and the consequent need to be well-organised, can lead to increased stress levels for clinical supervisors involved in collaborative models of clinical education (Dawes & Lambert, 2010), highlighting a need for caution in the widespread implementation of such models as a solution to current clinical placement shortages. Clinical supervisors required to use collaborative models of clinical education would likely benefit from additional education and strategies to support the implementation of peer-assisted learning (Baldry Currens & Bithell, 2003).

The current shortage of physiotherapy clinical education placements has also led to the use of simulation to replace some of the time physiotherapy students spend in traditional clinical learning environments. Health Workforce Australia1 is working to implement the use of simulated learning environments as a means of increasing the capacity of the healthcare system to provide clinical education across a range of disciplines. Yet to date there is scant evidence of the value of simulated learning environments as an alternative to real-life physiotherapy clinical practice (Gough, Yohannes, Thomas, & Sixsmith, 2013; Silberman, Panzarella, & Melzor, 2013). In particular, exploration of the potential benefits of virtual reality simulated environments is almost non-existent for physiotherapy education (Butina, Brooks, Dominguez, & Mahon, 2013). In contrast, medical professions have over the past 30 years been developing equipment and teaching styles to re-create or simulate patient scenarios for

1 Health Workforce Australia (HWA) was established by the Council of Australian Governments to address the challenges of providing a skilled, flexible and innovative health workforce that meets the needs of the Australian community. HWA is a Commonwealth statutory authority and reports to the Australian Health Ministers’ Conference. HWA advises the Australian Health Ministers’ Conference and the health and higher education sectors on health workforce planning, policy and program initiatives, international recruitment and clinical training.
student education (Blackstock & Jull, 2007) as well as virtual reality scenarios to educate students (Butina, Brooks, Dominguez, & Mahon, 2013).

The benefits of simulation and the manner of integration of simulated experiences in physiotherapy education programs are not well established in the literature (Jones & Sheppard 2008). However, recent studies are beginning to reveal potential benefits of the integration of simulation learning activities into clinical education (Watson et al., 2012). In cardiorespiratory physiotherapy, although simulation has been reported not to improve clinical ability (Jones & Sheppard 2011a), it has been shown to be valuable in the preparation of students for cardio-respiratory practice (Silberman, Panzarella, & Melzer 2013). Importantly, students have reported that while they enjoyed simulated experiences, they also learned the importance of inter-professional communication, discharge planning, and the need to manage the environment for patient safety (Silberman, Panzarella & Melzer 2013). This finding is significant because it contradicts the claim about an ever-present danger of focusing on and developing technical skills in simulated experiences to the exclusion of professional behaviour and interpersonal skills. It also highlights the criticality of creating space for reflection and dialogue in developing learning opportunities through simulation (Stephens, Abbott-Brailey & Platt 2011).

Jones and Sheppard (2011b) have sounded a cautionary note to the widespread introduction of simulation. These authors found that simulated experiences did not improve physiotherapy students’ clinical competence but did increase their self-efficacy. Although simulation shows great promise as an adjunct to clinical education, further investigation is needed to determine the most beneficial ways of implementing simulated activities as well as their potential to replace authentic clinical placement experiences.

In this section I have portrayed the centrality of clinical education experiences within physiotherapy programs. I have also revealed contemporary health and education pressures on the delivery of quality clinical education experiences for the increasing number of physiotherapy students. While there is no gold standard model of clinical education, contemporary research has focused on student–clinical supervisor ratios in clinical workplaces and simulation as a clinical teaching tool. In so doing current literature has privileged acts of teaching in the search for best clinical education practices. In this thesis I do not seek an ultimate model of
clinical education. Instead, I seek a deeper understanding of the manner in which clinical workplace contexts frame physiotherapy students’ learning throughout clinical placements. This exploration of the influence of a broader range of contextual factors on clinical learning is needed to harness the power of clinical education experiences to effectively and efficiently develop physiotherapy graduates capable of flourishing in contemporary and future healthcare contexts.

1.3.2 Physiotherapy education at Charles Sturt University

Charles Sturt University (CSU) provided the context for this study. CSU is committed to achieving excellence in education for the professions and assisting regional communities to thrive and prosper (CSU University Strategy, 2013-2015). The physiotherapy program at CSU is offered as a 4-year Bachelor degree. High-achieving students may be eligible to transfer to integrated Honours for the third and fourth years of the program. The CSU Physiotherapy program is designed to expand professional opportunities for students from regional and remote backgrounds as well as to address the shortage of physiotherapists in non-metropolitan areas.

The physiotherapy program is offered on two regional campuses, Albury and Orange. A map of Australia illustrating the inland location of the Albury and Orange campuses is provided in Figure 1.1. The program has an annual intake of approximately 45 students on each campus. The current curriculum is underpinned by a problem-based approach to teaching and learning. Physiotherapy students undertake workplace-learning experiences (clinical placements) from the first year of the program. These experiences are offered across all years of the program and across a range of settings. Clinical education experiences are scaffolded from introductory placements in first and second year through to competency and capstone placements in fourth year. At the end of fourth year and following successful completion of competency placements, students undertake a capstone placement designed to assist them to transition successfully to the demands of new-graduate practice.

The aim of the CSU physiotherapy program is to develop graduates who, as competent practitioners, are able to work in person-centred healthcare models, inter-professional teams, as well as rural and regional areas. The CSU physiotherapy program also aims to develop graduates with critical thinking skills and the ability to influence their practice worlds for the better.
Figure 1.1 Map of Australia illustrating Albury and Orange CSU campuses

https://mapsengine.google.com/map/edit?mid=zrhGBm2_BDcU.k54blE1pCqx

1.4 The structure of the thesis

This thesis consists of eight chapters. Following this introductory chapter, Chapter 2 presents the methods used in the conduct of this research. Chapters 3, 4, 5, and 6 present the findings of this research. Chapters 3 and 4 present the findings from the literature studies. The findings from the experiential studies are presented in Chapters 5 and 6. Chapter 7 draws together the findings reported in Chapters 3-6 and presents the meta-interpretation of the research in the form of my professional development crucible model. The thesis concludes with Chapter 8 where the research is critiqued, its significance and implications highlighted, and directions for future research are proposed.

The reader is alerted to a number of key writing features in the presentation of this thesis. The terminology used in this thesis reflects an Australian perspective and more specifically the perspective of the research participants. As a result, the terminology reflects specific local practices. In particular, I use the terms physiotherapy rather than physical therapy, patients rather than clients, and clinical supervisor rather than clinical educator, preceptor, fieldwork coordinator, or placement supervisor. Periods of workplace learning experience are referred to as clinical placements rather than practicums, workplace learning, or fieldwork experiences.
The presentation of findings in this thesis is consistent with research conducted in the interpretive paradigm which includes reference to the researcher/author in the first person, reflecting the embedded nature of the researcher in the construction and interpretation of the texts. Consistent with usage in hermeneutics, I refer to texts and text sets rather than data, and the research findings and product are my (the researcher’s) interpretations.
Chapter 2 Guide to enactment of the research

“… all thinking is research, and all research is native, original and with him who carries it on …”

John Dewey (1916, p. 174)

Research conducted in the interpretive paradigm offers researchers rich opportunities to develop innovative strategies to generate new understanding of the human world. The critical use of interpretive strategies provides a means by which matters important to people’s lives can be accessed, expressed and represented by the researcher.

A hermeneutic approach incorporating two philosophical hermeneutic studies was chosen to frame this research to deepen my understanding of the development of physiotherapy students’ professional practice capabilities in a clinical education context. Two text sets were constructed; the first text set was constructed from the literature and the second from the experiences of participants (physiotherapy students and clinical supervisors) using focus groups, interviews, observation and photo elicitation. Three hermeneutic principles, namely fusion of horizons, the hermeneutic circle and dialogue of question and answer, guided the text interpretation. This research was underpinned by an understanding of the philosophical principles informing interpretive research, a vision of the phenomenon under investigation, and the ability to creatively develop and credibly enact ethical, trustworthy and rigorous research strategies.

2.1 Research questions

The goal of this research was to explore the development of physiotherapy students’ professional practice capabilities in a clinical education context. To deepen my understanding of the topic I engaged with both theoretical and experiential texts. While interpreting my literature text set I aimed to deepen my understanding of professional practice capabilities themselves, as well as understanding of how students learn in a clinical education context through engagement in professional practice. When gathering my experiential texts I pursued a deeper and richer understanding of the influence of workplace factors and clinical supervisors’ intentions and actions on the development of physiotherapy students’ professional practice capabilities from the perspective of the students and the clinical
supervisors. By combining my theoretical and experiential understandings I sought to understand clinical education as a learning space where workplace influences, engagement in professional practices, student dispositions and experiences, and clinical supervisors’ intentions and actions combine to shape the development of students’ professional practice capabilities.

My overarching research question was: How do physiotherapy students develop (and how are they helped to develop) professional practice capabilities in clinical education contexts?

To achieve this understanding, five sub-questions were developed to guide the research process. Each relates to the education of entry-level physiotherapists:

1. What are professional practice capabilities (in general and specifically in the context of physiotherapy graduates)?
2. What is the context of professional practice and clinical education within which professional practice capabilities evolve?
3. How does learning through professional practice during clinical education promote the development of professional practice capabilities?
4. What factors in clinical education influence physiotherapy students’ learning and their development of professional practice capabilities?
5. How could clinical supervisors and students build on these research findings to enhance their workplace teaching and learning?

2.2 Choosing to frame this research in the interpretive paradigm

Every research project is framed by a particular philosophical paradigm, the ontological and epistemological perspectives of which guide researchers in the choice of appropriate research approaches and strategies. The research paradigm chosen to guide the research provides the framework within which the research questions are answered (Higgs, Andresen, & Fish, 2004). The congruence between the research paradigm framing the research, the research questions and the research strategies has the potential to enable or constrain knowledge generated through the research (Lincoln & Guba, 1985; Patton, 2002).
This research was conducted within the interpretive paradigm. This paradigm has a central goal of seeking to interpret the human world and in so doing acknowledges the existence of multiple constructed realities (Denzin & Lincoln, 2000). The choice to conduct this research within the interpretive paradigm was based on four premises:

- The first premise is that human behaviour goes beyond that which can be directly observed, which fits with the aim of this research to discover the nature of phenomena as humanly experienced (see e.g. Minichiello, Sullivan, Greenwood, & Axford, 1999).

- The second premise is that human behaviour and experience are inherently contextualised, gaining meaning from and being shaped by that context (Mishler, 1979). As professional knowledge and practice are socially and culturally constructed (Higgs, Richardson, & Abrandt-Dahlgren, 2004), an interpretive paradigm provided an appropriate framework for me to explore contextual influences on physiotherapy students’ development of professional practice capabilities during clinical education.

- The third premise is that due to the complexity of human situatedness, the inclusion of multiple research strategies adds rigour, breadth and richness to interpretive inquiries (Denzin & Lincoln, 2000). Due to the complexity of the research phenomenon an interpretive paradigm provided an appropriate framework for me to deepen and enrich my initial understanding.

- The fourth premise is that the interpretive paradigm offers researchers the opportunity to embrace a person-centred and holistic understanding of human experiences (Holloway & Wheeler, 1996). In this research a holistic and person-centred approach enabled students’ and clinical educators’ voices to be heard, respected and acknowledged on my journey towards deeper understanding of the research phenomenon.

### 2.3 Choice of research approach

The interpretive paradigm encompasses a number of research approaches (including hermeneutics), which share a central goal of seeking to interpret the human world (Higgs, Trede, & Rothwell, 2007). From this collection of approaches, hermeneutics was chosen to guide this research. Hermeneutics is a process involving construction and interpretation of texts that guides researchers actively seeking to develop a deeper understanding of human
phenomena. My research aimed to deepen my understanding of the manner in which physiotherapy students’ professional practice capabilities are developed in a clinical education context through construction and interpretation of two text sets (literature and experiential); that aim fits the goal of hermeneutic research.

I chose to use philosophical hermeneutics to guide my research. This approach provides a framework to guide researchers seeking deeper understanding of a phenomenon through exploration of the perceptions and interpretations of others who have knowledge of the phenomenon of interest. In my research I looked at the phenomenon from two perspectives, that of the literature (theorists and other researchers), and that of people who had experienced it (clinical educators and physiotherapy students).

2.3.1 Philosophical hermeneutics
Hermeneutics is fundamentally an interpretive process, which can be employed to clarify human experiences, to render the obscure more plain or the unclear clear (Bauman, 1978). Philosophical hermeneutics is a philosophy rather than a research method per se; it aims to clarify processes framing the development of understanding (Schwandt, 2000), and represents an appropriate framework to guide interpretive researchers seeking deeper understandings of phenomena as humanly understood and experienced.

Philosophical hermeneutics as described by Gadamer (1989) facilitates the development of deeper understandings of phenomena by explicitly bridging temporal distances that separate interpreters from texts. Gadamer was not concerned with understanding more correctly but with understanding more deeply and truly (Palmer, 1969). Gadamer’s description of the conditions that facilitate the development of deeper understandings provides a philosophical framework for the development of research strategies aimed at understanding human experiences.

Gadamer (1989) described three separate but interrelated concepts that frame the development of deeper understandings of phenomena:

1. Fusion of horizons
2. The hermeneutic circle
3. Dialogue of question and answer
**Fusion of horizons**

Gadamer (1989) contended that the true locus of hermeneutical understanding lay within the tension between a phenomenon’s simultaneous strangeness and familiarity to us. Philosophical hermeneutics serves to bridge this distance between our current understanding or horizon and others’ understanding of the phenomenon we are seeking to understand. Gadamer described our horizon as everything that can be seen from a particular vantage point formed by our historical consciousness and our pre-judgements or prejudices, arguing that this horizon was essential for transposition into another’s horizon to deepen understanding of a phenomenon. The transposition into another’s horizon does not involve subordinating another; rather, it involves rising to a higher universality that overcomes not only our own particularity but also that of the other, suggesting a superior breadth of vision that an individual in the process of deepening understanding acquires. Therefore understanding becomes a *Verschmelzung*, a fusion or melting of horizons between that of the interpreter and the perception of the phenomenon by those who experience it, resulting in the development of a broader vision, a deeper understanding.

Gadamer (1975) maintained that people seeking a deeper understanding do not leave their horizon behind when they interpret, but broaden it so as to fuse it with that of others’ perception of the phenomenon. Therefore, pre-understandings do not present a barrier to the development of deep understanding; in fact they make it possible. It is thus the interpreter’s pre-understanding that determines realisation of a final unified meaning.

> To stand within a tradition does not limit the freedom of knowledge but makes it possible.  
> Gadamer (1975, p. 324)

Having established the pivotal role of pre-understandings in the development of a deep understanding of the phenomenon, Gadamer (1975) also highlighted the importance of identifying and becoming aware of our pre-understandings, as hidden pre-understandings limit our ability to hear and interpret other people’s meanings. Consequently, researchers underpinning their work with Gadamerian philosophy are required to

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2 Gadamer (1989) argued that prejudice does not indicate a false judgement; rather, prejudices can have both positive and negative value. Our prejudices are formed by our belonging to a tradition as well as by our experiences (pp. 271-273).
identify their pre-understandings or horizon, and the influence they as researchers have on the research process.

Finally, Gadamer (1989) identified a dynamic dimension to our horizon in his portrayal of human life as never absolutely bound to one standpoint and hence never having a truly closed horizon; rather, our horizon is something into which we move and that moves with us. The horizon of the present cannot be formed without the past and is continually formed as we test our pre-understandings when we encounter the past and understand the tradition from which we have come. Thus our horizon is continually transformed through our daily encounters with the world.

**Hermeneutic circle**

Schleiermacher originally developed the concept of the hermeneutic circle early in the nineteenth century to explicate the fundamentally human process of understanding dialogue (Palmer, 1969). Schleiermacher described the development of understanding as a referential or circular process achieved through a dialectical interaction between the whole (a phenomenon in its entirety) and the part (a phenomenon’s constituent parts), with each giving the other meaning (Palmer, 1969). Building on this concept, Gadamer (1989) described the hermeneutic circle as an anticipation of meaning in which the movement of understanding is constantly from the whole to the part and back to the whole; understanding is achieved when there is harmony between the parts and the whole. Thus understanding within the hermeneutic circle becomes a referential operation being partly comparative and partly intuitive (Palmer, 1969). The continual movement between the parts and the whole renders transparent that which in its particularity was impervious to our interpretation (Bauman, 1978). While this circular movement between the parts and the whole enables us to deepen our understanding and move closer to the essence of the phenomenon, the process is never complete, prompting some authors to describe the hermeneutic circle as a spiral (Bauman, 1978).

**Dialogue of question and answer**

Understanding is participative, conversational and dialogic and is intimately bound to language, with understanding being achieved through a dialogue of question and answer (Gadamer, 1989; Schwandt, 2000). Dialogue that is intended to reveal something or deepen understanding requires that the phenomenon be broken open by a question. Questioning makes the object and all of its possibilities fluid and opens possibilities of meaning making (Gadamer, 1989) as deeper understandings are negotiated
Implementing a dialogical approach in hermeneutics means adopting an attitude of openness to the text that follows from recognition of the prejudices we bring to interpretation. By being open we not only question the text, but in a sense we allow the text to question us. A question and answer dialogue therefore opens possibilities of meaning-making in the search for deeper understanding of human phenomena.

2.3.2 Rationale for the use of philosophical hermeneutics in this research

Philosophical hermeneutics, following the Gadamerian tradition, was chosen as the philosophical approach to guide this research because the research aim was to deepen my understanding of the phenomenon based on interpretations and perceptions. Hermeneutic principles are appropriate for the study of all human disciplines (Palmer, 1969). Hermeneutics is a creative and deeply interpretive research approach, particularly suitable for the exploration of complex human phenomena from multiple perspectives to produce rich theoretical and experiential interpretations of those phenomena (Paterson & Higgs, 2005). The development of professional practice capabilities in a clinical education context is an example of a complex phenomenon that lends itself particularly well to a philosophical hermeneutic approach. In my research, a philosophical hermeneutic approach provided the means of opening up the enormous complexity of this phenomenon. It also facilitated development of understanding of the various ways in which other people, including theorists, researchers, clinical educators and physiotherapy students, have tried to understand this aspect of professional learning.

As the researcher, I have a professional identity as a physiotherapist, clinical supervisor and academic, which underpinned my entry understanding of contextual workplace influences on the development of physiotherapy students’ professional practice capabilities. To develop deeper understanding of the manner in which context frames student learning I was required to bridge temporal and cultural differences that separated me as interpreter from the perspectives and experiences of others, particularly current physiotherapy students and clinical supervisors. The Gadamerian concept of fusion of horizons provided an appropriate strategy to facilitate the transition from my pre-understandings towards a deeper understanding of my research phenomenon. Acknowledgement of my pre-understandings
also facilitated the identification of new understandings ensuring that participants’ voices were heard.

The complexity and contextual nature of the phenomenon required a research strategy that enabled this complexity to be examined both in its entirety and in its particularity. The use of the hermeneutic circle in this research facilitated my ability to explore this phenomenon in all of its complexity by explicitly illuminating the parts (the many and varied factors shaping the development of students’ development of professional practice capabilities) as well as the relationship of these parts to the whole (development of professional practice capabilities in a clinical education context). I used the hermeneutic circle in an ongoing spiral moving from the parts (both within and between text sets) to the whole (my developing understanding of the phenomenon) and back to the parts, in my effort to gain a truer understanding of my research phenomenon.

As the aim of my research was to understand clinical education as a learning space where multiple influences potentially shape the development of physiotherapy students’ professional practice capabilities, incorporation of a question and answer dialogue strategy enabled me to deepen my understanding of this phenomenon. Questioning opened possibilities of meaning-making and allowed me to explore dimensions of the phenomenon particularly relevant to development of physiotherapy students’ professional practice capabilities. Explicit incorporation of a question and answer strategy also helped me to remain open to the texts, in a sense allowing them to question me.

2.4 Overview of my research design

My research incorporated two philosophical hermeneutic studies. One study explored the writings of education theorists and researchers in relation to the development of professional practice capabilities (within and beyond physiotherapy) and the second study explored the perceptions of physiotherapy students and clinical supervisors who participated in my study. Consistent with research conducted in the philosophical hermeneutic tradition, my deepening understanding represented a fusion of three horizons: (1) my initial horizon, and new understandings developed from dialogue with both (2) the literature and (3) experiential text sets. Throughout this process of text construction and interpretation all three horizons were in a constant state of interplay. Through a constant movement between the parts and the whole of my evolving understanding of my research phenomenon, each horizon contributed to the formation of
a final merged interpretation. The development of new understanding through the fusion of these three horizons is represented in Figure 2.1.

![Figure 2.1 Deepening understanding through a fusion of three horizons](image)

### 2.4.1 Constructing and interpreting my text sets

As outlined above, my research encompassed two philosophical hermeneutic studies in which I constructed and interpreted two distinct but interrelated text sets. The first text set was a literature text set, through which I explored theorists’ and other researchers’ conceptual understandings of professional practice capabilities and their development in a clinical education context. The second was an experiential text set constructed from participating physiotherapy students’ and clinical supervisors’ experiences and perceptions. Through this text set I sought to deepen my understanding by exploration of the actual experiences and perceptions of people engaged in the development of professional practice capabilities in a clinical education context.

These text sets were constructed to answer the main research question and the five sub-questions presented in section 2.1. The literature text set was constructed to address the first three sub-questions. The experiential text set was constructed to address sub-questions three and four. Finally the answer to sub-question five was construed from the answers to the previous questions. Interpretation of the text sets occurred both as part of their construction and following their construction. This process is illustrated in Figure 2.2.

Given the fundamental contribution of pre-understanding to a final unified meaning in hermeneutic research, I identified my entry horizon at the
outset of the research. Identification of my entry horizon facilitated clear recognition and articulation of the contribution of newly accessed literature, as well as my engagement with physiotherapy student and clinical educator participants, to my deepening understanding of the research phenomenon. Identification of my deepening understanding throughout the construction and interpretation stages of both the literature and experiential texts ensured that the participants’ perspectives were respected and acknowledged through clear identification of the generation of new understandings.

**Figure 2.2 Research questions, text sets and corresponding thesis chapters**
Articulation of my initial horizon and the contribution of both the literature and experiential texts to my emergent understanding of the research phenomenon also allowed critical examination of the influence of my biases or pre-judgements throughout text construction and interpretation, further strengthening the rigour of this research. Research that encourages social understanding requires research designs that allow researchers both to reflect on how their values influence research processes and outcomes and to critically examine their frameworks of understanding, looking for tensions and contradictions that might be entailed (Lather, 1991). Therefore, throughout the study I documented in a research journal my biases and assumptions and described how my understandings changed, so that the journey to a final unified meaning was clear, thereby facilitating the generation of trustworthy meaning making and ensuring that participants’ voices were heard (see e.g. Grbich, 1999).

In order to present my changing horizon as a portrayal of a deepening understanding representing a fusion of horizons, my entry horizon first had to be clearly articulated (presented in the following section), followed by clear representation of my evolving understanding throughout the research process, including contribution from both studies in the findings chapters (i.e. study 1 in Chapters 3 & 4 and study 2 in Chapters 5 & 6). My final understanding or interpretation is presented in the discussion chapter (7) and the concluding chapter (8) of this thesis.

2.5 My initial horizon

Identification of my initial understanding of physiotherapy clinical education involved engagement in a reflective journey through personal and professional experiences. This journey was documented in my research journal (see Appendix 2.1 for an example of a relevant section of my journal). My initial understanding of physiotherapy clinical education was formed by my experiences as a physiotherapy student, my professional experiences as a physiotherapist, clinical supervisor and academic, my reading of clinical education literature, as well as my attendance at clinical education workshops.

My journey into and throughout my physiotherapy career has been grounded in a social justice framework and a genuine desire to help people reach their full potential in health, wellbeing and education. An important part of my professional role was supervision of physiotherapy students’
clinical placements. I found that the freshness and enthusiasm for the physiotherapy profession and different knowledge that students brought to physiotherapy practice renewed my energy and enthusiasm for my own practice. This enjoyment and challenge that the students brought to my practice, in combination with my desire to maximise clinical learning outcomes for them, led me to an academic appointment in an undergraduate physiotherapy program. My desire to more deeply understand contextual influences on physiotherapy students’ clinical learning motivated me to undertake this research. As a result of these experiences I developed well-formed views as to the influence of contextual factors within the clinical education environment on students’ clinical learning while undertaking clinical placements.

My reflective journey also assisted identification of the philosophical beliefs underpinning my physiotherapy and clinical education practice. I strongly view physiotherapy as a “people profession” and highly value adherence to the Australian Physiotherapy Association’s ethical guidelines. I am an advocate of person-centred practice both in healthcare and education, and believe clients and students should be central to health and education practice respectively. I also believe that formation of positive relationships and demonstration of care underpin successful clinical education experiences.

As both an academic and a clinical supervisor I placed strong emphasis on the important contribution of reflection to the development and refinement of professional practice capabilities. I used reflective practice in my professional roles of academic, clinical supervisor and physiotherapist to continually improve my practice and outcomes for students and clients. Throughout my career I had observed first-hand the rapidly changing healthcare context, which further emphasised to me the importance of lifelong learning and the development of reflective practice capabilities. As a clinical supervisor I encouraged student reflection through provision of time to reflect immediately following treatment sessions, use of a reflective diary, and by modelling my own reflective practice.

My initial understanding of physiotherapy clinical education was also informed by clinical education literature in medical, allied health and nursing practice in general as well as in physiotherapy practice in particular. Before undertaking this research I had read clinical education texts and research articles that focused on the effectiveness of various clinical education approaches in allied health, nursing and medicine. These
texts generally concentrated on the importance and relevance of Kolb’s (1984) experiential learning theories, as well as the individual learning styles as described by Honey and Mumford (2000). Thus a focused rather than comprehensive discourse, representing mainly allied health, medical and nursing disciplines, informed my entry understanding of the topic.

2.5.1 Fusion of horizons and reflexivity

Reflexivity facilitates a critical attitude to locating the influence of the researcher’s context and subjectivity on study design, text construction and interpretation and presentation of findings (Gough, 2003), and forms an essential part of interpretive research processes (Patton, 2002). Thoughtful self-aware analysis of the inter-subjective dynamics between researcher and participants requires critical self-reflection of the ways in which the researcher’s social background, assumptions, positioning and behaviour influence the research process (Finlay, 2003). Clear articulation of my initial horizon allowed me to identify new understandings emerging from the research and to reflexively identify my influence as a researcher on the research process, to ensure that the participants’ voices were heard.

Taking a reflexive approach throughout the research also facilitated the development of rich insight through examination of personal responses and interpersonal dynamics. As I actively constructed the collection, selection and interpretation of texts, I took care at all stages of the research to ensure that I developed and maintained awareness of the influence of my biases and assumptions on the research process, including examination of my responses to participants and events. Recording and reporting these reflections contributed to the development of a transparent research process, increasing the credibility of the research findings.

Throughout the research I maintained a research journal in which I documented my pre-understandings, experiences in the field, including anxieties, mistakes, confusions, problems, flashes of insight and breakthroughs (see e.g. Spradley, 1979) and how my subjectivities may have influenced the research. A relevant excerpt from my research journal is included in Appendix 2.2. Documentation of my experiences, feelings and ideas in the research journal led to increased awareness both of how I influenced the research process and of how my understanding of the research phenomenon deepened as a result of the research process.
2.5.2 Presenting my changing horizon in the thesis

The increasing complexity of my evolving understanding of my research phenomenon is presented in the findings and discussion chapters of this thesis. In Chapters 3 and 4 I present my evolving understanding of professional practice, professional practice capabilities and how those capabilities are developed in clinical workplaces. Chapters 5 and 6 portray my deepening understanding as a result of interpretation of the experiential text sets. Finally in Chapter 7 I draw all these findings together and present clinical workplace learning spaces as crucibles for the development of professional practice capabilities.

2.6 Literature text construction and interpretation

In this research the construction of two sets of hermeneutic texts provided a foundation for the development of deeper understandings of my research phenomenon in all of its complexity. The first (literature) text set comprised written texts including the writings of philosophers, education theorists and researchers. The second (experiential) text set included interview transcripts, focus group transcripts and field notes.

Interpretation draws on both critical and creative thinking; the interpretation of hermeneutic texts involves creativity, intellectual discipline, analytical rigour and a great deal of hard work (Patton, 2002). My development of a deep and rich understanding of my research phenomenon was guided by hermeneutic principles, not directed by set procedures. It involved critical thinking, creative connection-making and insightful meaning-making. The interpretive process, congruent with hermeneutic principles, occurred in all stages throughout the research, including text construction, text interpretation and writing phases of the research.

An important task for me as researcher was to transform Gadamer’s (1975) hermeneutic principles into research strategies. This was achieved as follows:

Fusion of horizons

Gadamer (1989) believed that all understanding presumes a living relationship between the interpreter and the text. My personal and professional historical consciousness or horizon has been formed by my lived experiences including my experiences of being a physiotherapy
student (30 years ago), a practising physiotherapist, a clinical supervisor, and my current experiences as a university academic. I therefore employed the Gadamerian concept of fusion of horizons to explicitly bridge the temporal distance from the past (my experiences) to the present (contemporary literature and the students’ and clinical supervisors’ current experiences), and in the process deepen my understanding of the research phenomenon. I clarified my pre-understandings at the commencement of the research and recorded them as well as my emerging understandings in a research journal, so that the journey to a final unified meaning was clear. In this way I fused my entry understanding with those of people who had researched or experienced the phenomenon to achieve a deeper understanding, a broader vision of it.

**Hermeneutic circle**

The hermeneutic circle is an interpretive process aimed at enhancing understanding at a specific level, and in a particular way it offers a process for formally engaging in interpretation (Patton, 2002). Congruent with these broad hermeneutic principles, specific strategies were used throughout the text interpretation process. These were:

- Immersion in the texts by reading, re-reading and listening to the texts in an iterative approach to developing understanding.
- Repeated movement from the parts (individual texts sets, individual transcripts and individual quotes) to the whole (my emergent understanding of my research phenomenon) until a harmony between the parts and the whole was achieved.

**Dialogue of question and answer**

My aim in employing a dialogue of question and answer was to understand differently, to come to a deeper and broader understanding of the research phenomenon. The interpreter must allow the claim of the text to show itself, not simply by interrogating the text but also by allowing the things said in the text to interrogate back, to work a transformation the interpreter’s understanding of the subject (Palmer, 1969). Throughout the interpretation process I sought to develop a deeper understanding by asking questions of the constructed texts while maintaining openness to them and allowing them in a sense to question me. Through interaction with the texts in this way I expanded my entry horizon and came to a deeper and broader understanding of the development of physiotherapy students’ professional practice capabilities in a clinical education context.
2.6.1 Constructing literature text sets

The hermeneutic literature study part of this research involved the construction of two distinct but interrelated text sets. The first text set focused on identification of texts that explored practice, professional practice and professional practice capabilities. The second text set encompassed development of professional practice capabilities in general and more specifically in physiotherapy clinical education. Construction of these text sets aimed to enrich my horizon of understanding of professional practices as well as understanding of how professional practice capabilities develop both generally and more particularly in relation to physiotherapy students’ clinical learning in healthcare contexts. I sought a deeper understanding of professional practice and underpinning practice capabilities and the manner in which these are learned or taught in a clinical environment, to better understand the influence of contextual factors on this learning. I also sought to frame my research in regard to what was already known about practice, professional practice capabilities and clinical learning, to better understand the influence of context on the development of physiotherapy students’ professional practice capabilities.

A set of framing questions was formed to guide the construction of these two text sets. The questions that guided construction of the first literature text set, aimed at understanding professional practice and professional practice capabilities, were:

1. What is a practice?
2. What is professional practice?
3. What capabilities underpin professional practice?
4. How does clinical education frame development of professional practice capabilities?

The framing questions that guided construction of the second text set, aimed at understanding development of professional practice capabilities in a workplace context and more specifically in a clinical education context, were:

1. How do individuals develop practice capabilities in a workplace context?
2. How do contextual factors influence development of professional practice capabilities in a workplace?
3. How do individuals’ dispositional qualities influence their development of practice capabilities in a workplace?

4. How are professional practice capabilities developed in clinical education contexts?

The text sets drew from a broad range of fields including philosophy, psychology, education theory, practice and professional practice theory, workplace learning theory, and reflective practice theory. The text sets included seminal writers in each field, research reports, and literature reviews obtained from multiple sources including database searches (primarily EbscoHost Health, CINAHL, MEDLINE, PEDro, EbscoHost Education and ERIC), catalogue searches (for known seminal authors), reference lists and citation links. Seminal writers included in these text sets were philosophers Michel Foucault, Hans Georg Gadamer and Pierre Bourdieu, psychologists Polanyi and Reber, educational theorists Dewey, Rogoff, Erut, Kemmis, Bennett, and Boud, professional practice theorists Higgs, deCossart and Fish, reflective practice theorists Dewey, Schön, Brookfield and Kinsella, and workplace learning theorists Lave, Wenger and Billett.

The construction of literature text sets involved database searching for relevant literature using key search terms and appropriate databases. This approach led to a comprehensive set of texts whose interpretation deepened my understanding of what was known about professional practice and professional practice capabilities (Chapter 3) and the development of professional practice capabilities in workplaces (Chapter 4).

2.6.2 Literature text interpretation

Interpretation of the literature text sets was an iterative and ongoing process that occurred beyond construction and interpretation of the literature text sets themselves. This interpretation also continued during construction and interpretation of the experiential text sets and the writing phases of the research to ensure that I was reading recent literature and to explore topics that arose in subsequent phases of the research.

Consistent with the hermeneutic strategy of fusion of horizons I approached the literature text sets with my research questions (see Section 2.4.1) developed from my entry horizon of understanding, throughout the process remaining open to what the texts were saying in answer to these questions. In this way my entry horizon was transformed by a fusion with
the understanding of others who had theorised or researched the
development of professional practice capabilities in clinical education
contexts. As an example of the broadening of my entry horizon, prior to
undertaking this research I had developed strong views about the
significant influence of workplace environment on physiotherapy students’
learning and capability development. Through my experiences as a clinical
supervisor I had come to believe that the environment had the potential to
facilitate or inhibit physiotherapy students’ capacity to develop their
professional practice capabilities. For instance, welcoming environments
where students were valued and actively included in the physiotherapy
community could facilitate students’ development. Through engagement
with the literature text sets I developed a broader and deeper
understanding of practice environments, including their historical
connectedness to past practice traditions, their integral role in shaping
current professional practices and their impact on professional
development.

Understanding is basically a referential operation between the whole and
the part, with each giving the other meaning (Palmer, 1969). Throughout
the interpretation process I used the hermeneutic circle to develop
understanding of my research phenomenon through a dialogical
interaction between the whole (my emerging understanding of the
phenomenon in its entirety) and the parts (individual text sets, individual
texts, theories and ideas within the text sets). In this way, my emergent
understanding of the development of professional practice capabilities was
contextualised and historically defined by the theorists and researchers
writing in this field. Further, congruent with the hermeneutic circle, I
deepened my understanding in a referential dialogue not only between the
two literature text sets but also between the literature and experiential text
sets. I continued this repeated movement between text sets until fusion
between my interpretation of the text sets was achieved.

As understanding is achieved through dialogue (Palmer, 1969), I adopted a
question-and-answer strategy to facilitate text interpretation. That is, I
approached the literature with particular questions (outlined in section
2.6.1), the answers to which I anticipated would broaden my horizon of
understanding of professional practices, the capabilities underpinning
those practices and the way those capabilities are learned in clinical
environments. Throughout the interpretation process I not only asked
questions of the text but allowed questions to surface from them. In this
way my understanding was not limited by the horizon of expectations
implicit in my questions. Finally, not only did my interpretation of the texts focus on what the texts explicitly said, but also I sought to go behind the texts to find what they did not say and perhaps could not say. This responsiveness and openness to the texts allowed me to explore multiple meaning-making opportunities and to identify areas for exploration during experiential text construction and interpretation.

### 2.7 Experiential text construction and interpretation

Consistent with research conducted in an interpretive paradigm, several text construction strategies were employed in this phase of my research, with each strategy chosen for its ability to reveal the phenomenon in a different way. The critical use of imagination and imagery in interpretive research provides a means by which matters important to people can be accessed and expressed (Patton, Higgs, & Smith, 2009). Therefore, various creative, interpretive practices were employed in this research to gain different perspectives and thus facilitate the development of a deep and rich understanding of contextual influences on physiotherapy students’ learning in a clinical education context (see e.g. Denzin & Lincoln, 2000; Liamputtong & Ezzy, 2005). Experiential text construction strategies employed in this research included focus groups, interviews, observation and visual research methods. Each of these strategies led to the formation of texts that were interpreted using methods informed by philosophical hermeneutics, including use of fusion of horizons, the hermeneutic circle and dialogue of question and answer.

The detailed research design was allowed to emerge throughout the research process, as not enough was known about my research topic to fully construct the research design a priori. Physiotherapy student focus groups were conducted at the outset of the research as an exploratory strategy, because the literature text construction revealed little research specifically exploring the influence of contextual factors on physiotherapy students’ learning in a clinical environment. The emerging findings from the focus group study informed the construction of subsequent experiential texts. For example, the focus group discussions highlighted the students’ view of the clinical learning environment as more expansive than was initially considered. Photo-elicitation strategies (as described below) were therefore included in the experiential text set construction to allow the capture of a broader range of environments and contextual factors capable of influencing students’ learning in a clinical education context.
The final experiential text set construction integrated three separate but interrelated projects, each of which employed a range of strategies:

1. Exploratory student focus group
2. Physiotherapy student perspective
   i. observation
   ii. interview
   iii. photo-elicitation
3. Clinical supervisor\(^3\) perspective
   i. interviews
   ii. focus groups

### 2.7.1 Experiential text construction strategies

**Focus groups**

Focus groups were employed as a strategy to access physiotherapy students’ and clinical supervisors’ experiences, attitudes, and perspectives regarding students’ development of professional practice capabilities and the influence of contextual factors on this development. Focus groups were conducted with physiotherapy students at the outset of the research as an exploratory strategy and with clinical supervisors at the conclusion of the research as a final text construction strategy.

 Appropriately used, focus groups have the potential to be powerful and effective text construction tools, as participants are encouraged to share, reflect, expand and explain their individual views on the topic under investigation (Cote-Arsenault & Morrison-Beedy, 2005). A key strength of focus groups is their explicit use of group interaction to produce insights that would otherwise be less accessible and perhaps less realised by participants (Morgan, 1997). The synergistic effect of a group setting results in the construction of ideas that might not be uncovered in individual interviews, as participants react to and build on responses of other group members. This knowledge construction by participants may draw the researcher’s attention to previously neglected or unnoticed aspects of the research area, leading to unexpected insights (Wilkinson, 2004).

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\(^3\) I use the term *clinical supervisor* rather than clinical educator to refer to the physiotherapist participants responsible for direct facilitation of students’ professional practice capabilities in the clinical education context, as this was the term most commonly used by participants.
Focus groups also provide rich and detailed information about participants’ perceptions, thoughts, feelings, and impressions in their own words (Stewart, Shamdasani, & Rook, 2007) and can be used to access participants’ everyday language (Bloor, Franklin, Thomas, & Robson, 2001). The importance of language in interpretive research cannot be underestimated as a sensitive understanding of people’s lives requires shared symbols, meanings and vocabularies (Madriz, 2000). Gadamer (1989) also highlighted the importance of language in the hermeneutic process through his argument that a conversation has a spirit of its own, and the language in which it is conducted holds its own truth within it. This emphasis on language underlines the unique contribution of focus groups as a text construction strategy. The focus groups provided me with access to physiotherapy students’ and clinical supervisors’ perceptions as well as their native language, and increased the potential to gain deeper understanding of the research topic.

Focus groups are also particularly useful when a power differential exists between researchers and participants, as they may reduce researchers’ control over interactions and allow focus group participants to follow their own agendas and to develop themes they believe to be important (Morgan & Kruegar, 1993; Wilkinson, 2004). Participants may feel empowered, supported, more relaxed and less inhibited in the presence of friends or colleagues (Bloor et al., 2001). By creating multiple lines of communication the focus group offers participants a safer environment where they can share ideas, beliefs and attitudes (Madriz, 2000). Focus groups were employed in this research as a strategy with the potential to reduce the influence of perceived power differentials between participants and me as researcher.

As the two focus group studies in my research involved different participants and utilised different strategies to facilitate text construction, each is now described.

1. Student focus group study
The aim of the student focus group study was to gain students’ descriptions of clinical learning environments and their perspectives on the range of contextual factors that influenced their learning while on placement, to provide direction for the ongoing research. Focus groups are frequently used in the preliminary stages of research for exploratory purposes and to inform the development of later stages of the research (Bloor et al., 2001; Krueger & Casey, 2000).
Two focus group discussions were held, each group consisting of six undergraduate physiotherapy students. The limitation to six participants ensured that all participants had time to express their views adequately (see e.g. Cote-Arsenault & Morrison-Beedy, 2005). Focus groups were formed according to student availability, with third and fourth year students represented in each focus group.

The focus groups were held in a university meeting room, free from interruption, and I acted as moderator. Before commencement of the discussion I gave participants a few minutes of quiet time during and invited them to reflect on their clinical experiences, in particular, any experiences that could demonstrate the influence of environment on their clinical learning. The participants were provided with pens and paper to record their thoughts and experiences if they so desired; their notes could be used as a prompt during the ensuing focus group discussion. All participants recorded experiences and thoughts during the time provided and the recorded thoughts were collected with participants’ permission at the conclusion of the focus group. This enabled me to determine if any topics of interest had not been discussed during the focus group and also if any of the written information conflicted with the focus group discussion, which might indicate participants’ tendency towards polarisation of their views (see e.g. Morgan 1997).

The focus group discussion began with an invitation for participants to describe learning environments they had experienced on clinical placement. The groups were then asked to consider how the workplace environment influenced their learning while on placement and to identify factors that facilitated or inhibited their learning. Finally, participants were asked to comment on factors they felt to be most influential on their learning while on placement. The discussions were audio-taped with participants’ permission and transcribed by a research assistant who was committed to keeping all material confidential.

The topic stimulated lively discussion among both focus groups, with participants spontaneously describing a surprisingly wide range of places and spaces considered to form part of their clinical learning environment, as well as contextual factors within those environments perceived to influence their learning while on clinical placement. Since many of these spaces were beyond the immediate location of the clinical workplace (e.g. their accommodation, tea rooms, the local beach) I needed to re-consider what was meant by clinical or perhaps “whole placement” learning.
environment. Moreover, I needed to develop other ways of exploring this wider range of arenas. I identified the need to incorporate other text construction strategies beyond interviewing and observation to capture the richness and breadth of students’ experiences. I decided to incorporate visual strategies into my research design as an additional strategy to access how students viewed their clinical environment (see visual methods).

2. Clinical supervisor focus group study

Focus groups were also conducted with the clinical supervisor participants at the conclusion of the research. The aim of these focus groups was to gain clinical supervisors’ perceptions of contextual factors that influenced the development of students’ professional practice capabilities and to identify actions clinical supervisors took (or could take) to construct optimal learning environments.

Two focus group discussions were held in meeting rooms at Barwon Health facilities. One focus group had two participants and the other had nine. This imbalance of numbers in each group occurred due to clinical supervisors self-selecting the time they would attend so as to minimise workplace inconvenience. One clinical supervisor was unable to attend the focus group discussions as she had terminated her employment with the organisation following her initial interview.

Student-generated photographs were used as prompts and memory triggers to initiate discussion among the clinical supervisors. The photographs (119) were printed on A4 glossy cards and were displayed on tables for the clinical supervisors to view prior to commencing the focus group discussion. On arrival the clinical supervisors were invited to view the photographs and to select up to four photographs that they felt represented factors that influenced student learning during clinical placements. The clinical supervisors were then invited to generate a title for the photographs they had selected and were advised that the photographs would be used as prompts for the ensuing focus group discussion. Photographs not selected by clinical supervisors were not used in the ensuing discussion.

The focus group discussions commenced with an invitation to share with the group the titles they had given to photographs and the reasons underpinning their photograph selection. Clinical supervisors were then encouraged to discuss their perceptions of their responsibility in relation to constructing clinical learning environments, including areas they felt were important and boundaries to their responsibility for facilitation of students’
professional practice capabilities. The focus group discussions were audio recorded with participants’ permission and the recordings were transcribed verbatim to form texts for subsequent interpretation.

**Observation**

Participant observation allows researchers to see the world as participants see it, live their time frames, capture the phenomenon in and on its own terms, and grasp the culture in its own natural, ongoing environment (Lincoln & Guba, 1985), thereby deepening understanding of meanings constructed in those environments (Grbich, 1999). Every human society is established on cultural rules and norms that provide a springboard for deepening understanding (see e.g. Spradley, 1980). Participant observation thus provided an appropriate research strategy to deepen my understanding of sociocultural influences on physiotherapy students’ learning in a clinical education context.

During the period of observation I took the role of passive observer and strove to act largely as a camera, taking note of the environment including people, and became explicitly aware of contextual aspects usually blocked out through selective inattention (see Grbich, 1999; Spradley, 1980). Spradley cautioned that this increasing awareness does not come easily, particularly for researchers investigating their own cultures, thus highlighting the importance of “making the familiar strange” (see Gadamer, 1989) throughout periods of observation by explicitly taking a wide-angled approach and taking in a broad spectrum of information.

Student participants were observed performing their usual clinical placement activities including patient treatments, meetings, and tutorial sessions. I also joined participants for morning tea and lunch in a shared staff room. Observation took place over one day, and I spent between 4 and 8 hours on these days watching participants in their normal clinical placement activities. I met each participant and clinical supervisor in the physiotherapy department immediately prior to the observation session. At this time I explained the purpose of the research and clarified that I was interested in deepening my understanding of contextual factors that influenced physiotherapy students’ learning while on clinical placement; I would not be critiquing the performance of either student or clinical supervisor. In an attempt to reduce any anxiety either students or clinical supervisors might be feeling and to reduce the potential influence of my presence on their behaviour, I emphasised that my clinical experience was in musculoskeletal physiotherapy and that I had not worked in an acute
care setting for many years and consequently had limited clinical knowledge in this area. Overall, I found this strategy worked well, with both students and supervisors visibly relaxing when I admitted my lack of acute care experience. However, due to my academic relationship with the participants I remained open to the influence my presence might have had on the participants’ behaviour. One of the students, Scott, highlighted the subtle influence of my presence in his post-observation interview when he commented, “you sort of want to do your best for one of your lecturers”. However, I felt that while participants were initially a little anxious, as I stood back out of the way and they became fully engaged in their clinical tasks they quickly forgot I was watching. This view was supported by Sophie’s comment in her post-observation interview: “at the start I was a bit worried … but you sort of went off to the side and after a while I didn’t really notice you”.

During the period of observation I clarified my understanding of the influence of workplace factors on student learning with students as opportunities arose, but did not disrupt patient interactions. These opportunities for clarification typically presented while students waited in corridors for clinical supervisors, completed patient notes in allied health staff rooms, or walked back to the physiotherapy department to collect equipment. The students also took these opportunities to ask me clinical questions, many of which I was unable to answer due to my lack of acute care experience, which I felt reinforced to the students that I was not critiquing their performance and increased their level of comfort in my presence.

Field notes were taken during observation periods and subsequently formed a text for interpretation. An example of my field notes is provided in Appendix 2.3. I chose to make notes at the time of observation rather than relying on my memory to make notes later, as the clinical context was rich in detail and activity. The participants and their clinical supervisors were informed that I would be taking notes. They were informed that these would be detailed notes of the environment including physical features such as ward layout, available equipment and staff room facilities, people, participants’ actions and words, other people’s actions and words, and would include sights, sounds and smells. Notes were taken during students’ interactions with patients and others, during patient care activities, while students were reading and writing in patients’ medical files and during meetings. I chose not to take notes during morning tea and lunch, as I wanted to develop a collegial relationship with physiotherapy
staff members and students and a sense that I belonged in the environment. I wrote notes on morning tea and lunch contextual factors and conversations at a later time.

**Interviews**

The interview is a uniquely sensitive and powerful method for capturing experiences and lived meanings of participants’ everyday world (Kvale, 2007) and providing insight into that which cannot be directly observed (Llewellyn, 1996). In this research, interviews were employed as a strategy to capture the complexity of physiotherapy students’ and clinical supervisors’ perceptions of the development of professional practice capabilities in a clinical education context (see e.g. Patton, 2002). Interviews were conducted with physiotherapy students following completion of a period of observation and with clinical supervisors prior to implementation of the clinical supervisor focus groups.

Interpretive interview strategies vary in the extent to which the wording and sequencing of questions are predetermined. I chose to employ semi-structured interviews built around an interview guide to gain rich and complex responses from participants (see e.g. Grbich, 1999). The interview guides comprised a set of broad-ranging questions reflective of my interpretation of the literature text sets, emergent findings from the exploratory student focus group, as well as my experiences as a student, physiotherapist, clinical supervisor and academic. Furthermore, my field notes generated by my periods of observation of individual students informed student interviews as I sought the participants’ understanding of what I as researcher had observed. A flexible design was employed, with interview questions adapted as necessary in response to participants’ responses, both within the interviews and as the research progressed, to facilitate exploration of relevant and meaningful themes identified throughout the text construction phase (see e.g. Flick, 2007).

Open questions were used throughout the interview to focus on the topic of the research while allowing participants to bring forth the dimensions they found important to the theme of the inquiry (see e.g. Kvale, 2007). Throughout the interview I stressed that I was seeking to deepen my understanding of the research topic and encouraged participants to tell their stories. With this strategy I sought to ensure that the participants’ voices were heard and authentically represented.

The physiotherapy student and clinical supervisor interviews were conducted in physiotherapy staff offices or interview rooms at times
mutually convenient for participants and me. The physiotherapy student interviews occurred on the same day as the student’s observation session. The interview locations were chosen to ensure maintenance of participant confidentiality, minimise the likelihood of interruption and provide a quiet area to improve the quality of the audio recording. The interviews typically lasted up to one hour and were recorded using two Olympus Digital Voice Recorders (WS-300M). Permission to record the interviews was sought and granted by the participants. Two research assistants transcribed the audio files verbatim, with each transcription checked by me against the audio recording for accuracy and completeness.

As a novice researcher, I undertook ongoing critique of my interview technique to ensure continuing development of my interview skills. As an example of my ongoing critique, following the first four clinical supervisor interviews I listened to audio files and critiqued my interview technique and sought to rectify errors in future interviews. Initially my most commonly identified fault was a tendency to talk over the top of participants, and I took care to reduce that in subsequent interviews. I also noted that participants echoed some of my words and phrases and therefore I sought to identify participants’ “native” language and use this language throughout the interviews to remain as authentic as possible to participants’ voices (see e.g. Spradley, 1979). An example of my interview critique is included in Appendix 2.4.

**Visual Methods (Photo-elicitation)**

Visual methods were incorporated in this research to evoke understandings not accessible by other means and further broaden and deepen my understanding of the influence of contextual factors on physiotherapy students’ learning in a clinical education context. Visual information can provide a wellspring for the development of new understandings about the phenomenon being investigated (Davidson, 2004), the strength of images residing in their contextual richness and in the amount of specific information they transmit (Flick, 2007).

Visual research is frequently used in conjunction with other research strategies such as observation and interviewing techniques to incorporate richness into the research findings (Banks, 2007; Hurdley, 2007; Pink, 2007). Text construction was further enriched as the use of photography expanded time frames for information gathering, also providing participants with freedom to represent factors beyond the immediate workplace that they perceived to influence their learning. Further,
participants’ viewing of and reflecting on photographs could facilitate the development of a new understanding of their often taken-for-granted views of their workplaces (Harper, 2002). Visual materials provided valuable information from the perspective of the physiotherapy students and clinical supervisors, serving to enrich the research findings and deepen my understanding of the research phenomenon.

Visual research strategies such as photo-elicitation have the potential to shift the research power balance towards participants as they control text construction and topics of discussion during subsequent interviews. During photo-elicitation interviews the researcher and participant examine photographs together, thereby relieving participants of the stress of being the subject of an interrogation (Collier, 1986). I used photo-elicitation as a tool to engage participants in a more empowering research process, to alter the dynamics between researcher and participants and to ensure that the experience was enjoyable and meaningful to participants.

During the visual research component which followed the observation period and initial interview, the student participants were provided with a digital camera and were invited to take photographs of places, spaces, or things that they felt most influenced their learning while on clinical placement. The students were guided to collaborate with their clinical supervisor to determine appropriate and convenient times to take photographs and only to take photographs at these mutually agreed times over the remaining time of the placement. The students were asked to provide the researcher with up to ten photographs. The number of photographs the students delivered to the researcher was constrained to limit the time imposition on the participants and is consistent with current visual research methodology (see e.g. Kaplin & Howes, 2004; Radley & Taylor, 2003). The students were instructed not to take photographs of people because of the (time-demanding) ethical requirement to gain consent, and to avoid ethical dilemmas such as the potential for (apparent) coercion to participate within a vulnerable population of people who are unwell, and the limited ability to guarantee anonymity. It was anticipated that requesting the students not include people in their photographs would not adversely affect the richness of texts constructed, as the student participants had the opportunity to discuss the influence of people on their learning during their interviews (see e.g. Hansen-Ketchum & Myrick, 2008; Radley & Taylor, 2003). I judged the success of this approach by taking note of how people were represented in students’ photographs. The students’ photographs regularly included images that represented people’s activities
and involvement, such as hospital beds, physiotherapy equipment, tea rooms and dining room tables. The students were interviewed at a convenient time following their placement upon return to university. This interview was conducted in my academic staff office. Students were comfortable with this arrangement and were not inhibited, building on the good rapport already developed during the research project. I uploaded the photographs from the digital camera to my computer where they could be viewed and the students were asked to select a photograph and discuss its significance as reflecting a factor influencing their learning while on clinical placement. Again, these interviews were taped (with permission of participants), transcribed verbatim and checked for accuracy as described for the first series of interviews.

Inclusion of visual methodologies enriched text construction, improving the colour and robustness of the study and deepening my understanding of the research phenomenon.

2.7.2 Overview of participants

Exploratory student focus group participants

The exploratory focus groups consisted of undergraduate physiotherapy students in their third or fourth year of study, willing to participate, and who had completed at least one block (4 week) clinical placement. As the participants had experienced at least one block clinical placement they had formed views regarding contextual influences on their learning while undertaking clinical placement.

In total, 12 physiotherapy students volunteered to participate in this study. They represented physiotherapy students in their third (n=3) and fourth (n=9) year of undergraduate study. Ten were female and two were male.

To maintain participants’ anonymity and the confidentiality of the information they provided, each participant was provided with a pseudonym for reference in this thesis. In interpretive research it is usual to identify participants by name to retain a sense of identity and human characteristics. A convention adopted by others (e.g. Smith 2005) has been to assign names beginning with the same letter to participants sharing the same characteristics. This convention has been used here, with M for fourth year focus group participants and G for third year focus group participants.
Physiotherapy student perspective participants: observation, interview and photo-elicitation

Physiotherapy students from Charles Sturt University or La Trobe University, who were completing a 3 or 4-week block clinical placement at a large regional health service, were invited to participate in this phase of the research. Students currently completing a clinical placement were invited to participate, to enable researcher observation of their experiences as well as incorporation of visual research strategies. Participants were involved in the following activities:

- Observation while undertaking routine clinical placement activities
- Interview following their period of observation
- Taking photographs of places and spaces that they perceived influenced development of their professional practice capabilities
- Photo-elicitation interview

Table 2.1 Summary of student participants and their involvement

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Year</th>
<th>Placement type</th>
<th>Observation duration</th>
<th>Number of photographs taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiona</td>
<td>Fourth</td>
<td>Final rehabilitation</td>
<td>One full day</td>
<td>10</td>
</tr>
<tr>
<td>Tom</td>
<td>Third</td>
<td>Musculoskeletal</td>
<td>4 hours</td>
<td>11</td>
</tr>
<tr>
<td>Tess</td>
<td>Third</td>
<td>Musculoskeletal</td>
<td>4 hours</td>
<td>12</td>
</tr>
<tr>
<td>Stacey</td>
<td>Second</td>
<td>Introductory hospital</td>
<td>5 hours</td>
<td>17</td>
</tr>
<tr>
<td>Shelly</td>
<td>Second</td>
<td>Introductory hospital</td>
<td>5 hours</td>
<td>6</td>
</tr>
<tr>
<td>Scott</td>
<td>Second</td>
<td>Introductory hospital</td>
<td>5.5 hours</td>
<td>10</td>
</tr>
<tr>
<td>Sarah</td>
<td>Second</td>
<td>Introductory hospital</td>
<td>4 hours</td>
<td>7</td>
</tr>
<tr>
<td>Sonia</td>
<td>Second</td>
<td>Introductory hospital</td>
<td>One full day</td>
<td>10*</td>
</tr>
<tr>
<td>Stewart</td>
<td>Second</td>
<td>Introductory hospital</td>
<td>One full day</td>
<td>6</td>
</tr>
<tr>
<td>Skye</td>
<td>Second</td>
<td>Introductory hospital</td>
<td>5 hours</td>
<td>9*</td>
</tr>
<tr>
<td>Sam</td>
<td>Second</td>
<td>Introductory hospital</td>
<td>4 hours</td>
<td>10</td>
</tr>
<tr>
<td>Sophie</td>
<td>Second</td>
<td>Introductory hospital</td>
<td>5 hours</td>
<td>9</td>
</tr>
</tbody>
</table>

* One of these photographs included people and was deleted and not discussed or included in research reports.
Participants in this research represented physiotherapy students from second, third and fourth years at Charles Sturt University; no students from La Trobe University volunteered to participate in the research. Specifically, 1 fourth year, 2 third year and 9 second year students volunteered. Of the total participants 8 were female and 4 were male. To maintain participants’ confidentiality and anonymity as stated above each participant was provided with a pseudonym, with F for fourth year students, T for third year students and S for second year students. Participant characteristics are summarised in Table 2.1.

Clinical supervisor participants
Physiotherapists employed by Barwon Health, who had supervised physiotherapy students undertaking at least one block placement, were invited to participate in the research. The selection criteria aimed to ensure that participants recruited to the study possessed relevant knowledge of the phenomena under investigation.

Table 2.2 Summary of clinical supervisor participant characteristics

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Clinical experience</th>
<th>Clinical supervision experience</th>
<th>Current area of work and supervision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caitlyn</td>
<td>2 years</td>
<td>1 year</td>
<td>Neurology rehabilitation outpatients</td>
</tr>
<tr>
<td>Callum</td>
<td>16 years</td>
<td>16 years</td>
<td>Outpatients and orthopaedics</td>
</tr>
<tr>
<td>Cameron</td>
<td>13 years</td>
<td>10 years</td>
<td>Amputees and orthopaedics</td>
</tr>
<tr>
<td>Carl</td>
<td>11 years</td>
<td>5 years</td>
<td>Orthopaedics and project work</td>
</tr>
<tr>
<td>Caroline</td>
<td>&gt;20 years</td>
<td>15 years</td>
<td>Acute cardiopulmonary</td>
</tr>
<tr>
<td>Charles</td>
<td>15 years</td>
<td>9 years</td>
<td>Community Health</td>
</tr>
<tr>
<td>Chelsea</td>
<td>10 years</td>
<td>7 years</td>
<td>Neurology rehabilitation</td>
</tr>
<tr>
<td>Chloe</td>
<td>5 years</td>
<td>4 years</td>
<td>Medical ward</td>
</tr>
<tr>
<td>Christina</td>
<td>14 years</td>
<td>11 years</td>
<td>Rapid Assessment and Planning Unit (RAPU) and clinical education</td>
</tr>
<tr>
<td>Clare</td>
<td>9 years</td>
<td>6 years</td>
<td>Trauma unit (neurology)</td>
</tr>
<tr>
<td>Courtney</td>
<td>4 years</td>
<td>3 years</td>
<td>Inpatient rehabilitation (neurology)</td>
</tr>
<tr>
<td>Craig</td>
<td>8 years</td>
<td>4 years</td>
<td>(RAPU) and Medical ward</td>
</tr>
</tbody>
</table>
Twelve physiotherapists who were actively engaged in clinical supervision volunteered to participate in the research. Five were male and seven female. These clinical supervisor participants had varying levels of clinical experience ranging from 2 to more than 20 years and also had a similar range of clinical supervision experience (1 to 16 years). The participants were currently working in a wide field of physiotherapy specialist areas of practice including both acute and community practice. They were assigned pseudonyms beginning with the letter C (Clinical) to enable clear differentiation from student participants. A summary of clinical supervisor participant characteristics is provided in Table 2.2.

2.7.3 Interpretation concurrent with experiential text construction

The fluid and emergent nature of interpretive inquiry makes the distinction between text construction and text interpretation less than absolute (Patton, 2002). Meaning making began from the early focus groups and observations and continued throughout all the text construction and interpretation phases. This overlap between text construction and interpretation improves the quality of interpretation as long as the researcher takes care not to allow those initial interpretations to overly restrict meaning-making possibilities (Patton, 2002). Throughout the text construction process I recorded emerging themes in my research journal and deliberately remained open to new insights provided by participants.

I recorded (in my field notes) any new themes identified, interesting topics for probes, phrases and words, prompts, anything surprising, mood of the participants when discussing different themes, including body language and facial expressions, and my reactions to each participant and what was being discussed. Immediately following the interview, focus group, or period of observation I recorded in my research journal my impression of emerging themes, my reaction to participants and the discussion, and themes that I perceived to be missing. Appendix 2.5 includes an example from a relevant section of my research journal. This facilitated the tracking of emergent ideas and themes and contributed to the modification of interview guides and focus for subsequent periods of observation. Further, the information gained from accumulated interviews was subjected to review in subsequent interviews by questions such as, “A number of students have described the influence of nursing staff on their learning. I would be interested in hearing about your experience of working with nurses.”
As well as reflecting on emerging themes following each interview, focus group and period of participant observation I also reflected on my performance as moderator, interviewer or observer. While reading observation field notes and listening to interview audio files I sought to identify the influence of my personality and research style on participants’ responses and actions (see e.g. Dexter, 1979). Listening to interview audio files allowed closer analysis of researcher-participant interactions, as I was able to identify nuances in participants’ speech including pauses, tone, speed and volume in reaction to different themes and questions. Development of an explicit awareness of participant responses to my research style enabled modification of questions, actions and mannerisms for subsequent interviews and periods of observation.

2.7.4 Interpretation subsequent to experiential text construction

At the beginning of this phase of interpretation I had developed an understanding of how physiotherapy students develop professional practice capabilities in a clinical education context. This interpretation encompassed a broad understanding of clinical learning environments, as well as appreciation of the influence of a complex set of interactions between students and environments on the development of professional practice capabilities. A number of my pre-understandings had been challenged and I had moved to a deeper, though incomplete, level of understanding. For example, when I commenced this research I thought that the physical clinical environment strongly influenced students’ development of professional practice capabilities, yet through the text construction and concurrent interpretation phases I came to recognise not only the centrality of context to the development of professional practice capabilities but also the multidimensional nature of the clinical education context and the important contribution of students’ interactions with that context. Through this interpretation phase I sought to develop more complete, detailed and nuanced understandings.

My approach to this phase of interpretation was to rigorously bring together all the texts and text extracts that were pertinent to particular questions, themes or topics. This approach is outlined below:

Step 1 Identifying all texts for interpretation in relation to the question, theme or topic

Step 2 Immersing myself through listening and reading in each participant’s texts
Step 3 Making notes of key ideas, links to the question and unexpected ideas in the texts

Step 4 Collating messages for each text and creating labels to capture meaning in the texts

Step 5 Categorising the labels into groups after identifying commonalities in the texts

Step 6 Repeating the process for each participant

Step 7 Returning to previous texts to check for newly created labels and categories

My approach to text interpretation utilised two hermeneutic interpretation strategies, the hermeneutic circle and a dialogue of question and answer. I actively engaged in a hermeneutic circle strategy to facilitate meaning making through complete immersion in the texts and repeated movement from the parts (individual text sets, individual transcripts and individual quotes) to the whole (my emergent understanding of my research phenomenon). I engaged in a dialogue of question and answer with the texts through my openness to the texts, allowing them to question me, as well as questioning the texts using new categories that emerged from my immersion in different texts.

Step 1 Text identification
The experiential text set included all audio files and transcripts of focus group discussions and clinical supervisor and student participant interviews, field notes recorded during focus groups, interviews, periods of student observation and reflective thoughts recorded in my research journal. The student-generated photographs were not included in the set of texts for interpretation, as their purpose was to facilitate access to deep and rich meaning making throughout discussions with students and clinical supervisors.

Step 2 Immersion in texts
My approach to this step involved me in foregrounding and then putting aside my pre-understandings and being prepared to allow the texts to tell me something new. In this way I remained open to the texts and allowed them to question me. This step involved listening to the audio files to assist identification of potentially emotive issues through changes in participants’ speaking tone, pace and volume, reading and re-reading of transcripts as well as review of field notes.

Step 3 Noting key ideas and unexpected themes
During this step I highlighted any pieces of text that stood out because they were surprising, were interesting or appeared to be relevant. This process
assisted location of broad themes within the context of each participant’s text, minimising the risk of becoming focused on small extracts of texts and losing sight of where those sat within the whole.

**Step 4 Collating messages and creating labels**
This involved reading the texts and creating appropriate labels for sections of the text. Throughout this process I sought to develop an explicit awareness of the language used by participants, as language occupies a central part of human experience but is often taken for granted. Gadamer (1975) emphasised the importance of language to understanding, as all understanding occurs through the medium of language; to understand language is to come to a true understanding.

> Interpretation must find the right language if it really wants the text to speak.  
> Gadamer (1975, p. 398)

The language participants use to make sense of their world provides insight into phenomena they consider important (Patton, 2002) and provides a tool for the construction of reality (Spradley, 1979). I was careful, therefore, to remain explicitly aware of participants’ use of language and I purposefully sought to use participants’ terms throughout the label creation process. Use of NVivo 8 data management software supported systematic text storage as well as labelling of small sections of the text across the transcripts for all participants.

**Step 5 Categorising the labels into groups**
After creating labels for each text I then constructed cognitive maps using the model feature within NVivo 8 software. Using this feature I was able to import all labels created for a text into a single model to facilitate organisation of labels into important categories and themes for each participant. An example of a participant cognitive map is included in Appendix 2.6.

**Step 6 Repeating the process for each participant**
Steps 2-5 were repeated for each text, including focus group texts and individual student and clinical supervisor texts. During this phase I was careful to remain open to each text and not simply to code each text according to categories I had already generated. This process ensured that all the participants’ voices were heard, facilitated comparison across texts, and supported my ability not to lose sight of where the parts (individual
texts, labels and categories) sat within the whole (my emerging understanding).

**Step 7 Return to previous texts to check for newly created labels and categories**

I used the labels, categories, themes and models created for each participant to identify commonalities and differences among participants. When differences were noted I returned to the texts to question them in relation to the missing categories to develop a deeper understanding of the research phenomenon as a whole. As I proceeded with the interpretation I used the hermeneutic circle to test my growing understanding, particularly when it reached a growing level of abstraction. As my understanding deepened I returned to the texts to check the parts to see whether my understanding of the whole reflected the words of the participants and to check that my own views were not dominating.

In summary, constant spiralling between the parts (participant text items) and the whole (emerging understanding of the phenomenon) facilitated the development of understanding congruent with the principle of the hermeneutic circle. Interpretation was achieved through an iterative process of reading, interpreting and re-reading the texts.

**2.8 Merging literature and experiential interpretations**

The process of interpreting the literature and experiential text sets was interwoven and ongoing throughout all stages of the research. Consistent with implementation of a hermeneutic circle strategy throughout the interpretation and writing phases of the research, I continually moved between parts of the literature and experiential text sets to realise a deepening understanding through attainment of harmony between the parts (individual text sets) and the whole (my emergent understanding of the research phenomenon). Figure 2.3 provides an overview of the constant spiralling between text sets during the interpretation phase of the research.

The thesis chapters that relate to my five research sub-questions, as illustrated earlier in Figure 2.2, provide the basis for Figure 2.3. As well, Figure 2.3 illustrates an underlying two-way sequential movement between chapters, both within and between text sets, as development of my understanding was achieved through movement in both directions between questions and text sets.
In this way, my developing understanding through engagement with the experiential text set was enriched by comparison with prior understandings developed from the literature text set, and my prior understandings were further shaped by my developing understandings. This movement within and between text sets enabled the whole to be understood in terms of the parts and the parts to be understood in terms of the whole. Thus my understanding was developed through a referential process both between and within the literature and experiential texts sets with my emergent understanding of both text sets and the whole phenomenon deepened by the comparison.

**Figure 2.3 Interpretation phase spiralling between text sets**

### 2.8.1 Writing text interpretation

Throughout all phases of the research the process of writing and developing models facilitated my development of deeper understandings of physiotherapy students’ development of professional practice capabilities in a clinical education context. Primarily, writing the findings chapters for this thesis, as well as preparation of conference presentations and papers, shaped my developing understanding. In my writing I aimed to meaningfully articulate the layers of meanings contributed to my understanding by theorists who conceptualised professional practice and
the development of professional practice capabilities as well as by physiotherapy students and clinical supervisors who had recent experiences of development of professional practice capabilities in a clinical education context. The process of articulating my developing understanding for others clarified my understanding by making connections clearer, enabling comparison of the parts with the whole (hermeneutic circle), thereby enabling identification of further insights and revelations. The act of writing my interpretations prompted me to think more deeply about those interpretations in order to present them clearly for others. In this way my writing formed a dialogical activity between the phenomenon being explored, the potential audience, and me as the writer (see e.g. Loftus & Trede, 2009), and therefore was an integral part of the hermeneutic process.

2.8.2 Summary of the interpretation of texts
The process of interpretation occurred in all stages of this research and evolved according to the nature of the texts and research questions. Throughout all stages of the research, interpretation was guided by hermeneutic methodology underpinned by Gadamerian philosophy. In particular the hermeneutic strategies of fusion of horizons, hermeneutic circle and dialogue of question and answer guided my text interpretation. During the interpretive process I adopted a critical and reflexive stance and aimed to remain aware of the influence of my pre-understandings on my evolving understanding. In this way I remained open to the texts to facilitate authentic representation of participants’ voices.

2.9 Ethical considerations
The experiential part of the research was conducted with ethical approval from both the Charles Sturt University Ethics in Human Research Committee and the Barwon Health Ethics in Human Research Committee. Ethical approval from both these ethics committees is included in Appendix 2.7. During this research I applied the broad ethical principles of participant autonomy, confidentiality, anonymity, safety and wellbeing.

Participant autonomy
A key ethical issue identified in my research was the ability to respect and maintain the rights of students to freely choose to participate in this study. This right was potentially threatened by the influence of my power and status as well as that of clinical supervisors in clinical education contexts. In my academic role I held a perceived position of authority over student participants and, potentially, an elevated status relative to clinical
supervisor participants. Consequently the ethical issue of informed consent, especially the freedom to choose to participate or not, was carefully considered throughout the research. The following strategies were adopted to avoid any perceived or actual coercion to participate:

- All potential participants were provided with an invitation to participate in the research by an independent third party, that being the health service’s clinical co-ordinator for student participants and the Physiotherapy Leader for clinical supervisor participants. The clinical co-ordinator was not responsible for students’ clinical assessments and the Physiotherapy Leader was not advised who participated in the research. This strategy reduced perceived coercion to participate and preserved participant anonymity.

- Invitations to participate provided potential participants with written information regarding the research processes and clearly stated that the decision to participate was voluntary. For students the invitations stated that participation or non-participation would not be considered in any way in relation to current or future assessment of their clinical or academic performance.

- At the time of the experiential text construction I held no examination power over the students who volunteered to participate in the research.

- At no time have I held any employment power over the clinical supervisor participants.

- All participants were provided with participant information and consent forms that clearly stated that participation was voluntary and participants were free to withdraw from the research at any time without prejudice. Written consent was obtained from all participants.

- All clinical supervisor and student participants were clearly informed both verbally and via written information sheets that the focus group discussions and interviews would be recorded and transcribed by a research assistant and that excerpts might be used in subsequent publications including the PhD thesis, conference presentations, journal articles and book chapters. The participants were also informed that pseudonyms would be used throughout all text interpretation stages as well as in reporting of research findings, to protect their anonymity.
Verbal consent to participate was also obtained from all patients who were observed incidentally as part of the research. All care was taken to reduce coercion to participate, as the patient group represented a vulnerable population group. Student participants sought verbal permission for observation of their treatment session from their patient prior to introduction to me, to reduce the likelihood of coercion to participate. The patients were clearly told that the decision to allow observation of their treatment session was voluntary and would not influence the provision of treatment on that day or in the future. No patients refused permission to observe a treatment session and in fact many seemed to enjoy having me observe their sessions, as evidenced through smiles and comments made while I observed their treatment sessions.

Confidentiality and anonymity
Another important ethical issue was ensuring anonymity and confidentiality of participants and Barwon Health’s clients and staff. This was dealt with by:

- Explicitly requesting student participants not to take any photographs of any people.
- Screening of all photographs supplied by students prior to printing to ensure that no identifying data, such as patient’s name on a bed, name on a file, or a person in the background, had been inadvertently included in the photograph. Any photographs containing identifying information were destroyed by deletion of electronic files, were not printed and were not included in any research reports. Of the 121 photographs supplied by the participants only two included people. Those electronic files were deleted without printing and they were not included in any research reports.
- Restricting access to audio-recordings of focus group discussions and interviews to the research assistants responsible for transcription and to the researcher. The research assistant was committed to maintaining participant confidentiality. This was

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4 The term patient to denote people admitted to hospital with whom health professionals work to achieve optimal health outcomes does not resonate with my philosophical approach to healthcare, which is underpinned by a person-centred framework. Although I believe that the term patient has paternalistic overtones consistent with a biomedical approach to healthcare, I use the term throughout this thesis, as it was the term most commonly employed by participants in this research.
particularly important as one of my PhD supervisors held an academic position as Physiotherapy Program Leader during this phase of the research and would have been able to recognise student participants by their voices.

- Assigning each participant a pseudonym for collection and handling of texts and research reports and not discussing participants or their views with clinical supervisors or academic colleagues.

- Securely maintaining all field notes, digital focus group and interview files and transcriptions in a password-protected computer and a locked filing cabinet.

**Participant safety and wellbeing**
The research process also considered a small risk of emotional harm to student participants and addressed this by:

- Explicitly stating to student participants as well as their clinical supervisors at the commencement of the observation phase of the research that I was interested in deepening my understanding of the research phenomenon and would not be critiquing students’ or supervisors’ performances.

- Offering student participants access to a Charles Sturt University counsellor as per university protocol should they become distressed as a result of participation in the research. Although some participants did recall upsetting events such as the death of a relative, none of them required the services of the university counsellor.

- Entering the field as skilled as possible to ensure the generation of rich meaningful texts while at the same time remaining sensitive to participants and how they were feeling to ensure their safety and wellbeing. Researchers are ethically bound to establish rapport with participants in order not only to facilitate the generation of rich and meaningful texts but to also ensure participants’ comfort throughout the research process. I therefore established rapport with all participants and remained sensitive to their needs in all stages of text construction.

**2.10 Critique of research methods**
The credibility of research is enhanced by the rigour (Paterson & Higgs, 2005) and transparency (Mattsson & Kemmis, 2007) of its conduct.
Throughout this chapter I have made reference to strategies used to ensure the quality of this research. These strategies are summarised here with particular reference to the notion of credibility, rigour and transparency.

The level of congruence achieved between the research paradigm chosen to frame the research, the research questions and aims, and the research design is crucial to the generation of credible research (Grbich, 2010). Interpretive research explores the views and beliefs of participants and therefore provided a congruent framework to explore the views of others, including philosophers, psychologists, education theorists, professional practice theorists, physiotherapy students and clinical supervisors. In this research the Gadamerian hermeneutic tradition, underpinned by the strategies fusion of horizons, hermeneutic circle and dialogue of question and answer, provided an appropriate framework to deepen my understanding of the phenomenon. The Gadamerian concept of fusion of horizons facilitated the transition from my pre-understandings to a deeper understanding of the phenomenon.

As the researcher, my entry horizon, informed by my professional identity as a physiotherapist, clinical supervisor and academic, provided a means by which a deeper understanding, a broader vision of the phenomenon, could be developed through a fusion of my entry understanding with the understandings of others who had experience of the phenomenon. Clear recognition and articulation of my entry horizon enabled the identification of new understandings and ensured that participants’ voices were heard and represented. The use of the hermeneutic circle in this research facilitated my ability to explore the phenomenon in all of its complexity by explicit illumination of the parts (the many and varied factors shaping the development of physiotherapy students’ professional practice capabilities from multiple perspectives) as well as their relationship to the whole (my broader and deeper understanding of the phenomenon). Finally, the use of question and answer dialogue in this research opened possibilities of meaning making in my search for a deeper understanding of physiotherapy students’ development of professional practice capabilities in a clinical education context. Throughout my dialogue with the texts I not only asked questions of the texts but also, through the adoption of an open attitude towards the texts, allowed the texts to ask questions of me. Thus, my interpretation was not limited by the horizon of my questions but allowed the texts to speak in a way that ensured participants’ voices were heard and acknowledged.
The combination of strategies in a single study adds rigour, breadth, complexity, richness and depth to that study (Denzin & Lincoln, 2005). My research incorporated two philosophical hermeneutic studies. One study explored the writings of philosophers, psychologists, education theorists, professional practice theorists and researchers in relation to the development of professional practice capabilities. The second study explored the perceptions of physiotherapy students and clinical supervisors. The first study enabled me to situate my research in the context of seminal writers and researchers in the field, and the second study allowed exploration of the perceptions of individuals currently experiencing the phenomenon. In the second study, consistent with research conducted in an interpretive paradigm, several text construction strategies were employed, with each strategy chosen for its ability to reveal the phenomenon in a different way. The exploration of multiple perspectives and the employment of multiple text construction strategies strengthened the rigour of my research.

For practice-related research to be credible it must be possible to interrogate the findings against established academic standards (Mattson & Kemmis, 2007). My first hermeneutic study situated this research in the context of both seminal writers and the findings of current researchers in the field. This explicit exploration of the views of others with experience of the development of professional practice capabilities firmly situated my research in the current context of knowledge of this field. Engagement with the current discourse facilitated interrogation of my experiential study findings against established academic reports and standards through explicit use of the hermeneutic circle. Consistent with a hermeneutic circle strategy, as I deepened my understanding I continuously moved both within and between my literature and experiential text sets. This movement between text sets facilitated comparison of my emerging understanding from engagement with the experiential texts with my understanding developed from the literature text set. In this way I was able to interrogate my findings from the experiential study in relation to the views of seminal authors and researchers in the field, further strengthening the rigour of my research.

In the second hermeneutic study, several text construction strategies were used to facilitate development of deeper understandings of physiotherapy students’ development of professional practice capabilities in a clinical education context. Each strategy was chosen for its ability to reveal the phenomenon in a different way. The text construction strategies employed
in this study were focus group discussions, participant observation, guided interviews, and photo-elicitation interviews. These different text construction strategies were employed to gain different perspectives and each revealed the phenomenon in a different light, thus facilitating the development of a deep and rich understanding of physiotherapy students’ development of professional practice capabilities in a clinical education context.

Credibility and rigour in interpretive research are in a large part dependent on researchers maximising opportunities for participants to express their perspectives without constraint (Bowden & Green, 2010). The use of multiple text construction strategies in this research offered participants various opportunities to develop their understanding and express their views of contextual influences on development of professional practice capabilities in a clinical education context. As an example, the photo-elicitation strategy where student participants generated photographs that guided later interviews was used to provide students with an engaging and enjoyable way of representing contextual factors that influenced their learning while undertaking clinical placement. The use of photography provided students with the freedom to represent factors beyond the immediate workplace that they perceived influenced development of their professional practice capabilities. This technique also provided participants a measure of control in text construction as they chose the subjects of the photographs they took, and those photographs enabled them to raise topics of importance in subsequent interviews. Photographs also served to sharpen participants’ memories and gave interviews an immediate character of authenticity and reconstruction, further assisting participants to voice their perspectives. The following quote by Shelly illustrates the ability of images not only to sharpen participants’ memories but to provide a bridge to those memories.

“They [photographs] do just trigger everything and if you hadn’t done that I don’t think I would have remembered as much. It’s not so much remembering, it’s resurfacing those memories.” Shelly

As participants’ memories were improved by interaction with the photographs they were better able to voice their perspectives, contributing to the authenticity and rigour of the research. The use of photographs in this research stimulated rich dialogue and emergence of new understandings between the participants and me. Illustrating the
development of new understanding, following the photo-elicitation interviews each of the physiotherapy student participants thanked me for providing them with an opportunity to reflect on contextual factors that shaped their learning during clinical placement. Each of the students had developed a more explicit understanding of contextual influences on their learning, as well as strategies to facilitate their learning on future clinical placements. This exemplifies not only the rigour of my research but also its ethical conduct. Participants were able to identify benefit from participation in the research.

As well as providing multiple opportunities for participants to voice their perspectives I also reflexively identified other factors throughout the research that might have influenced their ability to represent their views authentically. As an example of a potentially influential factor, my identity as an academic, clinical supervisor and physiotherapist may have contributed to a perceived power imbalance that influenced participants’ ability to freely express their views. Some of the participants were known to me and could have felt obligated to express views that might be consistent with mine. Throughout the research I emphasised that I had no expectations regarding its outcomes. The students might also have felt reluctant to make negative comments about their clinical education experience, for fear of their clinical supervisor discovering the comment, and that having a negative impact on their clinical education assessment outcome. The students were assured that everything they said was confidential and would not influence their placement experience in any way. The clinical supervisors could have felt threatened by the observation period, as they might have been concerned that I would be evaluating the quality of their supervisory practices. Therefore there was a potential for clinical supervisors to change their practices during the observation period to display behaviours they felt were consistent with my views of what constituted best clinical education practice. I clearly explained to the clinical supervisors that the focus of the research was the influence of contextual factors on students’ development of professional practice capabilities, not the quality of their supervision, and therefore the focus of the observation was the influence of contextual factors on students’ learning and not evaluation of the quality of their supervisory practices. The clinical supervisors were also reassured that I had not formed an opinion as to what constitutes best supervision practice and they were encouraged to continue to do what they always did and not to alter their behaviour. As another example, the aim of using photo-elicitation
techniques, with student participants generating photographs that guided the interviews, was to empower participants to authentically represent contextual factors that they saw as significant influences on their learning while undertaking clinical placements. The effectiveness of this strategy was evidenced in the broad range of places and spaces the students represented in their photographs.

Credible and rigorous research requires participants’ perspectives to be represented as faithfully as possible (Bowden & Green, 2010). Throughout this chapter I have described reflexivity as applied in various phases of the research to make explicit my influence on the development of new understandings and thereby authentically to represent participants’ voices. Further, my use of participants’ native language in the development of labels for themes and my extensive use of verbatim quotes in the findings chapters of this thesis privileged participants’ voices.

The rigour of research can also be strengthened by peer briefing, which functions to keep the researcher honest by probing her biases, exploration of meanings, clarification of basis for interpretations and testing of emergent understandings (Lincoln & Guba, 1985). Throughout the research process I regularly debriefed with my doctoral supervisors, other PhD students and academic colleagues. These discussions were particularly useful for identification of my prejudices and to broaden my thinking to facilitate my openness to the texts. Throughout the research I was also a part of a PhD group comprising several other students at different stages of their candidature and also undertaking qualitative research in separate but related fields as well as their supervisors. This group met regularly and provided critical feedback on my emerging understandings, challenging my thinking and broadening my perspective. Within this group I was privileged to attend a master class with Professor Ronald Barnett (Emeritus Professor of Higher Education, Institute of Education, University of London), who provided general advice on thesis writing as well as individual feedback on my research and developing understandings. I also attended a doctoral student workshop targeting Australian and Scandinavian PhD students with a particular interest in researching professional practice. This workshop provided an excellent opportunity both to discuss current perspectives on researching professional practice and to gain feedback on my research. I have also presented my research findings at several national and international conferences, where my understanding was further developed through discussion with academic peers and through invaluable feedback as to the relevance of my research.
In qualitative research the researcher is the central figure who actively constructs the collection, selection and interpretation of texts. This human factor is therefore potentially a great strength and fundamental weakness of qualitative inquiry and interpretation – a scientific two-edged sword (Patton, 2002). This central role of the researcher highlights the important contribution of transparency to the credibility of qualitative research. Transparent research provides enough information to readers to enable them to understand the context of the research, judge the quality, and make decisions about the relevance and usefulness of the research in application to their situations. In this chapter I have provided a rich description of the enactment of the research to enable readers to see how the research was carried out and how my understandings were developed. I have also clearly articulated my entry horizon, motivations and biases. Development and maintenance of a research audit trail is fundamental to achieving transparency in any interpretive research project (Lincoln & Guba, 1985). Throughout this research I maintained a research journal in which I reflexively recorded my influence on the research at all stages, including question formation, text construction, text interpretation and writing. I undertook critical self-reflection to identify the ways in which my social background, assumptions, positioning and behaviour influenced the research process.

The conduct of this research has been underpinned by an understanding of the philosophical principles informing interpretive research, a vision of the phenomenon under investigation, and an ability to creatively develop and credibly enact ethical, rigorous, and transparent research strategies. Implementation of the strategies summarised above demonstrates that my research was conducted in a rigorous, transparent and ultimately credible manner.

2.11 Reading the findings chapters of this thesis

The next four chapters of this thesis present the findings of this research. The findings described in Chapters 3 and 4 relate to my interpretation of the literature text sets concerned with professional practice capabilities and their development in clinical workplaces. The findings described in Chapters 5 and 6 relate to the physiotherapy students and clinical
supervisors who took part in this research and are not intended to represent a broad representation of clinical education.\(^5\)

In Chapters 5 and 6, participants’ quotes and photographs are used to ground the arguments presented in the text. These quotes are taken verbatim from the interview transcripts and field notes. Quotes are presented in a different font to identify them in the text. To aid readers I have made minor editorial changes to the quotes to improve their readability. These include the use of ellipsis (…) to indicate removal of redundant sections of the quote; the use of square brackets ([]) to insert words that aid the flow and understanding of the text; the addition of punctuation; and the removal of words like “um” and “like” that appear in conversation but are distracting in written text. In making these changes I took care to ensure that the message of the text was not altered in any way.

As mentioned previously, all participants were given pseudonyms.

In Chapter 7 the findings from Chapters 3-6 are integrated to present a final unified interpretation. This resulted in a final chapter (Chapter 8) that is restricted in scope to implications for professional and practice-based education curricula and pedagogy, a reflective critique of this research and implications and suggestions for future research.

### 2.12 Conclusion

In this research I employed an interpretive approach to develop a deeper understanding of physiotherapy students’ development of professional practice capabilities in a clinical education context. I employed research methods informed by Gadamerian philosophical hermeneutics in order to develop this deeper understanding. The research encompassed two philosophical hermeneutic studies in which I constructed and interpreted two text sets. The first was a literature text set, through which I explored conceptual understandings of professional practice and its development in the workplace. The second was an experiential text set constructed from physiotherapy students’ and clinical supervisors’ experiences. Several interconnected interpretive practices, namely focus groups, interviews, observation and photo-elicitation, were employed to gain the views of physiotherapy students and clinical supervisors regarding the phenomenon. These text sets were coded and interpreted within the

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\(^5\) In Chapters 7 and 8 I argue for a potentially higher level of transferability of the findings more broadly to professional and practice-based education.
hermeneutic tradition, using the hermeneutic strategies of fusion of horizons, hermeneutic circle and dialogue of question and answer. Hermeneutic engagement with the text sets facilitated the development of a deep understanding of clinical education as a learning space where workplace influences, engagement in professional practices, student dispositions and experiences and clinical educators’ intentions and actions combine to shape the development of students’ professional practice capabilities. This understanding of clinical education is represented in the following chapters.
Chapter 3 Understanding professional practice and professional practice capabilities

In this chapter I provide an interpretation arising from a philosophical hermeneutic study of a set of literature texts on the topic of professional practice. Through reflective engagement with professional practice literature I came to understand more deeply the complex and embedded nature of professional practice(s) along with the many and varied capabilities underpinning those practices. Areas of resonance and dissonance between professional practice literature and physiotherapy practice in particular are identified and described. Consistent with research conducted within a hermeneutic framework, I adopted a dialogical approach to my encounter with the literature. The sections of this chapter relate to the perspectives I used to dialogue with this set of texts.

3.1 Frame and scope

The overall goal of this entire research program was to explore the development of physiotherapy students’ professional practice capabilities in the clinical education context. Two philosophical hermeneutic studies were undertaken to deepen my understanding of this phenomenon. The first study was constructed from the literature and the second from participants’ (physiotherapy students and clinical educators) experiences. The literature study involved the construction and interpretation of two distinct but interrelated text sets. The first set encompassed practice, professional practice and professional practice capabilities. The second set encompassed the development of professional practice capabilities in general and more specifically in physiotherapy clinical education. My interpretation of the first literature text set is reported in this chapter.

This chapter begins with a broad exploration of practice in general and then narrows to focus on professional practice in particular. Professional practice is described in all its richness and complexity, and the many and varied capabilities underpinning enactment of professional practice are illuminated.

While the term capability may have varied meanings, in this thesis I understand capability to refer to the qualities, abilities or skills that can be used to perform actions and can also be further developed to perform
different actions in the future. In this sense, my use of the term embraces both current abilities and potential ongoing development of these abilities for future action.

The remainder of this chapter explores clinical education as a frame for the development of physiotherapy students’ professional practice capabilities. The findings of this study have added new understandings of professional practice and of the capabilities underpinning the enactment of professional practice in general and in physiotherapy practice in particular. The manner in which those capabilities are developed in clinical workplaces is reported in Chapter 4.

Consistent with research conducted within a hermeneutic framework, I approached the literature with particular questions to shape my inquiry. These questions (reported in Chapter 2) informed the perspectives I used to interpret the literature text sets. The perspectives I used in my encounter with the first literature text set were:

- Practice theory
- Professional practice as a rich and complex phenomenon
- Professional practice capabilities, including qualities, abilities and skills
- Clinical education as a frame for development of professional practice capabilities

The use of these perspectives in my engagement with the first literature text set broadened my horizon of understanding of professional practice, the capabilities underpinning professional practice and the ways in which clinical education contexts frame physiotherapy students’ development of these capabilities. I thus addressed two research questions:

1. What are professional practice capabilities (in general and specifically in the context of physiotherapy graduates)?
2. What is the context of professional practice and clinical education within which professional practice capabilities evolve?

3.2 Elucidating practice

In this section I engaged with a range of literature texts on the topic of practice theory in order to understand more deeply what practice is like in general. I identified areas of congruence between practice as a general
phenomenon and professional practice more specifically, including physiotherapy practice.

Practice as a concept and a lived experience has been the subject of a considerable range of literature. As I sought to understand more deeply what the phenomenon of practice is like, I engaged with a body of literature exploring practice theory. Within this body of literature, practice has been described in general terms as a broad range of doings or patterns of activities (Rouse, 2007). These patterns of activities include the use of relevant equipment and material culture, as well as vocabulary and other linguistic forms of performance (Rouse, 2007). This description of practice resonates with physiotherapy practices: physiotherapy is embedded in historical traditions, with physiotherapists employing both particular equipment and specific language. For example, musculoskeletal physiotherapists use goniometers to measure joint ranges of movement and use terms such as flexion, extension, abduction and adduction to describe those movements. In my interpretation of practice I have adopted Rouse’s expansive view of practice as activities embedded within a tradition, due to its resonance with physiotherapy practice. Rouse’s view of practice can facilitate the development of broad and deep understandings of what practice is like in general, the particular phenomenon of professional practice, and physiotherapy practice as the key professional practice that is the setting of this research. The term practices can refer to the activities or dimensions of practice; for example, clinical decision-making is a dimension of health professional practice (see e.g. Higgs, 2011). Practices can also be used to describe the forms of practice of a range of professions, as in the phrase, “the practices of medicine, nursing and physiotherapy”.

The understanding of practice as performance embedded in material culture and tradition highlights a central contribution of human (embodied) beings and shared understandings of practice traditions to the enactment of practice. The centrality of both individuals and tradition to the formation and enactment of practice demands inclusion of both individual and cultural influences in any exploration of contextual influences on practice performances. This embodied and embedded view of practice is also congruent with contemporary physiotherapy practice, which is embodied in physiotherapists’ actions and embedded in

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6 While the word performance has various meanings and can be understood to mean an artistic presentation, in this thesis I use it to refer more generally to a manner of functioning and more specifically to actions undertaken in the enactment of professional practices.
physiotherapy practice traditions. The Australian Physiotherapy Association’s Code of Professional Conduct provides a salient example of the manner in which practice traditions frame performance of contemporary physiotherapy practice.

3.2.1 Theories about practice

Practice theories are important because they provide a lens with which to illuminate important aspects of human life that could otherwise remain hidden. Most practice theories primarily describe social practice; that is, the situated doings of human agents as interactive with those of other human agents (Rouse, 2007). Importantly, practice theories provide a vehicle to develop thinking about what might be involved in the notion of practice (Green, 2009a) and therefore to understand more deeply what practice is like. The following exploration of practice theories is based upon the writings of key contemporary theorists in the field: Foucault (1980), Green (2009), Gibson (1979), Haugeland (1999), Kemmis (2009), Rouse (2007), Schatzki (2002) and Schwandt (2005). I chose these theorists because of the resonance of their explorations of social practices with physiotherapy practice, which is enacted by individuals largely with and for other individuals. These theorists have spent many years developing insightful and nuanced understandings of both the formation and enactment of social practices. Through hermeneutic interpretation of the work of these theorists I have sought deeper understanding of the complex nature of practice and in so doing have established a solid foundation on which to build a deep and rich understanding of professional practice. Identification of areas of congruence between practice theories in general and physiotherapy practice in particular has also provided a platform for the development of deeper understanding of the manner in which physiotherapy practice is realised and learned in practice contexts.

Practice, a distinctive feature of social life, is arguably something to be understood in its own right (Green, 2009b). It is a complex phenomenon, and contemporary practice theorists have adopted various stances in their efforts to develop their understanding. For example, Schatzki (2002) has embraced a broad understanding of practice in his depiction of practice as a bundle of activities or an organized nexus of actions. Kemmis and Trede (2010) have also adopted a broad approach to their exploration of educational practices. These authors contend that all learning occurs through participation in practice, and it is this participation that confers meaning, value and significance on individuals’ actions, intentions and lives. This understanding of practice as activities requiring participation
draws attention to the performance aspects of practice and, in so doing, underlines embodied dimensions of practice performances. This is particularly salient for exploration of physiotherapy practice, which is primarily constituted of practice performances and activities involving bodily actions. Physiotherapists are often required to use their bodies in practice performances. For example, many assessment and treatment techniques involve physical actions by physiotherapists and their clients (such as therapists using their hands to assist clients to move a limb through a range of motion).

Acknowledging the complex nature of practice, and seeking to develop a comprehensive perspective on practice, Kemmis (2009) suggested that practice must be understood multi-dimensionally. He argued that practice research undertaken by researchers from various intellectual traditions, each focused on different aspects of practice, results in confusion. In his exploration of professional practice, Kemmis embraced the complementarity of different traditions in the study of practice. These practice traditions include individual performances; wider social and material conditions that constitute practice; the intentions, meanings and values that constitute practice; the language, discourses and traditions that constitute practice; and a historical dimension.

In an exploration of contemporary theories of practice, Rouse (2007) also highlighted the multi-dimensional nature of practice. He emphasised a broad range and scope of activities that constitute practice and therefore a broad range of relevant equipment and tradition that shape practice enactment. Rouse also identified a dynamic dimension to practice performance, due in part to the co-existence of different practices within the same cultural milieu. He argued that these different practices come about as a consequence of individual practice performances shaped by biological and physical characteristics of human beings and their environments. From these theories he interpreted three core domains of practice:

1. The embedded quality of practice
2. The embodied and tacit nature of practice
3. The dynamic and transformative nature of practice.

In combination, these three domains of practice, or ways of understanding practice, provide a useful framework for a broad exploration of practice in general and of the practices of specific professions (physiotherapy being
one such example), in order to develop full and rich understandings of those practices. Rouse identified these features from his exploration of contemporary practice theories which he saw as being founded upon the theoretical writings of philosophers Wittgenstein, Heidegger, Foucault, Bourdieu and Gadamer who, in seeking to explicate the enactment and formation of practices, examined the philosophical thinking that informed contemporary practice epistemology.

In the following sections I explore Rouse’s (2007) three key domains underpinning contemporary practice theories, along with their interdependencies, to guide my deepening understanding of practice. This simultaneous focus on individual and contextual aspects of practice performance in general also provides a solid platform on which to develop understanding of the way in which student dispositions and qualities coalesce with practice contexts to shape the development of professional practice capabilities in physiotherapy practice in particular.

### 3.2.2 Practices formed and enacted within traditions

Tradition exerts a pervasive influence on the enactment and formation of practices. All practices are products of prior practices, shaped by contemporary circumstances and past histories (Kemmis & Grootenboer, 2008). In general, human practices are social (Kemmis & Trede, 2010), with the rules, norms and concepts underpinning social practices gaining meaning and normative authority from their embodiment in publicly accessible activity (Rouse, 2007). Although it may be argued that practices comprise individual performances, these performances take place and are only intelligible when viewed as belonging to or enacted within a practice tradition (Rouse, 2007). Practices may therefore be viewed as purposeful, situated and flexible engagements with the world, embedded in traditions and interactions with other individuals (Schwandt, 2005). The practice-specific knowledge that underpins practice performance exists through and is embedded within linguistic and social traditions (Fuller, Hodkinson, Hodkinson, & Unwin, 2005). This embedded quality of practice highlights the important way in which tradition influences the enactment of current practices.

Individuals are always situated within traditions and traditions are always a part of individuals, providing a model or exemplar for practice, with the authority of practices always exerting power over individuals’ attitudes and behaviour (Gadamer, 1989). Practices are formed by individuals’
responses to an already meaningful world, and the meaningfulness of practices is the product of past states of the world to which other individuals have responded and thereby reconfigured (Schatzki, 2002). In all practice situations knowledge is already present in established activities and cultural norms, and is modified or expanded through the contributions of new participants as they extend, transform and enrich their previous knowledge in response to changing demands in different places at different times (Eraut, 2000; Fuller, Unwin, Felstead, Jewson, & Kakavelakis, 2007; Kemmis & Grootenboer, 2008) This understanding of practice performance as a complex interweaving of both past and present practices, which together shape the development of future practices, illuminates the transformative and dynamic aspects of practice.

As practice is intimately bound with tradition, explication of practice requires an understanding of how patterns of social practice and tradition shape the enactment of current practices and the formation of future practices. Through his exploration of the pervasive effects of power, French philosopher Michel Foucault insightfully articulated how individuals and their actions are meaningfully shaped through social interaction and tradition. Foucault (1977, 1980) developed a sophisticated awareness of the subtle and complex history of the life-world we inhabit through an exploration of the productive capability of power, particularly its effect on the formation of individuals. Foucault (1980) explored the multidimensional and complex nature of power and revealed both its pervasive nature and its productive capability. He viewed power within societal institutions as circulating rather than functioning within a chain, with individuals circulating within its threads, continually being in a position of both undergoing and exercising power.

Foucault further described the influence of power in the process of socialisation as the point at which power reaches into the very grain of individuals, contributing to the formation of their actions, attitudes, discourses, learning processes and everyday life. Foucault’s writings illuminate the diffuse and entrenched effects of power perpetually operating in all social situations, and highlight the important dual contribution, both of tradition and of individuals’ positions within social webs, to the enactment of current practices and shaping of future practices.

Foucault’s identification of the diffuse and entrenched effects of power on learning and practice performance has particular relevance to physiotherapy clinical education, which is often undertaken in hierarchical
healthcare contexts. This pervasive influence of power on the enactment and performance of practices in general highlights the need also to explore and explicate the influence of power on performances within specific practices, with physiotherapy being one such example.

Social practices exist and evolve in a context, in a nexus characterised by an intimate weave of activity and objects, with a person’s position in the nexus determined by relationships among the things within that nexus (Schatzki, 2002). For example, physiotherapy students’ position in the clinical workplace hierarchy is determined in part by their student status and in part by the status afforded to physiotherapists in general in relation to others in the workplace, including doctors, other allied health professionals, nurses, porters and so on.

Practices are also value-laden, and unfold in a web of relationships of human social interaction (Kemmis, 2009). Given this centrality of relationships to practice performance, it is not surprising that Kemmis and Trede (2010) have contended that the study of practice can in fact be viewed as the study of connections. I argue, however, that focusing on the relational aspects of practice performance alone may result in a diminished understanding of practice, given the intimate connection between practice performance and material objects (and people).

Practices are intrinsically connected to and interwoven with objects. Many actions require objects for their performance and many performances are directed at objects (Schatzki, 2002). Distinctive artefacts (such as the doctor’s stethoscope) play an important part in the implementation of any profession’s practice and often hold a significant symbolic meaning (of role, place, power) in the practice.

The meanings of individual performances of a practice are dependent upon the particular context in which they are enacted (Rouse, 2007). Physical contexts shape practices through their ability to enable and constrain particular practice actions (Schatzki, 2002). Particular objects embedded in contexts provide opportunities for meaningful activity by individuals alongside development of expertise through participation in an institution’s structure (Haugeland, 1999).

In his development of the theory of affordances, Gibson (1979) also emphasised the complementarity of individuals and contexts in the enactment of practices. He defined affordances as what environments offer individuals, what they provide for good or ill, being equally a fact of the
environment and a fact of individuals’ behaviour. The possibilities of environments can therefore be considered inseparable from behaviour of individuals. Gibson’s theory of affordances highlights a need to further explore the manner in which an interdependent relationship between individuals and practice contexts influences both the enactment of practice and the development of practice capabilities within practice traditions.

In this section, practices were understood broadly as human performances embedded in practice traditions, including both relational and physical dimensions. These traditions or practice contexts were demonstrated to have a powerful influence over both the enactment of current practices and the formation of future practices. This finding is important because it draws attention to the centrality of both relationships and physical objects within practice contexts in the shaping of practice performance. This underlines a need to explore the pervasive influence of both relationships and objects within practice contexts on practice performance in order to develop a deeper understanding of the manner in which practice contexts shape practice performance in general and physiotherapy practice in particular.

### 3.2.3 The dynamic and transformative nature of practice

Practice can be understood as dynamic and evolving, as a result of changing patterns of collective performances of practice within and across cultures and individual practice performances enacted in response to particular social contexts. Gadamer (1989) drew attention to the dynamic nature of practice in his description of the evolving nature of traditions due to individual participation. Later, in a pivotal text on social practice, Schatzki (2002) also emphasised the dynamic nature of practice as a temporally evolving open-ended set of doings and sayings. Practices are dynamic and evolving as they are transformed over time by the interaction of multiple practitioners and/or performances (Rouse, 2007).

Human social practices, by occurring under different conditions, in different times and places, generally occur with adaptive variations (Kemmis & Trede, 2010). The contexts of practices (including practice traditions, practice situations and practitioner dispositions) have a significant direct or indirect influence on practice design, process and outcomes (Higgs & Titchen, 2001). The particularity of practice performances and individual responses to practice contexts creates conditions for practice transformation and evolution (Schwandt, 2005). The
dynamic nature of practice is due in part to variations in practitioners’ performances undertaken in a range of practice contexts. This finding has particular resonance for physiotherapy practices, which are undertaken in a wide range of contexts. Some of the many areas where contemporary physiotherapists practise include acute hospital settings, community health, private practice, rural and metropolitan areas.

Practice performances embedded within particular contexts have the potential to both shape and be shaped by the culture within practice situations (Unwin & Fuller, 2003). Therefore the transformative potential of practice performances shape both practices and the individuals performing them. Individuals’ identity can thus be considered to be multiple, unstable and constantly changing through interactions with others (Schatzki, 2002). In the process of learning a practice or joining a practice community both practice and practitioner are invariably transformed. The extent of this transformation varies in different contexts, being shaped by practitioners’ interpretation of practice traditions, the nature of unique practice contexts, and practitioners’ abilities to undertake practice performances.

My emerging view of practice has deepened with this understanding that practice performances are transformative for both practitioners and for practice traditions. This deeper understanding of the dynamic and transformative nature of practice is particularly relevant for my research because it draws attention to the significant influence of practice contexts on practice performances and the consequent formation of individuals’ practices. As physiotherapy practices are undertaken in a broad range of contexts there is a real need in the context of physiotherapy education (as with this research) to explore the manner in which these contexts shape physiotherapy students’ development of professional practice capabilities through engagement with both practice traditions and individual practice performances.

3.2.4 Practice elucidated
In this section my understanding of what practices are like was expanded through my interpretation of literature around practice theory. Through this hermeneutic exploration of texts on the topic of practice I illuminated practice as a complex phenomenon encompassing a dynamic and broad range of activities embedded in particular traditions and embodied in human performances. Practice traditions or contexts include both material (relevant equipment) and relational (individuals’ interactions with current practices) dimensions. Practices embodied in practitioners’ performances
and embedded in practice traditions are continually evolving and are transformative for both individuals and practices. A strong resonance was demonstrated between practice theories in general and physiotherapy practice in particular. Thus, practice theory provides a valuable lens for deepening understanding of physiotherapy practice performance. Practice theory therefore provides a useful tool to facilitate fine-grained examination of the manner in which both individual and contextual factors shape the development of physiotherapy students’ professional practice capabilities in clinical education contexts.

3.3 Describing professional practice

In this section I build on my understanding of practice as a general social phenomenon to examine professional practice as a particular form of practice. I use the perspective of professional practice as a rich and complex phenomenon in order to understand more deeply what professional practice is like in particular. Kemmis (2009) advises that, due to the inherent complexity of professional practice, multiple standpoints need to be adopted in any attempt to understand professional practice more fully. My understanding of professional practice has been shaped by the multiple standpoints I adopted as I interpreted this text set. In my development of deeper understanding of professional practice I built on my previously described understanding of practice as dynamic and experiential, embedded in social and physical contexts, and embodied in and transformed through individual performances over time.

3.3.1 Professional practice as a rich and complex phenomenon

The complexity and richness of professional practice as a particular form of practice are in part revealed in the evolution of descriptions of professional practice over the past decades. Descriptions of professional practice are constantly evolving and have become increasingly complex over time, reflecting both the dynamic and transformative nature of professional practice and the deepening understanding of professional practice. Early descriptions of professional practice reflected a profession’s specific knowledge base and ethical guidelines (Hughes, 1959). More recently, understanding of professional practice has evolved to incorporate the reflective and critical thinking skills required for enactment of professional practice (Barnett, 1997; Schön, 1983, 1987), various types of specialised knowledge informing professional practice (Fish, 1998; Higgs & Titchen, 2001), practitioner qualities, and the influence of the context in which the
professional practice occurs (Trede & Higgs, 2009). Current descriptions of professional practices also emphasise an experiential dimension; that is, we experience practice, live through it, remember it afterwards, and look forward to it or not (Green, 2009a). The complexity and richness of professional practice stems in part from practitioners’ unique enactment of professional practices guided by their practice contexts, including practice traditions and the individual practitioners’ qualities.

Hughes (1959) defined a profession as a group of individuals who make a claim to extraordinary knowledge in matters of great human importance. This claim to extraordinary knowledge has led to professionals being accorded special mandates for social control of matters within their expertise, license to determine who enters the profession, and a relatively high degree of autonomy in the regulation of their practice (Schön, 1987). Thus, within a profession, we find a community of practitioners whose special knowledge sets them apart from other individuals in relation to whom they hold special rights and privileges (Schön, 1987). The relative status of the various professions is largely correlated with the extent to which they are able to present themselves as rigorous practitioners of science-based professional knowledge. This professional foundation on science-based knowledge underpins health professionals’ (including physiotherapists) current reliance on evidence-based knowledge generated by randomised clinical trials to guide clinical decision making, while it de-emphasises the application of professional judgement, expertise and individual discretion in treatment decision-making.

The richness and complexity of professional practices are also evidenced by the multiple and interactive dimensions of expertise underpinning practice performance. Schön (1987) argued that, besides professional knowledge⁷, professional practitioners need wisdom, talent, intuition and artistry. Higgs and Jones (2000) examined the many practitioner capabilities underpinning professional artistry. These authors contend that professional practice performance occurs on a foundation of multiple practitioner capabilities including clinical reasoning, technical clinical skills, communication skills, interpersonal skills, a sound knowledge base, and cognitive and meta-

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⁷ The terms professional knowledge and practice knowledge are used interchangeably in this thesis a) to reflect a core idea of knowledge used in professional practice and b) to reflect their dual use in the literature. When specific forms of professional practice knowledge are referred to, this is indicated by the use of more specific terms e.g. propositional knowledge (that derived from theory or research) and practice-based knowledge (that derived from practice experience).
cognitive proficiency. I would extend this list to include practitioner qualities, particularly integrity, that enable ethical practice performances such as those aiming to achieve optimal outcomes for clients in different practice contexts.

Professional practice is a distinctive, ethical and complex form of social practice (Green, 2009b) that is typically performed in complex and uncertain contexts. Central to professional practice performance, and distinguishing professional practice from other social practices, is the aim to use professional knowledge and expertise in the service of others (Higgs, 2012) in the face of unsolvable dilemmas, and in uncertain and complex environments (Kinsella & Pitman, 2012). In this way the inherent humanness of professional practice contributes to its richness and complexity. Professional practice is uniquely enacted by individuals with and for other individuals, guided by the ethical aim of achieving optimal outcomes for other people (particularly clients).

In this section the richness and complexity of professional practice has been illuminated. Its richness stems from its inherent humanness. Professional practice encompasses a variety of individual practice performances guided by a wide range of individual practitioners’ qualities and practice traditions (such as ethical guidelines) and is framed by the particular practice contexts within which these performances occur. The next section further explores the embodied and embedded dimension of professional practice to develop a more holistic understanding of its complexity and richness.

3.3.2 **Professional practice knowledge and the tacit and embodied nature of professional practice**

Professional practice is built upon a solid foundation of specific practice knowledge that comes to life through practice performances (Kemmis, 2012). This practice knowledge is highly situated and is informed by tacit knowledge of people and situations (Eraut, 1994). This understanding of practice knowledge as developed through practice performances or bodily actions highlights the interdependent relationship between practice performance and knowledge development. Thus, practice knowledge has a significant tacit dimension.

The performance of professional practices in dynamic and uncertain contexts demands knowledge beyond a set of propositions taught as theory. This practice-based knowledge is developed through current
practice performances and informs future practice performances. In the health domain, Higgs, Titchen and Neville (2001) coined the term professional craft knowledge to describe the specific knowledge required for professional practice. These authors embraced a broad definition of professional craft knowledge, in that it comprises general knowledge gained from practice experience, alongside specific knowledge about this particular patient, in this particular situation at this particular time. This understanding of professional craft knowledge captures the situated, complex and dynamic nature of knowledge derived from professional practice and importantly begins to explore the manner in which it is developed through practice performances. It also underscores the unique and tacit nature of professional practice knowledge: all practitioners construct their knowledge in response to their unique set of practice experiences. This tacit and situated nature of professional knowledge development has important implications for understanding the manner in which physiotherapy students’ professional practice capabilities are developed in clinical education contexts.

Practice knowledge is highly situated and is informed by tacit knowledge of people and situations, routinised actions, and tacit rules behind intuitive decision-making (Eraut, 2000). Practice theorists have argued that practices have a crucial tacit dimension, a level of competence or performance prior to, and perhaps even inaccessible to language (Eraut, 2000; Rouse, 2007). This tacit practice knowledge is embedded in the practice itself and in the identity of the practitioner (Higgs, Titchen, & Neville, 2001). In practice contexts, practice traditions are often tacitly embedded in practice rules and norms, and novice practitioners must learn these rules implicitly through engagement in professional practice activities.

In a pivotal paper on tacit knowledge, Polanyi (1962) described tacit knowledge as that knowledge whose origins are not part of ordinary consciousness. It is that which we know but cannot tell. Tacit knowledge is developed primarily through implicit learning systems that operate as a default mode for acquisition of complex information about the environment (Eraut, 2000). Implicitly acquired knowledge is richer and more sophisticated than that which can be explicated (Reber, 1993). Practitioners acquire knowledge of rule systems that define the

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8 Implicit learning has been described by Reber (1993) as “the acquisition of knowledge that takes place largely independently of conscious attempts to learn and largely in the absence of explicit knowledge about what was acquired” (p. 5).
environment, enabling them to behave in a relevant way in that environment, but they are largely unable to describe the rules they use. In this way, tacit knowledge underlies actions and provides the basis for daily interactions with others (Eraut, 2000).

This tacitly-acquired understanding of people and situations is important because it highlights the complex nature of professional knowledge development. In particular, it draws attention to the importance of understanding practice norms and rules in specific contexts in the development of professional knowledge. This is especially relevant to physiotherapy clinical education, as physiotherapy students typically undertake several short-term (4-5 weeks) placement experiences with various health services, at which time they are required to fit in with the health services’ cultures.

Embodied actions form another important tacit dimension of practice performance. Embodied action, which includes bodily dispositions or habits, forms a locus of continuity in social practices; a practice can be sustained over time because it is inculcated in the ongoing dispositions or habits of individual agents (Rouse, 2007). Ballet provides a salient example of an embodied practice. Ballet has no fixed written texts with dancers required to master steps and variations, rituals and practices; physical memory is central to ballet. When dancers know a dance they know it in their muscles and bones (Homans, 2010). Skilled performances manifest an embodied sense as they permit flexible responsiveness to changing circumstances and environments. This understanding of an embodied dimension of skilled performances resonates strongly with physiotherapy practice, with experienced physiotherapists knowing their practices in their hands (such as when performing joint mobilising techniques) without necessarily being able to articulate it.

The understanding of practices as performances underlines embodiment as an important dimension of professional practice. The embodied nature of practice is further highlighted by the contention of Kemmis and Trede (2010) that practices are experiential and exist as realms of possibility, as realms of possible action. Physiotherapy practice provides a salient example of professional practice knowledge embodied in individuals’ actions, as it is primarily a practice of actively doing things, with many physiotherapy assessment and treatment interventions involving physical actions. Skilled action can in fact be considered an exercise of knowledge and therefore cannot be separated from intellectual operations (Ryle, 1949).
Ryle also contended that, for the individual performing the practice, each practice performance represents a new lesson to on how to improve future performances. Ryle thus highlighted the interdependent relationship between practice performance or bodily actions and knowledge development, each relying on the other. This interdependence suggests that meaningful learning in physiotherapy clinical education contexts can be achieved through physiotherapy students’ active engagement in physiotherapy activities.

This section has highlighted tacit and embodied dimensions of professional practices and the specific knowledge bases underpinning them. Adding further complexity to my understanding of professional practice is the often tacit nature of professional practice knowledge that is embodied in practice performances and embedded in practice contexts. Importantly, the crucial interdependence between practice performance and knowledge generation has been demonstrated. These findings have implications for physiotherapy clinical education, in that a critical influence of student participation in practice activities to stimulate professional knowledge generation and improve future practice performances has been established. The manner in which such participation shapes student learning is further explored in Chapter 4 and is also explored in the experiential part of this research as reported in Chapter 6.

### 3.3.3 Moral dimensions of professional practice

At the core of professional practice lies the ethical aim of achieving optimal outcomes for clients in their unique situations. Professional practices incorporate doing things with and for other people within a purposeful, informed, ethical and aesthetic framework (Ewing & Smith, 2001). These practices incorporate a rare blend of people-centred and interactive processes, accountability and professional standards, and are guided by codes of ethical conduct in practice decisions and actions (Higgs, Hummel, & Roe-Shaw, 2009). As an example, the Australian Physiotherapy Council’s Standards of Physiotherapy Practice and the Australian Physiotherapy Association’s Code of Conduct guide the conduct of Australian physiotherapists’ practice and physiotherapy education.
Contemporary understandings of the moral dimensions of professional practice have been informed by the Aristotelian concept of praxis. Kemmis and Smith (2008) described praxis as morally committed action, informed by theoretical, technical and practical forms of knowledge that constitute traditions in a field. Praxis is action that is consciously moral and just and that embodies agency, subjectivity, being, identity and reflexivity. This understanding of praxis implies that professional practitioners are not bound by a rigid set of rules and performance directives; rather, they are expected to undertake right and considered action in unique circumstances, even if that action challenges taken-for-granted traditions in a given field.

Professional practice is therefore always particular, relating to a specific individual in a specific circumstance, and always seeks to achieve the best outcome for each individual. Interestingly, while Kemmis and Smith described aspirational, moral and just practice as the goal and standards expected of professional practitioners, they did not explain the capabilities that might facilitate achievement of this level of practice. For example, it could be argued that the ability to challenge taken-for-granted traditions in a field requires practitioners to have confidence in the appropriateness of their decisions as well as the courage to question practice traditions. More specifically, in the case of physiotherapy students in clinical education contexts, they may lack both a sufficient level of confidence in their clinical decisions and the courage to question senior physiotherapists who may well be marking their performances.

More recently, Kemmis (2012) emphasised the embodied, embedded and transformative nature of praxis though his contention that praxis is developed through practitioners’ actions, individually and collectively. The immediate and long-term effects of these actions change not only their own practice but also their world of practice. In this way, any advance in praxis can only be achieved through practice experience, and it is transformative for the practitioner, the practice tradition and the people with whom the practitioner works. Professional practitioners are accountable for their actions. Through experiencing the irreversible consequences of their actions, professional practitioners become wiser about making action choices when they encounter uncertain practical situations (Kemmis, 2012).

9 Praxis in an Aristotelian sense is understood as right conduct, the emphasis being not only on action but also on a particular type of action. Praxis is morally committed action that is informed by traditions in a field. Praxis is what people do when they take into account all the circumstances and exigencies that confront them at a particular moment; then, taking the broadest view possible of what it is best to do, they act (Kemmis & Smith 2008 p4).
The practice knowledge and wisdom developed in this manner are pragmatic, variable, context-dependent, and oriented toward action (Kinsella & Pitman, 2012). Thus there are strong links between practitioners’ reflections, practice contexts, performance of ethical practice and the generation of professional knowledge.

This discussion of moral practice has drawn attention to core capabilities that enable ethical professional practice performances. These core capabilities encompass sound decision-making, including the ability to select relevant and credible actions for the circumstances and the ethical courage to undertake such actions even in the face of pressure to conform to hegemonic practices. Exploration of the manner in which physiotherapy students learn to deal with these ethical practice challenges was undertaken in the experiential part of this research. The findings from that exploration are reported in Chapters 5 and 6.

### 3.3.4 Reflective and critical dimensions of professional practice

In this section, the relationship between reflection and professional practice is explored to develop understanding of the reflective and critical dimensions of professional practice. In contemporary healthcare contexts, reflective practice has become an essential component of being a healthcare professional (Brown & Ryan, 2003). This discussion is informed by the seminal work of Donald Schön (1983, 1987), who identified reflection as crucial to professional practice performance, and by the writings of contemporary educational theorists, particularly Steven Brookfield (1995) and Ronald Barnett (1997).

Schön (1983) explained that the inherently unstable situations of professional practice, imbued with uncertainty, complexity and doubt, are catalysts for reflective thinking by professional practitioners. Schön (1987) described these arenas of professional practice where messy but crucially important problems required innovative and unique solutions, as “swampy lowlands”. Problems encountered in these swampy lowlands defy technical solution and hence stimulate reflective thinking that enables professionals to call on codified, experiential and personal knowledge to construct the best solutions for their clients.

Schön (1987) used the term “professional artistry” to describe the competence that experienced practitioners sometimes display in these unique, uncertain and conflicted situations of practice. He distinguished
professional artistry from standard propositional knowledge (codified knowledge), as an exercise of intelligence necessary to mediate the use of propositional knowledge in practice to achieve optimal outcomes for individuals in unique circumstances. Such reflective thinking is integral to both autocratic and moral dimensions of professional practice, as practitioners adapt codified, personal and experiential knowledge to facilitate the achievement of optimal outcomes for individuals in unique practice contexts (Schön, 1983, 1987). In this way, Schön positioned an epistemology of practice in the swampy lowland where acknowledgement of the significance of practitioner experience gives legitimacy to everyday dimensions of practice and challenges the dominance of technical rationality (Kinsella, 2007). This is significant because it highlights practitioners’ ability, through reflective thinking, to use experience as a platform for rich and complex learning (Kemmis & Trede, 2010). These strong links between reflection, experience and rich learning have particular relevance for the manner in which physiotherapy students develop professional practice capabilities in clinical education contexts.

More recently, educational theorists Brookfield (1995) and Barnett (1997) have challenged and extended Schön’s (1983, 1987) conception of reflection for professional practice. At the crux of that challenge to Schön’s reflective practitioner concept is the notion that reflection is an individual activity undertaken by practitioners. Barnett argued that peer judgment and the sense that professionals receive their authority partly from their standing in the profession does not sit easily with Schön’s notion of the individual reflective practitioner. Brookfield and Barnett both contend that professional practice requires thinking beyond reflection; it requires thinking that seeks to analyse and produce alternative actions, in short, critical thinking.

Critical thought diverges from reflective thought through its application of critical standards or community values to an object, theory or practice (Barnett, 1997) and its seeking to understand how considerations of power underpin, frame and distort practices (Brookfield, 1995). These theorists emphasised the key contribution of collaboration to critical thinking, recognising that critical thinking is socially constructed and sustained through interchanges with colleagues around collective standards.

Brookfield (1995) described circles of peers engaged in mutually respectful yet critically rigorous conversations as catalysts for critical thinking. Thus, peer conversations suggest new possibilities for the development of
professional practices and new ways to analyse and respond to problems encountered in practice. This emphasis on the relational aspects of critical thinking reveals a potentially significant contribution of practitioner communication and interpersonal skills to the facilitation of socially constructed critical thought and the quality of professional practice performances. This argument has important implications for the construction of physiotherapy students’ clinical education experiences that facilitate interaction with colleagues in order to facilitate the development of critical thinking abilities.

Interestingly, Brookfield (1995) also explored the relationship between practitioner autonomy and a reflective orientation. He contended that lack of a reflective orientation results in an unseemly degree of trust in the role of chance in professional practice. Without a reflective orientation the achievement of positive outcomes is viewed as a matter of luck, with practitioners inhabiting what Freire (1968) called a condition of “magical consciousness.” Fate or serendipity rather than individual agency is then seen as shaping professional practice, with individuals apparently being powerless to control the activities and outcomes of their practice. To avoid such passive control, professional practitioners need to engage in reflection to purposefully construct optimal solutions for individuals in unique practice contexts and to resolutely shape ongoing transformation of their individual practices; in so doing, also to transform practice traditions.

In this section I have portrayed my rich understanding of the relationship between reflective and critical thinking and professional practice performance, developed through this phase of the research. Both reflective and critical thinking were revealed to be central to engagement in professional practices because individual practitioners use reflective and critical thinking to adapt codified knowledge to achieve optimal outcomes for their clients, often in uncertain and complex contexts. Critical thinking was identified as diverging from reflective thinking by its application of collective standards and its intrinsic collaborative nature. Reflective and critical thinking are both necessary to mediate the use of professional knowledge in practice. The manner in which physiotherapy students develop (and are helped to develop) reflective and critical thinking abilities during clinical placements is further explored in Chapter 4 and was explored in the experiential component of this research as reported in Chapter 6.
3.3.5  Professional practice as socially constituted practice

In this section I build on my previously described understanding of the pervasive influence of tradition on the enactment of practice in general to more deeply understand social influences on professional practice in particular. Social dimensions of practice contexts influence professional practice in a significant and complex manner. Professional practice takes place in social and political contexts (Kinsella & Pitman, 2012) that encompass past practice traditions and complex patterns of relationships between different kinds of people (Kemmis, 2009). Kemmis and Trede (2010) have described a range of social influences on the complexity and diversity of professional practice, including past individual and collective practices, cultural and social movements, economic and political conditions, and key leaders.

Practice traditions exert a strong influence on the formation and enactment of professional practices. Current and past professional practices are connected by practice traditions which have been developed over time through enactment and transformation of professional practices by many practitioners. Individuals entering into a professional practice are required to come into full membership of the tradition that guides and shapes that practice. The transition occurs through a process of professional socialisation, which is not a single event but rather involves ongoing development of individuals as they interact with practice contexts, both during entry-level education and after graduation (Holland, 1999). Professional socialisation includes development of an understanding of what it means to be a professional (Cohen, 1981) and this continues to evolve for some time after graduation (Schwertner, Pinkston, O’Sullivan, & Denton, 1987).

Another strong social influence on professional practice enactment and formation is the fundamentally relational nature of professional practice activities. Practice is embedded in distinctive arrangements of people, roles and relationships and is thereby constituted in a web of “relatings” and “doings” of different kinds of work (Kemmis, 2009). This description of professional practice has particular resonance for physiotherapy practice, which is often undertaken in several communities of practice such as working alongside other physiotherapists and being part of the physiotherapy profession (Plack, 2008), as well as working with other healthcare professionals in healthcare teams. In all cases, building and maintaining good professional relationships is fundamental to good
practise and achievement of optimal (often shared) outcomes. As an example of doings and relatings in a physiotherapy context, a physiotherapist working in an acute care context often has a distinctive role that includes using specific physiotherapeutic techniques related to maintaining patients’ cardio-respiratory status, together with developing collaborative relationships with other professionals on the ward such as nurses, doctors, other health professionals and patients. Both the techniques physiotherapists employ and the character of the relationships they develop are strongly influenced by the culture of the workplace or “the way things are done here”. This relational model of professional practice highlights the important contribution of engagement with authentic practice activities as part of the development of physiotherapy students’ professional practice capabilities in clinical workplaces.

This exploration of the manner in which social contexts mediate professional practice performance confirmed the pervasive and strong influence of tradition on the formation of contemporary professional practice performances. A relational model of professional practice, as proposed by Kemmis (2009), resonates with contemporary physiotherapy practice demonstrating the critical contribution of access and engagement in authentic practice activities to the development of professional practice capabilities. It could thus be argued that physiotherapy students learn to negotiate different roles and their position in relationship webs across different clinical workplaces through engagement with authentic practice activities.

3.3.6 Professional practice framed by context

Practice is always situated. Practice contexts should be considered an integral part of practice and therefore should never be taken for granted (Green, 2009a). Professional practices are always materially, economically, historically and socially formed and structured (Kemmis, 2009). This examination of context therefore embraces a broad approach and includes social, material and economic dimensions of context. Health contexts can be viewed as having a pervasive influence on the enactment and formation of healthcare practices. This section explores the manner in which professional practices are shaped by the contexts within which they occur, and uses the influence of health contexts on health professionals’ practice as an example.

Many and varied contextual influences shape the nature of professional practice. For example, members of a profession often work in practical
human settings in which they promote the wellbeing of individuals and society (de Cossart & Fish, 2005). Each local form of a particular profession’s practice presupposes distinctive arrangements of things and relationships characteristic of that practice (Kemmis, 2009). Resources, personal capabilities, expectations, obstacles and constraints are unique to each situation, and they include therapists’ beliefs and commitments, procedures and rules, and clients’ dispositions (Schwandt, 2005). Thus, professional practice is shaped by practitioners’ engagement with material artefacts, people (including clients) and practice traditions evident in procedures and rules. This identification of clients as part of professional contexts is particularly salient for physiotherapy practice, which routinely involves professional relationships with clients or patients. This critical quality of contextual influences on the enactment and formation of professional practices highlights the need to explore and deepen understanding of specific contextual influences on the development of professional practice capabilities. Contextual influences on physiotherapy students’ development of professional practice capabilities are explored in Chapter 5.

In contemporary healthcare environments, increasing demands for accountability provide a salient example of the manner in which the economic dimensions of context influence professional practice. These demands for accountability, in combination with the increasing complexity of clients’ health conditions and the consequent diversity of clients’ wants and needs, often lead to conflict between practice traditions (particularly evidence-based practices) and ethical guidelines. Membership of a health profession such as physiotherapy brings extra challenges, in that physiotherapists provide services and have a duty of care to clients who are often vulnerable through illness, pain or disability (Higgs, Hummel, & Roe-Shaw, 2009). These complex situations require health professionals to make decisions ethically and to implement treatments with enhancement of people’s wellbeing as the prime objective. In contemporary healthcare contexts, therefore, professionals such as physiotherapists require not only a comprehensive knowledge base but also critical and creative thinking skills that enable them to make practice decisions tailored to achieve the best outcome for each client (Higgs, Hummel, & Roe-Shaw, 2009; Trede & Higgs, 2009). Importantly, to practise ethically, professionals also require integrity and courage to both discern and undertake ethical actions.

In this section I emphasised the complexity of context and its pervasive influence on the enactment and evolution of professional practice. I agree
with Saltmarsh’s (2009) questioning of ontological and epistemological lines of demarcation between professional practices and their contexts. They are inseparable. Contemporary professional practice research requires a means to reveal the complexity of context to enable meaningful exploration of contextual influences on professional practice enactment and formation. The use of visual research strategies in the experiential component of this research provided an effective vehicle with which to explore the complex influence of context on physiotherapy students’ development of professional practice capabilities in healthcare workplaces. The findings from the experiential component of this research are reported in Chapters 5 and 6.

3.3.7 The transformative character of professional practice

In this section I examine the dynamic and transformative character of professional practice. Over time, professional practices are reproduced and transformed as they intersect with the changing needs and demands of different groups, places and times (Kemmis & Grootenboer, 2008). Professional practices are concerned with the particular rather than the general; each unique situation encountered in professional practice (including resources, personal capabilities, expectations, constraints, commitments and procedures) calls for responsive, purposeful and flexible practitioner actions (Schwandt, 2005). It is this particularity of professional practice, with each practitioner action uniquely constructed to achieve optimal client outcomes, that underpins the dynamic and transformative nature of professional practices, for both individual practitioners and the profession.

Professional practitioners perform dynamic and evolving professional practices in service of their clients and in response to rapidly changing and uncertain professional practice environments. Internal factors, particularly moral, ethical, reflective and critical agency, also shape the formation and evolution of professional practice development through engagement in reflective, creative, dialogical and critical spaces (Kemmis & Trede, 2010). Professional practitioners use these spaces in the ongoing creation of practice knowledge and development of credible practice solutions. Such professional knowledge is dynamic, constantly evolving within practice and within the history of the ideas and the practice-knowledge development associated with that practice (Higgs & Trede, 2010).
A salient example of the pervasive influence of dynamic contexts on contemporary physiotherapy practice is the World Health Organization’s current focus on health promotion and community engagement strategies as vehicles to provide more equitable access to health for all. This wellness focus has resulted in physiotherapy practice moving from a predominantly biomedical model of practice, in which physiotherapists predominantly practised in one-to-one consultations with clients, to models that encompass community engagement and broader health promotion strategies. These new demands, particularly evident in public health contexts, require physiotherapists to undertake less traditional types of physiotherapy practice, and to extend their practice to encompass community assessments and collaborative health-promoting strategies that contribute positively to the more holistic health of entire communities. This exemplifies the criticality of the challenge by Kemmis and Trede (2010) to professional practitioners to take responsibility for the individual and collective conduct of the practices of their profession, and to renew and rejuvenate those practices for changing times and circumstances (Kemmis & Trede, 2010).

In this section I have examined the dynamic and transformative nature of professional practices. This dynamic character of professional practice results in part from the particularity of professional practices and in part from the changing contexts in which professional practices are performed. I argued that ethical, reflective, critical and creative capabilities underpin the dynamic and transformative nature of professional practices. This understanding of professional practices as complex and dynamic has significant implications for the teaching and learning of these practices. These implications are explored in Chapter 4.

3.3.8 Illuminating professional practice capabilities

In this section, my understanding of the professional practice capabilities that inform and enrich professional practice was expanded through my engagement with literature around the topic of professional practice. I have used the notion of professional practice capabilities encompassing abilities, skills and qualities as a means to engage with the text set. I chose to use this broad notion of capabilities because it acknowledges the understanding that professional practice requires more than a combination of practice knowledge and technical skills. This concept of capabilities will be returned to and expanded in Chapter 7 through engagement with the writings of UK
Higher Education researcher, John Stephenson and contemporary philosophers Amytra Sen and Martha Nussbaum.

Many interactive dimensions of expertise have been revealed that inform professional practice performance. This expertise embraces cognitive, meta-cognitive, technical and communication skills. It is widely acknowledged that professional practice requires professional knowledge, technical clinical skills, critical and creative thinking skills (such as clinical reasoning and reflection) and communication skills (Barnett, 1997; Higgs, Hummel, & Roe-Shaw, 2009; Higgs & Jones, 2000; Schön, 1987). These capabilities are central to practitioners’ ability to mediate the use of propositional knowledge in practice to achieve optimal outcomes for individuals in unique circumstances.

Professional practice is also overlaid by personal attributes. Specific personal qualities (such as interpersonal skills and ethical courage) are essential to the enactment of ethical professional practice. This understanding of capabilities informing professional practice extends beyond notions of competence; it acknowledges that professional practitioners may be required to challenge and change both themselves and their practice world for the better. Therefore I extend the aforementioned list of abilities required for professional practice to include practitioner qualities such as integrity, self-efficacy and courage. The ability to challenge taken-for-granted traditions in a field requires practitioners (including students) to have confidence in the appropriateness of their decisions, as well as the courage to question practice traditions and undertake ethical action.

Recently, in reference to graduate capabilities for professional practice, Higgs (2013) provided a useful framework for understanding a broad range of capabilities integral to professional practice. Higgs’ notion of professional practice capabilities embraces practitioners’ capacity to understand and critically perform practice activities. In this, the action-oriented dimension of professional practice is privileged. This focus on practitioners’ ability to act also highlights the important contribution of practitioner qualities to their ability to undertake right and considered practice actions. The broad range of capabilities informing professional practice suggested by Higgs is presented here.

Professional practice graduate capabilities include the capacity to understand, communicate and critically perform or utilise:
• professional decision making (including communication and justification of reasoning and actions)
• context interpretation
• identification and solving of problems in direct client-related tasks as well as contextual/resourcing/system or organisational development
• practice epistemology (including the capacity to interpret, create, use and critique knowledge for practice)
• practice ontology (understanding own interests/motivations/values, way of being in and embodying practice stances/models, plus understanding of practice reality)
• reflexivity (including self-critique and development)
• working to and beyond standards and expectations of quality professional practice
• ethical conduct, integrity, duty of care
• technical capabilities relevant to professional role
• interpersonal capabilities (including communication, empathy, collaboration, mutual respect, negotiation, cultural intelligence)
• a chosen practice model (including the capacity to develop, own and embody a practice model)
• contribute to the knowledge base and practice of profession.

Higgs’ expansive approach to understanding professional practice capabilities is important because it encompasses individual practitioner abilities (such as technical, cognitive and critical self-appraisal skills), individual practitioner qualities (such as integrity, empathy, respect and work ethic), along with contextual influences (such as resourcing, organisational development and practice epistemology). The result is a deep and broad understanding of the capabilities required for professional practice.

In this section I have highlighted the range of capabilities on which ethical professional practice is constructed. This range of capabilities includes both individual abilities and qualities, which are in turn influenced by practice contexts. In the following section I examine the manner in which clinical education frames the development of physiotherapy students’ professional
practice capabilities in particular. In the experiential part of this research I explored the manner in which clinical workplaces framed the development of physiotherapy students’ professional practice capabilities from students’ and clinical supervisors’ perspectives. These findings are presented in Chapters 5 and 6.

3.4 Clinical education as a frame for development of physiotherapy students’ professional practice capabilities

A broad aim of this research was to explore the development of physiotherapy students’ professional practice capabilities in a clinical education context. In the previous section, capabilities informing professional practice in general were illuminated. In this section, contemporary physiotherapy graduate attributes are examined in light of the capabilities required for professional practice revealed in the preceding section. Contemporary clinical education was described in detail in Chapter 1. In this section, key elements of physiotherapy clinical education are revised. The manner in which these key elements frame the development of physiotherapy students’ professional practice capabilities is considered.

3.4.1 Physiotherapy graduate competencies

The World Confederation for Physical Therapy (WCPT) recognises that the education of physical therapists takes place in very diverse social, economic and political environments throughout the world. However, the WCPT advises that education for entry-level physiotherapists should be based on university or university level courses of at least four years, that qualify physiotherapists for practice as independent, autonomous professionals (WCPT, 2011). The WCPT also recognises clinical education as an essential element of physiotherapy entry-level education programs (WCPT, 2011). Accreditation of physiotherapy programs according to established educational standards is also endorsed and actively encouraged by the WCPT (WCPT, 2011).

The entry-level education of physiotherapists in Australia (where this research was undertaken) takes place within universities, which offer courses at Bachelor, Honours, graduate-entry Masters and Doctorate levels. All these programs require full-time study and include a mandatory supervised practice component in a clinical setting. To be recognised by the Australian Health Practitioner Regulation Agency (AHPRA) an entry-level
program must be accredited by the Australian Physiotherapy Council (APC). The Australian Standards for Physiotherapy (“the Standards”) have been prepared by the APC to guide universities in their preparation of safe and competent physiotherapy graduates. Most Australian universities offering entry-level physiotherapy education also have clearly defined graduate attributes that must be developed along with profession-specific knowledge, skills and attributes. Entry-level physiotherapy graduate competencies are therefore underpinned by the Standards developed by the APC and are flavoured by individual universities’ aspirational graduate outcomes.

The Standards were prepared by the APC on behalf of and with consultation of the Australian physiotherapy profession to provide the profession with a benchmark for the knowledge, skills and attributes of a safe and effective entry-level physiotherapist. The APC (2006) claims that the Standards are the cornerstone that assures high standards of physiotherapy practice in Australia. The Standards are embedded in the curricula of entry-level physiotherapy programs in Australia and are integrated in the process of accreditation of such programs (APC, 2006). There are nine equally important standards, each of which covers a key outcome area required of all entry-level physiotherapists. They are:

Standard 1 Demonstrate professional behaviour appropriate to physiotherapy

Standard 2 Communicate effectively

Standard 3 Access, interpret and apply information to continuously improve practice

Standard 4 Assess the client

Standard 5 Interpret and analyse the assessment findings

Standard 6 Develop a physiotherapy intervention plan

Standard 7 Implement safe and effective physiotherapy intervention(s)

Standard 8 Evaluate the effectiveness and efficiency of physiotherapy intervention(s)

Standard 9 Operate effectively across a range of settings

The Standards are formatted with elements and criteria (see Appendix). The elements are key contributing outcomes of each Standard, all of which should be demonstrated by an entry-level physiotherapist. The criteria describe the actions, demonstrations and level of performance required to
meet the element. The criteria are work-based activities that may be used to
demonstrate competency. Together, the Standards, elements and criteria
provide a detailed guide to determination of competent and safe entry-
level physiotherapy practice. The Standards largely privilege cognitive
(such as analysis and interpretation) and technical (such as assessment and
implementation) abilities required for physiotherapy practice.

Contemporary universities are increasingly being challenged to produce
individuals capable of changing society for the good. This challenge is
reflected in many universities’ vision and mission statements and lists of
graduate attributes. Increasingly, universities are focusing on holistic
development of students who will be able to make positive contributions to
society. For example, the university where I undertook my research
demonstrates a strong focus on holistic student development. The
importance of holistic development of students with the capacity to
contribute positively to society is neatly summarised by the following
Wiradjuri phrase used to encapsulate the ethos of Charles Sturt
University (CSU) in the University Strategy 2012-2015 statement:

‘yindyyamarra winhanga-nha’

(‘the wisdom of respectfully knowing how to live well in a world worth living in’).

CSU thus places emphasis on the development of holistic, far-sighted
people who help their communities to grow and flourish. This aim of
holistic development of persons able to act as global citizens and change
agents demands more than the formation of competent graduates. It
requires enhancement of a broader range of attributes, qualities and skills.
In terms of preparation for professional practice, CSU aims to develop
graduates with the knowledge, skills (including critical thinking and ability
to influence the world for the better), attitudes, habits and professional
networks for a successful life and career.

Through an exploration of both the Australian Standards for Physiotherapy
and CSU’s desired graduate attributes, I have come to understand that
physiotherapy entry-level education aims to develop a broad range of
abilities in physiotherapy graduates. This range of abilities includes
profession-specific knowledge and skills (including critical thinking and

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10 Wiradjuri people are Aboriginal people from an area bordered by the Lachlan, Macquarie
and Murrumbidgee rivers in central New South Wales, Australia.
technical skills) along with attitudes and habits to influence the world for the better.

### 3.4.2 Graduate competencies viewed with a professional practice capability lens

A broad range of capabilities underpins professional practice. This range of capabilities encompasses both individual abilities and qualities. Effective and strategic practice for a *supercomplex* professional environment may be enabled through a more explicit focus on capabilities beyond knowledge and skills such as agency and political adeptness (Fortune, Ryan, & Adamson, 2013). Contemporary physiotherapy education program curricula, guided by the Australian Standards for Physiotherapy, are largely competency-focused. The Standards emphasise technical skills and abilities in order to develop safe and effective entry-level physiotherapists. Recently curricula underpinning occupational therapy programs have also been identified as being conceptually and technically focused on knowledge and skills (Fortune, Ryan, & Adamson, 2013). A broader set of graduate competencies is evidenced in universities’ vision, mission and graduate attribute statements.

I have come to understand that ethical professional practice, including physiotherapy practice, is based on the development of a broad range of capabilities (as portrayed in Section 3.3.8). This range of capabilities includes technical, cognitive and critical self-appraisal skills alongside individual qualities such as integrity, empathy, respect and work ethic (Higgs, 2013). Emerging professionals need to acquire the ability to exercise discretion and make fine discriminations in situations that are technically and socially complex (Bates, 2008). Changes in contemporary healthcare have extended the capabilities needed by physiotherapy graduates to include, for example, inter-professional learning and collaboration in complex settings, critical and reflective thinking, preventive and population-based services, relationship-centred care and lifelong learning (Rodger et al., 2008). This broader range of capabilities identified by Rodger et al. fails to recognise the important contribution of personal attributes such as integrity, self-efficacy and courage to ethical physiotherapy practice. Similarly, personal attributes are largely ignored in the current Australian Standards for Physiotherapy. This is likely to be due in part to the historical development of the physiotherapy profession in Australia (as described in Chapter 1). The practice of physiotherapy in Australia began from a repertoire of a limited range of techniques under the direction of
medical practitioners (Chipchase et al., 2006). Physiotherapy in Australia has evolved into an autonomous profession based upon a clinical reasoning and evidence-based approach, informed by physiotherapy-specific research and the general scientific literature (Australian Physiotherapy Council, 2006). It is this firm reliance on contemporary scientific evidence that has most likely led to the formation of largely competency-based standards for the physiotherapy profession in Australia.

The Standards are largely competency-based and privilege the development of technical and cognitive skills. This skill focus is driven particularly by the need to develop safe and competent physiotherapists. Public safety is thus appropriately foregrounded in the education of entry-level physiotherapists. This focus on the development of technically competent physiotherapists comes at the expense of the development of qualities such as integrity, self-efficacy and courage that facilitate practitioners’ ability to question taken-for-granted traditions in the field and to undertake ethical actions. This silencing of the importance of practitioner qualities poses a risk to the future evolution of the physiotherapy profession.

Professional practice, including physiotherapy practice, has been described as dynamic and evolving, due in part to the particularity of professional practice and in part to the changing contexts within which practices occur. Personal qualities such as moral, ethical and critical agency shape the formation and evolution of professional practice and renew and rejuvenate practice for changing times and circumstances (Kemmis & Trede, 2010). The development of safe and effective entry-level physiotherapists who lack the ability or courage to question taken-for-granted traditions in the field may result in stagnation of the physiotherapy profession and consequent inability to meet changing healthcare demands. Therefore, as the physiotherapy profession continues to evolve, the next iteration of professional standards would benefit from the inclusion of a broader range of capabilities (including personal qualities as well as technical and cognitive skills), to better reflect contemporary understandings of professional practice and to produce physiotherapists capable of meeting societal demands in the 21st century.

Universities’ vision and mission statements and lists of graduate attributes embrace a more holistic development of graduate capabilities. Such statements often describe lofty aspirations such as the development of graduates able to engage positively with the world and instigate change as
necessary. Although graduate attribute statements often include terms such as “change agent” they do not explicate the abilities or qualities that underpin such attributes. Lack of clarity as to the qualities and skills that enable achievement of graduate attributes makes incorporation into curricula difficult. While university graduate attribute statements fail to explicate the skills, abilities and qualities required to promote achievement of identified attributes, they are likely to remain aspirational.

In this section I viewed physiotherapy graduate competencies through a professional practice capability lens. A broad understanding of the capabilities required for professional practice has highlighted the current competency focus within the Australian Standards for Physiotherapy. The entry-level physiotherapy curriculum was thus identified as largely concerned with achievement of the cognitive and technical skills required to develop safe and effective physiotherapy graduates. The importance of ensuring public safety through the development of competent entry-level physiotherapists was acknowledged. However, a risk to the ongoing development of the physiotherapy profession through this emphasis on competence was highlighted. Generic university graduate attribute statements, on the other hand, seek to address more holistic graduate capabilities, but they risk remaining aspirational through lack of explicit delineation of requisite abilities and qualities. In the experiential part of this research I explored the manner in which physiotherapy students developed (and were helped to develop) a broader range of capabilities, including abilities and personal qualities required for professional practice. The findings are presented in Chapters 5 and 6.

3.4.3 Contemporary clinical education practice

Clinical education can be understood broadly as student placement in community or clinical settings, where students gain hands-on experience while supervised and guided by experienced clinicians, in line with a work-integrated learning program negotiated by universities and agencies. Clinical education occurs in a broad range of contexts and is no longer limited to large city hospitals with affiliated medical schools. Rather, it has become increasingly reliant on diverse settings including rural health services, nursing homes, community health centres, private practices, industry, school settings and people’s homes. This broad view of clinical education foregrounds four key elements of clinical education, namely authentic practice contexts, student participation in authentic workplace activities, guidance from more experienced clinicians, and an important role for universities in negotiation of placement experiences.
Despite the acknowledged centrality of clinical education experiences to the development of physiotherapy students’ professional practice capabilities, provision of quality clinical education experiences for students is becoming increasingly difficult in contemporary Australian healthcare and education contexts. Health workforce re-engineering, staff reductions, and increased productivity and documentation expectations have led to increased responsibilities and workloads for allied health professionals, with negative impact on the time practitioners have for the provision of quality student supervision (Rodger et al., 2008). In Australia, increasing numbers in student cohorts and a proliferation of new physiotherapy programs have led to nationwide placement shortages (Rodger et al., 2008). These shortages have placed increased stress on both the university academics responsible for sourcing appropriate placement experiences and clinical supervisors who feel pressured to supervise increasing numbers of students. Physiotherapy students also find clinical placement experiences stressful, with many students reporting financial, social and educational burdens associated with completing clinical placements (Jones & Sheppard, 2008). To more deeply understand the manner in which these dynamic, fluid and pressured health workplace contexts shape physiotherapy students’ learning, in the experiential part of this research I undertook a fine-grained exploration of these contexts themselves. This exploration of health workplaces as learning contexts is reported in Chapter 5. Having developed a nuanced understanding of clinical workplaces as learning contexts, I next explored the manner in which clinical workplaces shaped physiotherapy students’ learning during clinical placements. This exploration of the manner in which clinical workplaces shaped student learning is reported in Chapter 6.

Given that the current Australian Standards for Physiotherapy Practice that guide physiotherapy education are largely competency-based, it is perhaps unsurprising that clinical education is also largely competency-based. Clinical education has long been accepted as a vital and irreplaceable component of preparing students for the reality of professional life and ensuring competence in practice (Crosbie et al., 2002; Jones & Sheppard, 2008; McAllister, 1997; Redding & Graham, 2006; Rodger et al., 2008). This privileging of physiotherapy students’ competence in practice is evidenced in the widespread use of the Assessment of Physiotherapy Practice Instrument (APP) (see Appendix). The APP is designed to assess students’ achievement of the competencies required for physiotherapy practice as defined by the Australian Physiotherapy Council. The APP is a valid and
reliable measure of professional competence in physiotherapy students (Dalton, Davidson, & Keating, 2012) and is used extensively in Australia and New Zealand. The APP is a 20-item instrument covering practice domains of professional behaviour, communication, assessment (of patients), analysis and planning, evidence-based practice and risk management. The achievement of competencies such as cognitive thinking abilities (such as clinical reasoning and evidence-based practice), technical skills (such as assessment and treatment interventions), communication skills (such as clear and accurate documentation) are foregrounded in the APP assessment tool. The APP remains largely silent on assessment of a broader range of capabilities required for professional practice. Capabilities such as ethical courage, self-efficacy, reflexivity, and practice ontology (understanding one’s way of being in and embodying practice stances) are mostly disregarded in the APP. As with the Standards, clinical assessment tools such as the APP would benefit from the inclusion of a broader range of capabilities to better prepare physiotherapists to meet the demands of 21st century society.

The important role of clinical placements in facilitation of students’ ability to integrate theoretical knowledge with practical skills continues to be acknowledged in the contemporary practice literature (McAllister, 1997; Rodger et al., 2008). To date there is a paucity of physiotherapy literature examining the manner in which clinical education experiences facilitate the development of the broader range of capabilities necessary for professional practice, including both abilities and qualities, with ethical courage as one example. The manner in which a broad range of capabilities, including abilities and qualities, is developed through clinical education experiences was addressed in the experiential component of this research and is reported in Chapters 5 and 6.

3.5 Professional practice and professional practice capabilities illuminated

This philosophical hermeneutic study, through deep engagement with professional practice literature, has illuminated the nature of professional practice, the capabilities inherent in professional practice, and the context within which professional practice capabilities evolve. Professional practice has been identified as a dynamic, complex and experiential phenomenon that is embedded in practice contexts, embodied in and transformed through individual performances, and grounded around the ethical aim of doing good for others. Professional practice is informed by the specific
knowledge base and ethics of the profession, and is shaped in action by a range of practitioner capabilities. Both individual capabilities and context are central to the enactment of current practice and to the formation of future practice. A high level of congruence between practice theories in general and physiotherapy practice in particular was demonstrated. Practice theory was thus revealed as a useful lens through which to view the complexity of the professional practice capabilities informing physiotherapy practice.

In this chapter I described professional practice capabilities as those qualities, abilities and skills that can be used to perform actions and can be further developed to perform different actions in the future. Importantly, this understanding of capabilities is not limited to the propositional and practice-based knowledge and skills that underpin professional practice; it embraces individual qualities that are particularly salient to the performance of ethical professional practice. On the basis of this study I identified the inclusion of a broader range of capabilities, including individual qualities such as ethical courage, as requisite to physiotherapy professional practice but missing from the current Australian Standards for Physiotherapy and from clinical assessment tools such as the APP. I explored the manner in which personal qualities inform physiotherapy students’ practice in the experiential part of this research. The contribution of individual qualities to the enactment of physiotherapy practice is addressed in Chapter 5 and the manner in which these qualities are developed in clinical workplaces is addressed in Chapter 6.

Professional practice capabilities are embedded in practice traditions and embodied in practice performances; they are often tacit. This understanding is important because it illuminates the complex and interdependent relationship between context, practitioner disposition and practice performance. In Chapter 4 I further explore the manner in which learning through engagement in professional practice activities during clinical education promotes the development of professional practice capabilities.
Chapter 4 Developing professional practice capabilities in the clinical workplace

Chapter 4 builds on my understanding (as presented in Chapter 3) of the nature of professional practice, those capabilities inherent in professional practice and the broad context within which professional practice capabilities evolve. In this chapter, I provide an interpretation arising from a philosophical hermeneutic study of a set of literature texts on the topics of situated and workplace learning and clinical education. Through this interpretation I have come to understand more deeply the manner in which professional practice capabilities (including physiotherapy practice capabilities) are developed in general and in workplace contexts, and more specifically in clinical education contexts.

This philosophical hermeneutic study has revealed workplaces as complex, contested and dynamic contexts within which physiotherapy professional practices are enacted and developed. Workplace learning involves a complex negotiation between workplace affordances and student engagement, where clinical learning is shaped by an interdependent relationship between workplace contexts and learners’ dispositions. Deeper understanding and awareness of the unique and multidimensional nature of workplaces (both in general and in specific contexts), along with the interdependent relationship between students and these environments, has been identified as a firm platform on which to construct wise clinical education practices.

4.1 Frame and scope

In Chapter 3 my interpretation focused on my first text set around the complexity of professional practice and the professional practice capabilities needed to implement practice. This led to a consideration of the implications for developing these capabilities.

As professional practices are richly enacted and learned in workplaces, interpretation of this second text set aimed to illuminate the nature of workplaces and to explore the manner in which workplaces, particularly clinical environments, frame novice practitioners’ development of professional practice capabilities. Instances of resonance between
contemporary workplace learning theories and current physiotherapy clinical education practices are explored.

In order to explicate the complexity of workplace and clinical education contexts, I adopted a holistic approach to understanding workplaces, inclusive of physical, socio-cultural and temporal dimensions of workplaces and the interdependent relationships between individuals and workplaces. To broaden my understanding I constructed a literature text set inclusive of literature from the following fields: situated learning theory, workplace learning theory and clinical education. Construction of this text set was described in Chapter 2. Through interpretation of this text set I broadened my horizon of understanding of clinical workplaces as educational environments and of the way in which these contexts influence the development of professional practice capabilities and physiotherapy students’ clinical learning.

Consistent with research conducted within a hermeneutic framework, I approached the literature with particular questions to shape my inquiry. These questions (reported in Chapter 2) informed the perspectives I used to interpret the text sets. The perspectives I used in my encounter with the second text set were as follows:

- Development of professional practice capabilities
- Situated and workplace learning theory
- Workplace influences on development of professional practice capabilities
- Development of professional practice capabilities in a clinical education context
- Development of professional practice capabilities through participation

The use of these perspectives in my engagement with the second text set broadened my horizon of understanding of how professional practice capabilities are developed in general and in workplace contexts, and more

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11 In this thesis I have chosen to use the term socio-cultural as it encompasses both social and cultural contextual elements. I have considered social contextual elements to include other individuals, relationships between people, and individuals’ positions within existing hierarchies. Cultural contextual elements are represented by traditions, which include beliefs, knowledge, customs, practices and behaviours that exist both within professions and practice contexts.
specifically in clinical education contexts. I have thus addressed two of my five research questions:

2. What is the context of professional practice and clinical education within which professional practice capabilities evolve?

3. How does learning through professional practice during clinical education promote the development of professional practice capabilities?

4.2 Developing professional practice capabilities
Professional practice involves creation of new understandings during practice (Higgs, 2012), with professional knowledge constantly generated and transformed in the service of others (Pitman, 2012). Having explored the nature of professional practice and identified a range of capabilities underpinning professional practice in Chapter 3, in this section I focus on my deepening understanding of the manner in which professional practice capabilities are developed in practice environments.

This section builds on my understanding that professional practice capabilities include individual abilities (level of professional knowledge encompassing propositional knowledge and technical skills, tacit knowledge of people and situations and reflective thinking, analytical and communication skills) and qualities (integrity, courage and empathy). I explore the manner in which these dimensions of professional practice capabilities are developed in practice contexts.

4.2.1 Making the invisible visible: Learning tacit dimensions of professional practice
Practice knowledge, incorporating both propositional knowledge and practice-based knowledge (or professional craft knowledge) was identified in Chapter 3 as underpinning professional practice. Practice-based knowledge is created from practice, for practice, and can only be learned through practice (Eraut, 1994). Practice-based knowledge constructed in practice is often unarticulated by practitioners and is embedded in practice through the identity and actions of practitioners (Higgs, Titchen, & Neville, 2011). Development of practice-based knowledge therefore requires learners to access such tacit, intuitive and often unarticulated knowledge (Titchen, & Ersser, 2001). This understanding of practice-based knowledge as embedded in practice and practitioner actions requires exploration of both the practice context and practitioner dispositions in order to
understand more deeply the manner in which practice-based knowledge is developed in practice contexts.

The properties of the tacit practice-based knowledge that develops from implicit learning in practice are reflective of structures inherent in the context within which it is developed (Eraut, 2000). Professional practice settings therefore exert a powerful and often tacit influence on the development of practice-based knowledge, with the potential to inspire the next generation of professional leaders or to perpetuate the weaknesses of the previous generation (Eraut, 1994). In practice contexts, learners can unquestioningly accept and learn paradigms or traditions that dominate a profession’s thinking in such a way that perpetuates weaknesses of previous generations. Critical use of concepts and ideas embedded in well-established professional traditions requires intellectual effort and an encouraging work context (Eraut, 1994). Explication of the influence of context on the development of practice-based knowledge in specific contexts could therefore facilitate educators’ ability to harness the potential of professional practice environments to nurture the development of professional practice capabilities in student practitioners. The influence of contextual factors on physiotherapy students’ development of practice-based knowledge was explored in the experiential part of this research and is presented in Chapter 5, *Clinical learning spaces: Understanding clinical environments as learning spaces.*

Practitioners’ knowledge and dispositions (e.g. their moral stance) is influenced by personal (life-based) knowledge, and have the potential to significantly influence the development of practice-based knowledge. Practice actions and the consequent construction of practice-based knowledge are based on implicit theories-in-use (Eraut, 1994). Theories implicitly used by professional practitioners in practice contexts also form a central theme in Schön’s theory of reflective practice, with theories in use often being unconscious and only revealed in behaviour (Kinsella, 2009).

The use of implicit theories to guide professional practice is important, because when practitioners are unaware of their frames for action or problem solving they do not experience the need to choose among them, thus limiting possibilities for critical appraisal and development of their professional knowledge base (comprising propositional and practice-based knowledge).

Professional ethics and an individual practitioner’s moral stance provide a salient example of powerful but often tacit influences on the enactment of
professional practices. Professional codes of conduct guide professionals’ actions towards the good in uncertain and complex practice environments. In these environments, however, practitioners may encounter tensions between discerned best actions in a given situation and the guidance provided by a profession’s code of conduct. In these situations, practitioners’ actions are determined in part by their personal moral stance (Fish, & Coles, 1998) and in part by personal qualities including courage and empathy. In this way, practitioners’ moral stance and personal qualities have the potential to exert a significant tacit influence on the construction and re-shaping of their professional knowledge base.

In Chapter 3, praxis was identified as being at the core of professional practice. Praxis was described as morally committed action informed by practice traditions, action that is consciously moral and just (Kemmis, & Smith, 2008). Building on this understanding of praxis, in an insightful philosophical exploration of moral professional practice, Kemmis (2012) identified phronēsis as a disposition toward wisdom and prudence that orients praxis as right and considered action. Kemmis further contended that, as a form of professional practice knowledge, phronēsis cannot be taught – it can only be learned through experience and through attempts to do good for each person and for humankind. Importantly, phronēsis can be learned from the experience of others, including their accounts of their practices and intended practices alongside our own experience (Kemmis, 2012). This understanding of the development of phronēsis is valuable because it draws attention to potential contributions of social learning theories to the development of professional knowledge. This is particularly relevant to physiotherapy students’ development of practice-based knowledge in a clinical education context, as it highlights not only the importance of students’ individual experiences to their learning, but also the significant contribution that the experience of others (such as other physiotherapy students, physiotherapists, clinical supervisors12 and other health professionals) makes to students’ learning.

In this section I have revealed the intimate connection of professional knowledge development (both its generation and evolution through critique in practice) both to practice contexts and to individual practitioners’ dispositions. I have explicated the powerful, pervasive and

12 In this thesis the term clinical supervisor is used interchangeably with clinical educator, for the designated person in the workplace who fosters students’ learning and supervises their clinical practice.
often tacit influence of practice contexts and individual practitioners’ dispositions on individual practitioners’ development of professional knowledge. Practice experience, both an individual’s experiences and the experiences of others, was identified as central to the development of professional knowledge.

4.2.2 Developing professional knowledge through reflection

The idea that knowledge is developed through reflection is not new. John Dewey (1916) identified reflection as a fundamental concept in education at the beginning of the 20th century. Dewey (1916, 1933) firmly posited reflective thought as a central component of knowledge development and provided a solid foundation for understanding the development of knowledge (particularly professional knowledge) that occurs through reflective thought. Schön (1983, 1987) privileged professional experiences over technical rationality as powerful influences on the development of professional knowledge. More recently, Brookfield (1995) and Barnett (1997) expanded Schön’s understanding of (the individual nature of) reflective thinking by drawing attention to critical and social dimensions of the development of professional knowledge. Despite this acceptance of the central role of reflective thinking in education, there currently remains a lack of conceptual clarity surrounding reflective thinking itself. In this thesis, I understand reflection as critical, transformative thinking aimed at changing practice for the better. In this section I explore historical and contemporary understandings of the manner in which reflective thinking fosters the development of professional practice knowledge.

Dewey (1933) identified reflective thought as integral to the process of learning, with reflective thought directed towards transforming situations of confusion, obscurity or doubt into situations that are clear, coherent, harmonious and settled. Dewey’s description of reflective thought has a particular resonance with physiotherapy students’ need to construct, challenge and reframe their professional knowledge in uncertain and rapidly changing healthcare contexts in order to gain greater and more credible knowledge to use in their practice and produce optimal outcomes for their clients. Dewey also realised that in order for reflective thought to occur, some inhibition of immediate action was required to allow time for the process of thinking to occur. Apart from this temporal aspect of reflection, Dewey identified motivational components of reflection in his
description of a willingness in the learner to undergo the effort of seeking a solution to the problem at hand.

One can think reflectively only when one is willing to endure suspense and to undergo the trouble of searching. (ibid., p. 16)

Dewey clearly linked contextual influences, such as available time for reflective thought, and individuals’ dispositions, such as motivation, to the character of reflective thinking that is undertaken. This understanding of the dual contribution of context and individual dispositions to the character of reflective thought and consequently professional knowledge development has particular resonance for physiotherapy students who undertake professional practice experiences in often busy healthcare contexts and across a range of settings and practice fields, in which their interests and priorities may vary.

Building upon Dewey’s work, Schön (1983, 1987) introduced a new epistemology of learning for professions, moving the focus from technical rationality and shining the spotlight squarely on professional experiences as underpinning development of professional knowledge (Kinsella, 2009). Schön’s theory has received unprecedented attention as an approach to professional learning in nursing and other health professions (Kinsella, 2007), with reflective engagement in professional practice now considered fundamental to the development of professional knowledge and ongoing professional growth (Ewing, & Smith, 2001). The popularity of reflective practice is due in part to Schön’s critique of technical rationality (Kinsella, 2007), his acknowledgement of the significance of practitioner experience and indeterminate zones of practice in the development of expertise (Boud, 2010; Kinsella, 2007), and public tensions between professionals’ autonomy and accountability (Kilminster, Zukas, Bradbury, & Frost 2010). At the core of Schön’s (1983,1987) concept of a reflective practitioner is the ability to develop professional knowledge via reflection on practice experiences.

Building upon Schön’s (1983, 1987) view of the individual reflective practitioner, Barnett (1997) and Brookfield (1995) both expanded understanding of reflective practice through the incorporation of social and critical dimensions. Barnett (1997) and Brookfield (1995) each described knowledge as socially constructed and sustained, and argued that critical thinking incorporating social processes is central to the development of professional knowledge. Barnett (1997) described critical thought as intentional, purposeful, nuanced and sensitive to its context, with an
unbounded quality that allows transfer of skills across contexts. More recently, Høyrup and Elkjaer (2006) described reflection as a collective activity focused on social and political phenomena. Barnett’s (1997) description of the unbounded quality of critical thought that allows transference of generated knowledge across contexts is particularly salient for physiotherapy students who often undertake clinical placement experiences across contexts. These contexts encompass various fields of physiotherapy and various health services in both rural and metropolitan settings.

In this section, the centrality of practice experiences and reflection upon them to the development of professional knowledge was highlighted. Further a critical, social dimension to the construction of professional knowledge through reflection was identified. The character of reflective thought was revealed as being susceptible to both contextual and individual influences. Given this acknowledged centrality of reflective and critical thinking to the development of professional knowledge, and the impact of contextual and individual influences on knowledge development, workplace supervisors and university academics are challenged to engender a reflective and critical spirit in students who are undertaking placement experiences in practice contexts.

4.2.3 Nurturing reflective practice capabilities

The lack of conceptual clarity surrounding reflective thinking, identified in the previous section, has resulted in a similar lack of clarity surrounding appropriate mechanisms for stimulating and developing reflective thought. Reflection is, in fact, in danger of becoming a catchall phrase for an ill-defined process (Kinsella, 2009). The theory underpinning reflection remains elusive and is open to many interpretations and is applied in a myriad of different ways (Kinsella, 2009). Further, although Schön (1987) argued that professional education should be redesigned to combine the teaching of applied science with coaching in the artistry of reflection, he did not identify pedagogical strategies that could be used for the development of reflective thinking capabilities in neophyte professional practitioners. In this section, some strategies currently employed by universities to nurture reflective practice capabilities are explored.

The use of reflective journals has been widely embraced by educational institutions as a means to foster the development of students’ reflective thinking capabilities. Journal writing demands time and intellectual space (Barnett, 1997) and consequently can be a vehicle for reflection (Moon,
Reflective journals accentuate contextual conditions conducive to reflection (Moon, 2006). Moon contends that journal writing enables learners to review material and expand ideas or make links between ideas, thus allowing ideas to intermingle and to give rise to new ideas. Journal writing provides a focusing point, an opportunity to order thoughts and to make sense of a situation; in short, to reflect.

Reflective writing, often in journals, is increasingly used as a means of accounting for and realising learning in fieldwork (Moon, 2006). This ability of reflective logs or journals to account for or measure learning may explain in part why reflective journals have been so wholeheartedly embraced by educational institutions. However, this use of reflective journals as a means of surveillance reverses the original idea of reflection, as instead it becomes a tool for control and orthodoxy (Kinsella, 2009). This use of reflective journals as an individual and silent reflective activity that can be used to monitor learning also threatens the development of collaborative and critical thinking. Barnett (1997) argued that, when higher education institutions employ reflective logs with the aim of encouraging student self-monitoring and self-surveillance, reflection is given short shrift, with the multi-dimensionality of critical reflection not being acknowledged or embraced.

Barnett (1997) called for the development of pedagogies that engender a critical spirit that enable individuals to cope with the uncertainty inherent in professional practice. Critical thought is collaborative in nature and knowledge is socially constructed and sustained. For these reasons, the competitive character of Western academic life, where collaborative features are downplayed, threatens the development of critical thought (Barnett, 2007). Working with others not only facilitates reflective practice capabilities but also deepens and broadens the quality of the reflection undertaken (Moon, 1999). In higher education, although the arrival of problem-based learning represents mainstreaming of a pedagogy that values collaborative knowledge construction, many higher education institutions continue to encourage individual reflective thinking through the use of reflective logs and journals, specifically in relation to workplace learning.

The identification of effective mechanisms to develop reflective and critical thinking capabilities has remained elusive. Although Barnett (1997) emphasised the importance of social interactions and collaboration to the development of critical thinking, he did not specify strategies to achieve
this collaboration. Given the centrality of reflective and critical thinking to
development of professional knowledge, this discussion has highlighted an
important need to look beyond reflective journals as a means to nurture
reflective thinking capabilities. Instead, the manner in which context
(including social factors) facilitates the development of reflective and
critical thinking capabilities, particularly in practice contexts, requires
explication. The manner in which contextual factors shape the development
of physiotherapy students’ reflective and critical thinking capabilities was
explored in the experiential part of this research and is reported in
Chapters 5 and 6.

4.3 Learning in workplace contexts

In Chapter 3 I used the literature and theoretical perspectives to argue that
professional practices are always situated and cannot be considered apart
from their contexts. I questioned the ontological and epistemological lines
of demarcation between professional practices and their contexts, and
identified an exigent need for the exploration of contemporary practice
contexts to illuminate contextual influences on the development of
professional practice capabilities. In this section I firmly position
professional practices in workplaces and use situated and workplace
learning theories as a lens to reveal the complex, contested and dynamic
nature of workplaces as settings for learning. To produce this section I
interpreted literature within the fields of situated and workplace learning.

4.3.1 Workplace contexts as complex learning spaces

The positioning of professional education in workplaces is not new. Dewey
(1916, p. 362) positioned professional education firmly in work contexts in
his assertion that “the only adequate training for occupations is training
through occupations”. More recently, Eraut (1994) also argued that work
contexts dominate professional learning, both during periods of practical
experience prior to qualification and during the formative early years of
graduate professional practice. The importance of learning in
contemporary workplace contexts is reflected in the increasing focus of
university education on preparing graduates for work in occupations
(Billett, 2010; Cooper, Orrell & Bowden, 2010; Grealish, 2006). This focus is
evident in employers’ increasing demands for work-ready graduates,
governments’ call for greater levels of engagement between universities
and industry, and the emphasis on work readiness in external professional
accreditation authorities’ requirements of professional courses (Goulter, & Patrick, 2010).

Contemporary physiotherapy professional practice is embedded in workplace contexts. Such practice is undertaken and consequently learned within a particularly broad range of workplace settings, including acute care and community settings within health, education and human service sectors, including public, private and not-for-profit organisations (Rodger et al., 2008).

Each workplace represents a unique, dynamic and complex context (Edwards & Nichol 2006) with its own physical architecture, activities and relationships that are central to workplace performance. Work life is fully enmeshed with material practice elements, technologies, resources, architectural spaces, and objects of all kinds (Fenwick 2010). Physiotherapy professional practice often occurs in complex workplace settings, acute hospital settings providing a salient example. Acute hospitals are often large multi-level buildings further complicated by the ubiquitous use of technology for monitoring, and treatment equipment used in the care of acutely unwell individuals. Kemmis and Grootenboer (2008) argued that workplaces are contested spaces in which every action involves relationships of belonging or not belonging, inclusion or exclusion, solidarity or resistance, harmony or conflict, social integration or fragmentation. The workplace as a learning environment can therefore be understood as a complex negotiation about roles and processes, essentially as a question of learners’ participation in situated work activities (Billett, 2004; Unwin, & Fuller, 2003).

To access learning opportunities, physiotherapy students undertaking placements in acute hospitals often need to negotiate hierarchical workplace relationships between specialist doctors, interns, nurses, physiotherapists, other allied health professionals, allied health assistants and ancillary staff. The inherent dynamic nature of workplaces adds to the complexity of workplace contexts. Contemporary workplaces operate in a milieu of substantial change (Boud, Rooney, & Solomon 2009), with the character and nature of paid work constantly transforming because of changes in human needs, technologies, workplaces and the organisation of

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13 Placements (also called practicums) in health professional education are typically blocks of time when students are allocated to learn through engagement in supervised clinical practice in healthcare settings.
Within the physiotherapy profession, physiotherapy practice is constantly evolving in response to changing healthcare frameworks (such as person-centred practice), requirements for evidence-based practice (such as implementation of research findings that support or refute current treatment approaches), technological advances (such as use of real-time ultrasound machines) and the requirement to construct optimal treatment interventions for each individual client. Clinical workplaces can thus be viewed as dynamic, complex and contested learning contexts.

In this section I have positioned professional practices (including physiotherapy practices) firmly in workplace contexts and have highlighted the complex and dynamic nature of these contexts. This location of professional practice in workplace contexts highlights the importance of exploring the complex and dynamic character of workplaces in order to appreciate how the distinct and situated demands of workplaces frame requirements for professional practice performance and development of professional practice capabilities. To deepen my understanding of learning in workplace context, in the following section I explore two inherent tensions in learning and practising in workplace contexts.

### 4.3.2 Tensions in learning and practising in workplace contexts

Professional practices are largely enacted and are richly learned in workplace contexts. This juxtaposition of practice and learning in workplaces further adds to the complexity of workplace learning, and it draws attention to two critical tensions in the enactment and development of professional practices in workplaces.

- The first tension arises from the identification of dual identities for professional practitioners (as professionals and organisational employees) in workplaces. This dual identity involves the potential for tension between achievement of professional and organisational goals. The effectiveness of institutions in which professionals practise is increasingly evaluated on the basis of output measures linked to concepts of productivity (Pitman 2012). As an example, physiotherapists work in healthcare environments with increasing fiscal constraints and demands for accountability, that also require the establishment of collaborative partnerships with clients, caregivers, peers, colleagues and other health professionals (Ajjawi & Patton, 2009). These increasing requirements for productivity and
accountability placed on professional practitioners by contemporary workplaces create the potential for a complex and conflicting set of professional and organisational interactions. The manner in which individual practitioners resolve these tensions is likely to strongly influence the character of both professional practice performance and the linked learning goals and outcomes.

- The second tension arises from the provision of student education in workplaces outside the education sector (in that students are often both junior practitioners with a workload and learners). When student education is located in workplace contexts there is the potential for conflict between achievement of organisational goals and students’ educational goals. Health and educational institutions have their own domains and missions; one is primarily concerned with health provision and patient care, the other with student education (Jaye & Egan, 2006). As an example, in clinical workplaces patients are present and expect treatment, so that student education can take a secondary role to patient care, with students being service providers (Baldry Currens & Bithell, 2000; Ernstzen, Bitzer, & Grimmer-Somers, 2009). This privileging of institutional goals over educational goals in everyday work practices may result in student education being compromised.

Recognition of these potential tensions highlights the importance of developing a holistic understanding of the manner in which workplace contexts influence both the enactment of professional practices and the development of professional practice capabilities in novice practitioners. In the following sections I explore situated and workplace learning theories and identify their usefulness as a lens that illuminates the complex and dynamic nature of workplaces and the manner in which these contexts influence the development of physiotherapy students’ professional practice capabilities.

4.3.3 Situated learning theory

Situated learning theory provides a useful lens with which to explore workplace learning and develop a broad understanding of how practice capabilities are developed in workplace contexts. Lave and Wenger’s (1991) seminal work on situated learning has provided a foundation for many contemporary theories of workplace learning. In this section, I present Lave and Wenger’s situated learning theory, examine the complex and dynamic
nature of workplaces and identify resonances between situated learning theory and contemporary physiotherapy clinical education.

In their landmark work on situated learning, Lave and Wenger (1991) articulated a model of workplace learning in which learning unfolds in opportunities for practice. In this model, learning is constructed through the process of becoming a full participant within a community of practice. This model of learning decentres common notions of mastery and focuses instead on the intricate structuring of a practice community’s learning resources and opportunities, with the production and transformation of knowledge and skill in practice realised through a gradual movement of the novice towards full participation in the socio-cultural practices of the community (Lave, & Wenger, 1991). Lave and Wenger contended that the central defining process of situated learning is legitimate peripheral participation, a dynamic process through which learners’ knowledgeable skill in practice and their identities are realised through increasing levels of participation in workplace activities.

This model highlights participation and social interaction as key features contributing to the successful development of practice capabilities in workplace contexts. Although Lave and Wenger developed this model of learning through observation of tailors’ apprentices, it has congruence with contemporary physiotherapy clinical education by virtue of its emphasis on learning though acceptance within a community of practice and participation in increasingly important workplace tasks. As an example of involvement in increasingly complex and important tasks, a typical clinical education learning trajectory for physiotherapy students would be that first year students commence with observation clinical placements and gradually work towards near-graduate performance placements in their final year, with responsibility for client assessment and treatment.

A limitation of Lave and Wenger’s (1991) model of situated learning is the lack of attention given to the potentially important contribution of learners’ dispositions to the learning achieved through active involvement in workplace communities. As an example in physiotherapy clinical education contexts, physiotherapy students’ preferences and interest in particular areas of practice largely influence their motivation and

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14 Wenger, writing with McDermott and Snyder (2002), defined communities of practice as groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis.
subsequent engagement in the range of workplace activities across these different practice fields (e.g. paediatric and geriatric settings). A second limitation of situated learning theory for understanding the development of professional practice capabilities is the lack of attention that may be given to reflective thinking capabilities and the forgotten potential for workplaces to nurture individual qualities such as integrity, courage and empathy required for professional practice. These limitations can be addressed, however, and situated learning models remain important because they draw attention to the significant influence of socio-cultural aspects of workplace learning environments and, in particular, learners’ acceptance by an entire workplace community. Through decentring the importance of the master (clinical educator), situated learning theories open possibilities for the development of new models of physiotherapy clinical education that harness the potential contribution of other health professionals and ancillary staff in clinical workplaces.

Social interaction and transformation can be viewed as critical components of situated learning. Learners are active participants in social communities, constructing their identities in relation to those communities, with participation shaping not only what learners do but also who they are and how they interpret what they do (Wenger, 1998). Learners become involved in a community of practice which embodies certain beliefs and behaviours to be acquired (Eraut, 2000; Evans, & Rainbird, 2002) and broaden their knowledge of tasks and situations through contact with people who hold different perspectives (Eraut, Alderton, Cole, & Senker, 1998). In clinical workplaces learning with and from other people through practice and participation significantly shapes the quality of learning achieved (Dornan, Boshuizen, King, & Scherplier, 2007). Effective participation in peer learning supports the development of students as effective team players, capable of forming meaningful professional relationships and collaborative problem solving (Baldry Curren & Coyle, 2013).

Membership in a community of practice facilitates the development of a rich and complex identity because it is produced within the rich and complex set of practice relations (Wenger 1998). This description of building identity highlights transformation as another key element of situated learning. A community of practice shares existing knowledge and provides an arena for the development of new knowledge and transformation of both learners (Candy, & Matthews, 1998) and communities (Ranse, & Grealish, 2007). Through participation of newcomers in a practice community, core meanings of that community are
shaped and shared (Ranse, & Grealish, 2007). Situated learning can thus be understood as both an embodied (through action) and embedded (in practice communities) process with transformative potential for both learners and communities. This understanding of the transformative nature of situated learning is important because it foregrounds the dynamic dimension of situated learning, for both learners and communities, and allows examination of how novices’ abilities and qualities develop over time.

Contemporary situated learning theory traverses a broad range of fields, with research representing a convergence of an unusually diverse range of discourses (Hager 1999). Individual disciplines can learn from the varied discourse. However, due to disciplinary specialisation (Boud 1998) and the complexity and uniqueness of individual workplaces, it is imperative that discipline-specific research is conducted to identify and address particular discipline-specific learning needs. In the experiential part of this research, specific exploration was undertaken of the manner in which physiotherapy students’ professional practice capabilities develop in clinical environments. The findings are reported in Chapters 5 and 6.

Clinical educators using a situated learning theory framework to guide their educational practices should recognise their students’ need for acceptance in workplaces and the importance of scaffolding learning experiences to facilitate students’ gradual movement towards full membership within communities of practice. Importantly, this understanding raises two as yet unanswered key questions: How do clinical contexts influence physiotherapy students’ ability to participate in legitimate workplace activities? And how does participation in workplace activities result in learning? A limitation of situated learning theories was identified as the lack of acknowledgement of the potentially important contribution of learners’ dispositions to workplace learning achieved through the process of legitimate peripheral participation. To address this limitation, workplace learning theories are explored in the next section.

4.3.4 Workplace learning theory
Workplace learning is a multifaceted phenomenon which involves complex webs of power, acceptance into a community of practice, and transformation of both learners and practice communities (Patton, Higgs, & Smith, 2013). In professional education, including physiotherapy, the critical place of workplace learning experiences in students’ development of professional practice capabilities is widely acknowledged. In the
following discussion, no single model or single way of understanding workplace learning was sought; instead, a holistic understanding of workplace learning was developed. This holistic understanding was developed through illumination of the complexity of workplaces and examination of the manner in which learning is enacted in contemporary workplace settings. This section is underpinned by the writings of two key researchers in the field, Stephen Billett and David Boud, which over several decades have illuminated the complex nature of workplace learning.

Many contemporary theories of workplace learning are built upon Lave and Wenger’s (1991) situated learning theory and have consequently privileged exploration of the social dimensions of workplaces. The importance of social dimensions of workplaces to workplace learning has been foregrounded in descriptions of workplace learning as predominantly occurring through participation and interaction with colleagues (Boud, & Middleton, 2003; Boud, et al., 2009; Eraut, 2004; Felstead, et al., 2005).

Over two decades, Billett (1994, 1998, 2001a, 2004, 2006, 2008a) has advanced a theory of workplace learning built upon the socio-cultural construction of knowledge, which emphasises a crucial interdependence between workplace affordances (authentic workplace activities) and the manner in which individuals elect to engage with these affordances. Billett’s understanding of workplace learning is important because it simultaneously focuses on the important contributions of workplaces, in particular socio-cultural dimensions, and on the learners themselves in shaping the character of learning that is undertaken. This ontological approach conceptualises the personal and collective as mutually constitutive and offers a fruitful way to explore workplace learning (Fuller, Unwin, Felstead, Jewson, & Kakavelakis 2007; Johnsson, & Boud, 2010). The approach suggests that learning develops as a collective generative endeavour, pursued with others within a complex web of contextual and relational factors. Thus, workplace learning can be understood as a collaborative endeavour.

The centrality of participation in authentic workplace activities to the quality and quantity of workplace learning achieved is widely acknowledged (Billett, 1993; Boud, & Hager, 2012; Fuller, Hodkinson, Hodkinson, & Unwin, 2005). Individuals learn as a normal part of working, through practice in work settings and from addressing challenges and problems that arise (Boud, & Hager, 2012). It is important, therefore, to understand how participation is invited through the quality of experiences
afforded by workplaces, which shape the potential richness of workplace learning outcomes (Billett, 2004a). Workplaces are not benign environments (Billett, 2006a); they intentionally regulate people’s participation through cultural practices, social norms, workplace affiliations, cliques and demarcations (Billett, 2004, 2001a, 2001b). The position of individuals in the political economy of the workplace affects not only the type of learning they engage in and the types of knowledge they can acquire, but also the extent to which their learning and knowledge are recognised (Fuller, et al., 2007).

During clinical placements, physiotherapy students’ status, both as students and short-term visitors in a workplace, regulates the extent of their participation in workplace activities. In clinical workplaces, clinical supervisors and a range of other workers including physiotherapists, allied health professionals and medical and nursing staff can also significantly influence students’ level of involvement and their value/place in the workplace. Gatekeeping, (e.g. by senior physiotherapists) or directly regulating students’ access to clients is one example of how other workers influence students’ level of involvement in authentic workplace activities. This impact of power to regulate student participation and learning underlines an important contribution of socio-cultural contextual factors in clinical education.

While participation has been identified as central to workplace learning, the provision of guidance has also been highlighted as a significant factor in shaping the learning that occurs. Learning through participation alone may lead to inappropriate learning; direct guidance is often required to make workplace knowledge accessible to learners (Billett, 1998, 1999, 2000, 2001b; Boud, & Middleton, 2003). Provision of guidance is particularly important for physiotherapy students undertaking clinical placements, due to the tacit nature of professional practice. Clinical reasoning provides a salient example. A physiotherapy student, through observation of an expert practitioner alone, would not be able to see the reasoning behind the expert’s actions and may not be able to develop the cognitive processes and knowledge necessary for clinical reasoning. Thus more experienced practitioners may be required to unpack their thinking for students, through explanation of the cues, heuristics and principles that guided their decision-making. Physiotherapy students can then apply this knowledge in their own practice and develop their own clinical reasoning skills. Key to understanding how and what individuals are able to learn through work is knowledge of how opportunities are made available to engage in work, the
kinds of tasks individuals are permitted or invited to engage in, and the
guidance provided (Billett, 2001a, 2004a; Hodkinson, & Hodkinson, 2004;
Johnsson, & Boud, 2010). This view of workplace learning as a complex
interaction between participation in work tasks and the quality of guidance
provided emphasises the importance of further exploration of the manner
in which the complex nature of workplaces shapes student learning in
clinical education contexts.

Individuals can be considered as reciprocal and mutually constitutive parts
of their contexts (Hodkinson, & Hodkinson, 2004). For this reason, the
development of full and rich understandings of workplace learning
demands an understanding of both the invitational qualities of workplaces
and the manner in which individuals elect to engage with workplace
opportunities (Billett 2001a, 2004, Unwin & Fuller 2003). Individuals
themselves will ultimately determine how they participate in and learn
through what is afforded them, premised on their values, goals and
experiences (Billett 2006a, 2010). Personal agency, subjectivity and
intentionality shape individuals’ cognitive experience in ways that mediate
how they construe and respond to what is afforded them in workplace
settings (Billett, 2008a, 2010). As an example, different individuals bring
different perspectives and levels of readiness to work, based on their prior
experiences and knowledge (Fennessy, Billett, & Ovens, 2006), and perceive
and react to the same opportunities differently (Hodkinson, & Hodkinson,
2004). Individuals’ dispositions, interests, and the brute15 facts of energy,
strength, state of fatigue and emotion also shape the manner in which
individuals engage with workplace practices (Billett, 2008a, 2009a).
Consideration of individuals’ dispositions, interests and brute facts is
particularly salient for understanding learning during physiotherapy
clinical placements. Physiotherapy program accreditation requirements
mandate completion of a range of core clinical placements (based around
sub-disciplines or particular clinical fields such as pediatrics), some of
which may have little or no interest for some students, resulting in different
levels of engagement with learning opportunities offered by clinical
workplaces. Physiotherapy students are also often required to travel long

15 In common language, brute may be understood to refer to non-human, bestial, savage and
irrational qualities, but Billett invoked an altogether different meaning of the word. Billett
defined brute facts more generally as the contributions and mediations of the natural world.
Brute facts such as maturation and (dis)ability have a permanent quality: they cannot
simply be wished away. Individuals’ learning is shaped and mediated by their capacities to
engage with the physical or social world, which is in turn determined by brute facts of
maturation and ability (or disability).
distances in short time frames to complete clinical placements, and they often need to maintain casual work commitments (for income) during clinical placement, both of which have clear implications for their fatigue levels while undertaking placements. This interdependent relationship between individual learners and workplaces and the quality and quantity of learning undertaken further highlights the complexity of workplace learning, emphasising an important need for exploration of this relationship in physiotherapy clinical education contexts.

While the influence of socio-cultural aspects of workplaces on workplace learning is generally privileged in workplace learning literature, the physical and dynamic characteristics of workplaces also have a significant influence on workplace learning. Physical dimensions of workplace environments provide forms of guidance that make a rich contribution to learning; a workplace’s physical environment provides important clues, cues and models that assist individuals’ thinking and acting, and hence their learning (Billett, 2000). As an example, processes such as using books or the Internet as a normal part of work have been demonstrated to facilitate learning (Fuller et al., 2005). The configuration of the physical environment of workplaces may also facilitate or constrain opportunities for interactive learning; for example, opportunities to listen to and observe other workers provide learners with a basis to compare their performance with that of others (Billett, 2001b). The influence of dynamic characteristics of workplaces has received scant attention in the workplace learning literature. Unwin et al. (2007) identified workplaces as dynamic sites of inquiry but failed to explicate the implications of that dynamic nature for workplace learning achieved by novices. Despite this lack of direct attention to the dynamic characteristics of workplaces on individuals’ learning, the fluid nature of workplace learning for both learners and workplaces has been identified (Billet, Smith, & Barker, 2005; Felstead et al., 2005; Fuller et al., 2005; Unwin, & Fuller, 2003). Workplace learning has the power to shape and change the culture and behaviour of an organisation (Fuller et al., 2005; Unwin, & Fuller, 2003) and also of the individuals undertaking the learning (Felstead et al. 2005). This means that workplace learning can be transformative for both learners and practice communities. Identification of the fluid nature of workplace contexts highlights a need for further exploration of the manner in which the dynamic characteristics of workplace contexts shape workplace learning. Deeper exploration of the manner in which socio-cultural, physical and dynamic characteristics of contexts shape the development of professional
practice capabilities is undertaken in Section 4.4, *Understanding workplace influences on the development of professional practice capabilities*.

In this section I have illuminated workplace learning as a complex socio-cultural activity, embedded in multidimensional workplaces and work practices. Individuals’ engagement with those practices has transformative potential for both learners and workplace communities. This holistic understanding of workplace learning supports the need for an expansive approach to exploration of workplace learning in general and in particular circumstances such as physiotherapy clinical education. Through this illumination of the complexity of workplace learning I have come to understand that a full and rich understanding of workplace learning demands recognition of the important influence of the physical, socio-cultural, dynamic and contested characteristics of workplaces on individuals’ learning. Finally, to more deeply understand workplace learning, the centrality of participation in authentic workplace activities to workplace learning highlights the criticality of also exploring the manner in which individuals elect to engage with workplace learning opportunities.

### 4.4 Understanding workplace influences on the development of professional practice capabilities

In this section I further present my evolving understanding of how professional practice capabilities are learned in context through a focused exploration of the manner in which workplaces as specific contexts influence the development of professional practice capabilities. To facilitate a holistic exploration of the manner in which workplace contexts influence learning, I considered the influence of their physical, socio-cultural, dynamic and contested characteristics and of the interdependent relationships formed between learners and workplaces on the development of professional practice capabilities.

#### 4.4.1 Physical conditions shape learning opportunities

Physical contexts of workplaces play a significant part in both the enactment of workplace practices themselves and the manner in which those practices are learned. Physical conditions in workplaces predict workplace practices (Kemmis, & Groetenboer, 2008) and possibilities for learning (Edwards, & Nicoll, 2006). Physical conditions, such as available resources and physical layout, prefigure practice by creating conditions
that enable or constrain certain types of practice, thereby creating webs of possibility (Kemmis, & Grootenboer, 2008). Workplace learning can therefore be thought of as being partly shaped by physical conditions within workplaces.

The physical layout of workplaces can directly influence the character of workplace learning and the development of practice capabilities. For example, the ability of novices to observe others (peers, mentors, etc.) and be observed has been identified as central to workplace learning, as knowledge required by learners in a workplace is held by people in the workplace (Billett, 2001a; Eraut, et al., 1998; Lave, & Wenger, 1991; Unwin, et al., 2007). This example of the influence of physical dimensions of workplaces on learning is interesting because it highlights the interdependent relationship between physical aspects of the environment and socio-cultural learning opportunities. However, although the influence of the layout of workplaces on learners’ ability to observe and interact with others has been identified, the influence of physical dimensions of workplaces on learners’ ability to participate in workplace activities remains largely unexamined. This gap in understanding of the breadth of physical influences on workplace learning highlights a need to examine the influence of physical characteristics of workplaces on students’ learning and on their ability to participate in workplace activities, as in the context of physiotherapy clinical education.

The physical environment shapes workplace learning by the provision of models, clues and opportunities for practice, such as access to previously completed or half-completed jobs (Billett, 2009b; Lave, 1990). Workplaces enable interactions with non-human artefacts that contribute to individuals’ capacity to perform required tasks and to learning that arises from task performance (Eraut, 2000).

This view of learning as influenced by learner’s access to artefacts is consistent with Rogoff’s (1990) description of situated learning as facilitated by access to contextual guides. In a clinical workplace, such contextual guides or artefacts might include client notes, assessment sheets, treatment protocols, x ray films with reports and clinical equipment, all of which contribute to novices’ ability to develop professional practice capabilities. Thus, physiotherapy students’ access to such clinical artefacts may have a direct bearing on the richness of their learning outcomes in clinical placements. Importantly, access is multidimensional and includes permission to access, physical accessibility (e.g. location), language
accessibility (e.g. in terms of jargon, second languages), cost/number of resources available, priority/hierarchy of access in relation to other users, and so on. The potential influence of access to clinical artefacts on physiotherapy students’ clinical learning remains largely unexplored in the physiotherapy clinical education literature. This identified centrality of the physical environment to the development of professional practice capabilities emphasises the importance of exploring the manner in which physical dimensions of clinical workplaces influence physiotherapy students’ development of professional practice capabilities.

In this section I have identified a strong, pervasive and often unarticulated influence of physical dimensions of workplaces on the formation and enactment of practices and on students’ development of professional practice capabilities. This identification of the physical environment as providing learning possibilities and shaping workplace learning is particularly relevant to my research in seeking a deeper understanding of contextual influences on physiotherapy students’ development of professional practice capabilities. The interdependent relationship between the physical environment and social influences on learning, evidenced partly through learners’ ability to be observed and to observe others, reveals the inherent complexity of workplace learning. Thus the need is highlighted to develop a deeper understanding of contextual influences on workplace learning, both in general and in specific contexts such as physiotherapy clinical education.

4.4.2 Relationships, acceptance and guidance influence learning

In Section 4.3, Learning in workplaces, I advanced a general argument that in practice environments, social dimensions of context exert a significant influence on novices’ development of professional practice capabilities. Socio-cultural environmental dimensions provide learners with both explicit (e.g. more experienced others) and tacit (contextual cues) guidance to facilitate practice development. This argument was strengthened in Section 4.3.3, Workplace Learning Theory, where socio-cultural factors were identified as also central to workplace learning. In this section I build upon this understanding to explore more deeply the way in which workplace socio-cultural contexts influence the development of professional practice capabilities, particularly in clinical workplaces.

Workplace relationships can be understood as central to workplace learning, with learning being facilitated or constrained by the character of
relationships formed within work contexts (Eraut, 2004; Eraut, Alderton, Cole, & Senker, 2000). In workplaces, learning is accessed through a range of networks within which learners are interconnected (Boud, & Middleton, 2003; Edwards, & Nicol, 2006; Fuller, et al., 2005). Learners’ understandings are developed through opportunities for other workers to share their understandings with learners and for learners to seek clarification by comparing their own views with those of others (Sheehan, Wilkinson, & Billett, 2005). Workplace relationships become particularly important when novices are required to learn the tacit norms and traditions of a practice community (John-Steiner, 1997), as is the case when physiotherapy students are required to develop professional practice capabilities in clinical education contexts.

Acceptance by and interaction with acknowledged adept practitioners in workplaces legitimises learning and its value for the learner (Lave, & Wenger, 1991). Learners who are afforded rich opportunities for participation experience strong development of practice abilities (Billett, 2001b). Nursing and medical research has also emphasised the significant contribution to student learning provided by acceptance by and access to a community of practice (Dornan, et al 2007; Henderson, Twentyman, Heel, &Lloyd, 2006; Henderson, & Twentyman, 2006; Papp, Markkaren, & von Bonsdoff, 2003; Ranse, & Grealish, 2007). In particular, interpersonal relationships between students and staff have been demonstrated to be a critical factor in the development of positive learning environments (Dunn, & Hansford, 1997; Hart, & Rotem, 1994; Lofmark, & Wibald, 2001).

Serendipitous moments such as shared coffee time have also been identified as valuable to the facilitation of workplace learning (Boud, & Middleton, 2003, Sheehan, et al., 2005). In social spaces, workers’ talk is not under the scrutiny of employers and some features of status are suspended, leaving workers to talk freely (Boud, et al., 2009). Given the quality and quantity of learning that occurs in these social spaces it is natural for workplace educators to attempt to harness the power of these spaces to facilitate workplace learning. However, Boud, et al. (2009) caution that the pleasure and gains from talk are vulnerable and that attempts to formalise chat could change its nature and value, and in so doing educators may well hinder the learning they seek to promote. Given the value of talk in social spaces to workplace learning, perspectives are needed that acknowledge an appropriate role for peer interactions at work without surveillance (Boud, et al., 2009).
Section 4.3.4, *Workplace learning theory*, introduced the important contribution of support and guidance to the development of students’ workplace learning. Without support and guidance, participation in workplace activities may result in inappropriate learning. Strategies such as hints, feedback, clues, demonstration and modelling ‘tricks of the trade’ can be used to assist the development of required workplace capabilities (Billett, 2001b).

The guidance role is critical to workplace learning and extends beyond transmission of information to learners. It includes advocacy, securing opportunities, and easing the learner’s pathway to those opportunities (Billett, 2001b). Thus the choice of an appropriate support or guide can be crucial to the success of workplace learning experiences. As an example, workplace supervisors are not always the contacts of first resort for junior workers, who often prefer to seek assistance from their own peers (Boud, & Middleton, 2003). Colleagues who value each other’s advice will discuss particular initiatives and problems, even though they might have to seek one another out or wait for a chance for a discussion (Fuller, et al., 2005).

All workers have knowledge and skills they can potentially share, but some lack the capability of effectively passing on their skills (Boud, & Middleton, 2003; Fuller, & Unwin, 2002). Learners almost instinctively gravitate to certain people within workplaces who they know to have the capacity of a good teacher, even though these people may not be acknowledged teachers (Billett, 2001b; Unwin, & Fuller, 2003). The workplace practice of selecting and preparing certain people to act as guides reinforces the concept that pedagogical skills and roles are restricted rather than shared (Unwin, & Fuller, 2003). In physiotherapy clinical education contexts, the practice of restricting the role of guide to a select few (physiotherapy clinical supervisors) largely continues. This model of clinical education may fail to harness potential rich learning experiences provided by other people (other physiotherapy staff members, doctors, nurses and other students) in clinical environments.

In this section I have highlighted the important contribution of relationships, acceptance and guidance to shaping workplace learning. Acceptance by a practice community and inclusion in serendipitous conversations without surveillance were acknowledged as beneficial to novices’ learning. The role of workplace guides was identified as an expansive one that includes being an advocate for learners, securing learning opportunities and easing learners’ pathways to those
opportunities. In particular, the manner in which relationships, acceptance and guidance shape physiotherapy students’ clinical learning was explored in the experiential part of this research and is reported in Chapters 5 and 6.

4.4.3 Dynamic and fluid nature of workplace contexts

Many forms of modern life are united by their fragility, temporary nature, vulnerability and inclination to constant change (Bauman, 2012). Workplaces, in particular, are dynamic sites of engagement and inquiry (Unwin, et al., 2007). Contemporary work life is undergoing rapid, profound and ubiquitous change, influenced by both technological development and the global economy (Lehtinen, 2008). In this environment there is growing certainty that change is the only permanence and uncertainty the only certainty (Bauman, 2012). Bauman claims that, increasingly, the rules of the game (in workplaces) last only as long as the current game being played, and sometimes not as long as that. Given this dynamic and uncertain nature not only of contemporary workplaces but also of society more generally, it is surprising to note that the manner in which this fluid character of workplaces influences learning has not been foregrounded in the literature. In this section, I examine the influence of time constraints on workplace learning as an aspect of the dynamic nature of workplace contexts.

Among the few literature references to temporal influences on workplace learning, Eraut (2000) provided an important contribution when he observed that time constraints force people to adopt more intuitive approaches developed through experience, which enable them to do things more quickly. Time constraints in workplaces can be due to limited time available and heavy workloads (such as the number of clients to deal with, activities to be performed), and the large number of pieces of information competing for the practitioner’s attention (Eraut, 2000). This work pressure is compounded for students who typically perform activities more slowly than other workers and lack the experience required for intuitive performance. Therefore it could be argued that students’ learning is more susceptible to the time pressures of contemporary workplaces.

In clinical education contexts, time constraints include heavy workloads, staff shortages, and the fast pace of clinical environments themselves (Courtney-Pratt, Fitzgerald, Ford, Marsden, & Marlow, 2012; Healey, 2008; Sellars, 2004). These time constraints can lead to clinical supervision being regarded as lower priority (Sellars, 2004) by practitioners and managers,
and a decreased amount of student time with supervisors for learning and guidance (Courtney-Pratt, et al., 2012). Healey (2008) reported that, as a result of overall time constraints leading to limited time to spend with patients and limited time for reflection, students felt rushed and were compelled to try to cope rather than be actively engaged. Skøien, Vågstøl and Raaheim (2009) neatly summarised the time issue during clinical placements as specifically about not having enough time for clinical work, including time for preparation for the patient encounter and for reflection afterward. Students need time for practice and time for learning and reflection. Skøien et al also viewed temporal dimensions of workplaces as having a longitudinal component. They contend that it is instructive for students to follow patient progress over time and identify the changes in the patient’s condition and progress with treatment that can occur over a period of several weeks. These authors also viewed temporality in terms of development of professional competence over time, meaning that students gradually move toward a position of increased responsibility in the clinical setting.

In this section I have argued that, given the dynamic and rapidly changing nature of society in general and in workplaces in particular, examination of the influence of temporal dimensions of workplaces on workplace learning is warranted. In clinical education contexts, staff workloads and the fast pace of clinical environments, alongside students’ time to treat patients and have time for reflection, have been identified as significant influences on the quality and quantity of clinical learning during clinical placements. However, the influence of the fluid and dynamic nature of workplace (including clinical education) contexts on students’ (including physiotherapy) learning has remained largely unexplored in contemporary literature.

4.4.4 Workplaces as contested and negotiated terrains

Workplaces represent arenas of activity in which socio-culturally determined practice occurs (Billett, 1998); workplaces are governed and govern (Edwards, & Nicoll, 2006). Workplaces are negotiated and constructed through interdependent processes of affordance and engagement (Billett, 2004). Work communities represent powerful sites of identity, practice and knowledge systems in which students’ desires for recognition, competence, participation and meaning are entwined (Fenwick, & Sommerville, 2006). The workplace as a learning environment
can therefore be understood as a complex negotiation about knowledge use, roles and processes, affordances and engagement – essentially as a question of the learner’s participation in situated work activities (Unwin, & Fuller, 2003; Billett, 2004).

Given the centrality of participation to workplace learning, identification of barriers to participation provides a useful way of understanding the contested and negotiated nature of workplace learning. Boundaries confront all newcomers who seek entry into a community and therefore represent places to cultivate and foster learning (Wenger, 1998). Fuller et al (2005) found that power to set and relocate these boundaries was unevenly distributed among members of a workforce. Hence, organisational structures and power relations within workplaces underpin access to and participation in authentic workplace activities. In a physiotherapy clinical education context, physiotherapy clinical supervisors and staff, as well as doctors, nurses, other allied health staff and even physiotherapy students themselves may possess varying degrees of power to relocate barriers to participation and hence learning. This description of boundaries confronting newcomers highlights the need to identify these boundaries and those with power to relocate them in specific workplace learning contexts such as physiotherapy clinical education, in order to facilitate the development of strategies to enhance workplace learning and, in this example, physiotherapy students’ clinical learning.

Workplaces may intentionally regulate an individual’s participation, thereby shaping the potential richness of learning outcomes (Billett 2001b, Billett 2004). Thus workplace learning can be thought of as controlled participation rather than true involvement (Unwin et al 2007). Workplaces determine the level of acceptance of students by practice communities, opportunities for participation and access to expert practice, and ultimately the learning that occurs.

As an example of workplace regulation of participation, Dornan et al (2007), in a qualitative study of medical students’ clinical learning, described a prevailing dynamic between doctor and student such that students who were clear what they wanted to learn, unafraid to ask questions and practically competent had the best chance of participating in workplace activities. Interestingly, it is unlikely that in this example the doctors were explicitly aware of their regulation of medical students’ access to participation in workplace activities. That is, workplace regulation of learners’ access to meaningful workplace activities may be intentional or
unintentional, explicit or implicit. The implicit and unintentional nature of regulation of learner’s participation in workplace activities further highlights the importance of exploration of the manner in which workplaces regulate student engagement and consequently the learning that occurs.

Both the enactment and experiencing of a workplace-learning curriculum are likely to be contested and negotiated (Billett 2006b). Individual status and access to power shapes the learning opportunities and outcomes in workplaces (Hodkinson, & Hodkinson, 2004). However, in the case of students’ workplace learning, it is unlikely that this negotiation can really be mutual or reciprocal, equally shared or balanced. It is more likely to be relational, that of an employee versus a fleeting visitor (Billett 2009a). As students’ positions in workplaces are often those of least power, the dominant values of the workplace are likely to be influential because students will feel the need to comply (Billett 1999, 2000). The values embedded in workplaces and in what workers model are likely to play a significant part in what novices learn (Billett 2001b). This significant influence of workplace values on student learning highlights the importance of exploration of the manner in which workplaces shape physiotherapy students’ learning during periods of clinical placement and, in particular, their ability to negotiate their learning.

In this section I extended my previously developed understanding of socio-cultural influences on workplace learning through illumination of the contested nature of workplace learning. The inherent influence of power relations and the negotiated nature of participation and workplace learning were highlighted. Importantly, students’ position of least power was highlighted, and their consequent vulnerability to assuming workplace values due to feeling a need to comply. I also identified a particular resonance between the contested nature of workplace learning and physiotherapy education contexts through location of students in disempowered positions in these environments.

4.4.5 Interdependent relationships between individuals and workplaces

Through this study I have come to understand workplace learning as an active and participatory process embedded in complex and multidimensional workplace contexts. In this view of workplace learning, individual engagement in authentic workplace activities becomes central to effective learning. In this section I further explore the interdependent
relationship between individuals and workplaces, to gain full appreciation of the complex nature of workplace learning. In this exploration of workplace learning, the influence of a broad range of individual factors on workplace learning outcomes is considered (see Billett 2009a).

Consideration of the manner in which individuals elect to engage with learning is not new; Dewey (1916) noted the important contribution of the waxing and waning of individuals’ preferences and interests to what and how individuals learn. Dewey highlighted the importance of taking into account individuals’ dispositions in order to utilise the most opportune times for learning and thereby maximise learning outcomes. In his exploration of habitus and individual dispositions, Bourdieu (1977) laid the groundwork for later theorising on the relationship between individuals’ dispositions and the nature of workplace learning. Importantly, Bourdieu asserted that individuals’ different dispositions translated to different amounts of capital with which to “play the game” or engage in workplace activities, which in turn, directly influences the nature of learning achieved through participation in workplace activities. Bourdieu clearly articulated an interdependent relationship between individuals’ dispositions and workplace learning.

In his theory of affordances, Gibson (1979) clearly articulated the complementarity of individuals and their environments and the unique nature of affordances. Gibson described affordances as equally a fact of the environment and a fact of individual behaviour, with the possibilities of the environment and individual actions being inseparable. This concept of affordances offers a useful lens for a broad examination both of learning contexts in general (Gibson, 1979) and of practice contexts in particular. It extends the concept of learning environments beyond physical and socio-cultural contexts to include individuals’ relationships with and reactions to those contexts. Examination of this relationship between individuals and their contexts is important because cognition is not situated solely in the mind of the learner, but occurs in the interaction of the learner with other people and with physical artefacts within practice contexts (Schatzki, 2002). Accepting this complementarity between individuals and their environments, Saltmarsh (2009) proposed that an understanding of the lives and work of professional practitioners, as constitute parts of their contexts, offers an important conceptual tool for understanding the complexity of the enactment and formation of professional practices.
Eraut (2000) also observed that individuals’ workplace experiences are differentiated as they are treated differently according to the individual’s cognitive ability, personality, personal knowledge and experience. In clinical education contexts, McAllister (2007) has identified a large variation in the skills that students bring to clinical education in terms of prior life and work experience, learning styles, personal attributes, self-directed learning skills, ability to reflect on and learn from experience and generalise this newly developed knowledge more broadly. Thus, physiotherapy students’ clinical learning becomes a factor both of clinical contexts and of students’ ability to engage with workplace activities.

Contemporary workplace learning theorists have also highlighted the need to consider an interdependent relationship between individuals’ dispositions and workplace environments in holistic accounts of situated or workplace learning (Billett, 2001a; Hodkinson, & Hodkinson, 2004; Johnsson, & Boud, 2010). Individual subjectivities and the concept of self and identity are essential to understanding engagement in work and learning (Billett, 2006), as learners are meaning makers who ultimately decide what they learn and value (Billett, 2001a). Individuals decide how they participate in workplace activities and what they construe and learn from their experiences (Billett, 2004; Billet, et al., 2005; Billett, & Pavlova, 2005; Wenger 1998).

Individuals’ participation in workplace activities is also mediated by their personal histories, values and ways of knowing (Billett, 2001b). Personal knowledge, past experiences, and consequently what people bring to practical situations, ground learning through enablement of thought and performance (Eraut, et al., 2000; Hodkinson, & Hodkinson, 2004). Past experiences are important because they shape individuals’ conceptions and subjectivities (gaze) and consequently how they construct meanings for use in future experiences (Billet et al 2005). Workplace-learning experiences become more meaningful when they relate more comprehensively to learners’ life experiences (Fenwick 2006). Therefore learners, and more specifically the manner in which they choose to engage with workplace affordances, are central to understanding workplace learning.

The conduct of work that is salient and meaningful for individuals’ sense of self and identity lies at the heart of effective work and learning practices (Billett 2006). Individuals need to find value and meaning in their activities, participation and learning opportunities. This highlights the importance of learners’ engagement in authentic workplace activities that contribute
meaningfully to workplace productivity (Billett, 2001b; Ehrich, & Billett, 2004). To better understand the manner in which learners choose to engage with workplace activities, Billett (2009a) recently proposed the need for consideration of a broader range of factors (including “brute facts” such as learners’ ability and maturation) in accounts of workplace learning experiences. Brute facts often mediate how both the social and the physical world are transformed, understood, engaged with and learned from (Billett 2009a).

In this section, I have stressed the importance to workplace learning of the interdependent relationship between individuals’ dispositions and workplace affordances evidenced in the manner in which individuals elect to engage with workplaces. This is relevant because it draws attention to the broad range of dispositional factors that can influence physiotherapy students’ clinical learning, and also encourages academics to acknowledge students’ dispositions, not just their learning styles, as a means to promote effective learning in clinical environments. This understanding also highlights an important role for individuals as meaning makers throughout workplace learning. This is particularly relevant to my research as it reinforces the need to explore actual or lived workplace learning experiences in clinical education contexts in order to develop alternative models of clinical education capable of producing professional practitioners who will flourish in future uncertain and dynamic healthcare contexts. The complementarity of individual physiotherapy students’ dispositions and learning and their practice contexts was explored in the experiential part of this research and is discussed in Chapters 5, 6 and 7.

4.5 Developing professional practice capabilities in a clinical education context

In the previous sections I have firmly placed professional practices, including physiotherapy, in workplace contexts. Further, I have illuminated the complexity of workplaces as learning contexts with physical, socio-cultural, contested and dynamic characteristics critical to shaping that learning. In this section I use contemporary workplace learning literature as a lens to examine current physiotherapy clinical education practices. In so doing, I foreground contextual influences on clinical learning and an interdependent relationship between individual physiotherapy students and clinical learning environments as critical to physiotherapy students’ clinical learning. Through this examination of contemporary clinical education literature I identify a holistic approach to
clinical education that will facilitate the development of physiotherapy students’ professional practice capabilities in clinical education contexts. There is currently an urgent need to identify alternative, effective models of clinical education, given current pressures to provide increasing numbers of clinical placement experiences to produce physiotherapy professionals capable of flourishing in uncertain, dynamic and increasingly demanding professional contexts.

4.5.1 Centrality of relationships in clinical education

In this section I explore the influence of workplace relationships on physiotherapy students’ clinical learning. Clinical learning, viewed as participation in a community of practice, privileges the quality of relationships developed between students and clinical staff, relationships that develop students’ knowledge, skills and professional identity (Kyrkjebø, & Hage, 2005). To date, however, much of the physiotherapy clinical education literature continues to focus more narrowly on relationships between physiotherapy students and clinical educators and qualities and teaching capabilities of clinical educators (Dunfee, 2008; Vågstøl, & Skoein, 2011). Few studies in the physiotherapy clinical education literature have adopted a situated or workplace learning approach to clinical learning through examination of the influence of broader relationships in clinical workplaces on student learning. Therefore, I have privileged exploration of the influence of a broad range of relationships formed within clinical workplaces, including but not limited to important relationships formed with clinical educators, on physiotherapy students’ clinical learning.

The significant contribution of relationships with clinical staff, evidenced through development of rapport, acceptance, appreciation and support of students while on placement, has been described in nursing literature over several decades (Courtney-Pratt, et al., 2012; Dunn, & Hansford, 1997; Hart, & Rotem, 1994; Henderson, & Twentyman, 2006; Papp, et al., 2003; Ranse, & Grealish, 2007; Webster, et al., 2010). The establishment of positive relationships between students and clinical staff helps students to assimilate readily into clinical workplaces and become bone fide members of staff (Henderson, Winch, & Heel, 2006; Papp, et al., 2003; Zilembo, & Monterosso, 2008). When students are not readily assimilated into the work environment and are viewed as guests within organisations they receive limited amounts of information, and their participation in activities and
consequent opportunities to engage and develop knowledge are also limited (Henderson, Winch, & Heel, 2006). There has been limited exploration of the influence of acceptance and opportunities for engagement in authentic workplace activities on physiotherapy students’ clinical learning. Within the small amount of literature, access to a variety of learning situations through development of relationships with an entire staff of physiotherapists has been demonstrated to improve physiotherapy students’ feelings of welcome and inclusion and consequently their ability to develop experience and become active participants of a community (Morris, & Leonard, 2007; Skøien, et al., 2009). An important contribution of the value and support provided by an inter-professional care team to physiotherapy students’ clinical learning has also been demonstrated in a palliative care context (Morris, & Leonard, 2007). In clinical workplaces, however, physiotherapy students may develop relationships with a wide range of individuals beyond clinical supervisors and physiotherapy staff, including patients, doctors, nurses, other allied health staff, porters, administrative staff, cleaning staff and other students. To date there has been minimal exploration of the potential influence of this broad range of individuals on physiotherapy students’ clinical learning.

Clinical supervisors are widely acknowledged as having a key role in facilitating positive placement experiences (Courtney-Pratt, et al., 2012; Dunfee, 2008; Ernstzen, et al., 2010; Henderson, et al., 2006; Plack, 2008; Vågstøl & Skøein 2011; Zilembo, & Monterosso, 2008). Demonstration of patient management by clinical supervisors, discussion of patient cases, feedback and formative assessment have been identified as effective clinical education strategies to enhance the development of clinical competence (Ernstzen, et al., 2010; Dunfee, 2008; Vågstøl, & Skøein, 2011). Apart from teaching ability, specific clinical supervisor qualities such as care and compassion have also been demonstrated as effective in facilitating student learning in clinical education contexts (Zilembo, & Monterosso, 2008).

In a study of physiotherapy students, Vågstøl and Skøein (2011) reported that clinical supervisors who were willing to listen to and respect students’ perspectives facilitated student learning as students gained confidence and experience through interaction and involvement. When clinical supervisors inspire confidence in physiotherapy students and believe in students’ ability to manage tasks, students try to be worthy of this trust (Vågstøl & Skøein 2011). Trust is therefore crucial to the facilitation of learning in clinical workplaces, but trusting people at work is a delicate matter as
workplaces are intrinsically hierarchical and tend to be outcome-oriented
and competitive (Hughes 1998).

Development of positive interpersonal relationships between students and
clinical supervisors is a time-dependent process that requires consistent
exposure to the same clinical supervisor for a period of time (Zilembo, &
Monterosso, 2008). The frantic pace of contemporary clinical workplaces,
together with clinical supervisors’ workloads, could therefore hinder the
development of positive physiotherapy student/clinical supervisor
relationships, which have been demonstrated as central to students’ clinical
learning.

Apart from students’ relationships with clinical supervisors and other
clinical staff, relationships that students form with patients represent a
central component of clinical workplaces, with the potential to influence
clinical learning. Surprisingly, the influence of patients on student learning
has been poorly investigated (Lofmark, & Wikbold, 2001). However,
students’ ability to develop communication skills, practical skills and
clinical reasoning through patient interactions has been described (Morris
& Leonard 2007; Skøien, et al., 2009). Importantly, students learn about
themselves and their own boundaries and about therapeutic abilities and
possibilities through patient interactions (Skøien, et al.), and value the
opportunity to spend time with patients (Morris, & Leonard). The trust and
confidence that students receive from patients, despite the fact that they are
“just students”, are important in building students’ self-confidence and
belief in their role as therapists (Skøien, et al.). This significant contribution
by patients to physiotherapy students’ clinical learning remains largely
unexplored, and is thus a potentially under-utilised aspect of clinical
workplaces in the development of effective and efficient clinical education
models.

Relationships that students form with other students while undertaking
clinical placements have the potential to significantly influence clinical
learning. Interaction with peers has been demonstrated to provide an
important contribution to learning in practice contexts through validation
and sharing of information, shared decision-making and brainstorming
ideas (Parboosingh, 2002). Students appreciate being on practical
placements with others; they share support and companionship, wider
patient experiences, problems and joys, and act as an outlet for frustrations
each may be experiencing (Skøien, et al., 2009; Webster, et al., 2010). While
the importance of support provided by the presence of student peers
during periods of clinical education has been identified, a fine-grained examination of the manner in which physiotherapy students’ clinical learning is shaped through peer collaboration and co-construction of professional knowledge is lacking in the clinical education literature.

In this section I have highlighted the significant contribution of relationships with clinical educators and with other people such as staff, students and patients to students’ clinical learning. A paucity of literature examining the influence of workplace relationships on physiotherapy students’ clinical learning has been revealed. Importantly, given the centrality of relationships to physiotherapy students’ clinical learning, the manner in which these relationships are developed remains largely unexplored. Given the scant attention in the literature to the influence of other staff members, students and patients, development of a holistic understanding of the influence of relationships on physiotherapy students’ learning in the clinical environments is warranted.

4.5.2 Describing clinical workplaces as learning environments

While student preferences and learning styles have been explored in the clinical education literature (Greenfield, et al., 2012; Midgely, 2006; Palmer, Harmer, Clark, Johnson, & Matsumara, 2005), research into the influence of interdependent relationships between physiotherapy students and clinical environments on development of professional practice capabilities (as described in the workplace learning literature) remains limited. The influence of students’ learning style, level of confidence, prior experience and personal frames of reference on clinical learning is widely acknowledged (Greenfield, et al.; Higgs, & Titchen, 2001; Midgely 2006), as is the importance of the relationship developed between physiotherapy students and clinical educators (described in the previous section). However, the manner in which individual physiotherapy students elect to engage more broadly with learning opportunities within clinical learning environments remains largely unexplored.

In professional practice literature, the knowing and doing of professional practice has been acknowledged to be influenced by a variety of factors, intrinsic both to the practice context (including other people and cultures) and to individual practitioners (including personal frame of reference and life history) (Higgs, & Titchen, 2001). As an example of the significant influence of individuals’ frames of reference on learning professional practices, students’ interest in, attitude towards and perception of the
clinical settings in which they are placed are critical to the effectiveness of clinical education (Cloutier, Shandro, & Hycak, 2004; Dunfee, 2008). Despite this acknowledged importance, research on physiotherapy students’ approaches to learning on clinical placement remains limited (Healey, 2008). Student nurses’ level of interest in a particular context influences their motivation to learn and ultimately the manner in which they engage with workplace learning opportunities (Cloutier, Shandro, & Hycak, 2004). Student nurses have been found to prefer environments with high degrees of individualisation, personalisation and task involvement (Midgely, 2006). This is interesting, because it highlights an important relationship between students and their learning context through their desire to be acknowledged as individuals and to be offered opportunities to participate in authentic work activities. In a study of physiotherapy students, Healey (2008) also demonstrated that students value active engagement in clinical activities alongside opportunities to reflect on those activities. Thus, student maturity to value and become embedded in clinical workplaces is crucial to success in clinical education experiences (Dunfee 2008). Clinical learning is also influenced by students’ perception of the level of support provided by clinical workplaces (Healy 2008). For this reason, exploration of person–environment fit may provide a useful lens to better understand clinical education processes.

Perceived student–organisation fit and demographic similarity between students and clinical supervisors has been demonstrated to influence physiotherapy students’ reported satisfaction with clinical education experiences (Giberson, Black, & Pinkerton, 2008). However, understanding the influence of person–environment fit on physiotherapy clinical education is not a simple matter. It is complicated by the individual and dynamic nature of clinical learning environments combined with constantly shifting patient and student needs. As an example, every patient brings a unique set of variables to the learning environment (Dunfee, 2008) and student needs are constantly evolving (Kinchin, Baysson, & Cabot, 2008), dependent on individual student experiences and the manner in which students construe and construct knowledge from their experiences. Due to the dynamic nature of clinical workplaces and students’ evolving learning needs, clinical education strategies are required to hit constantly moving targets. Given that current work demands in health settings may limit educators’ capacity to meet students’ individual learning needs, it is important to understand particular student characteristics that may help students to flourish in clinical education contexts. For example, self-efficacy
and confidence are thought to play an important role in affecting how students engage with learning opportunities during clinical placements (Jones, & Sheppard, 2011).

Self-efficacy can be viewed as a link between knowledge, skill and performance, and represents how capable or confident a person feels to carry out a task or perform in a specific situation (Jones, & Sheppard, 2011). The relationship between students’ confidence or self-efficacy to undertake a task and clinical learning is important to explore in the development of a holistic understanding of clinical education. Currently there is a small body of literature exploring the influence of self-efficacy on physiotherapy students’ clinical learning; even less research explores workplace influences on students’ self-efficacy during clinical placement. The issue of student confidence while undertaking clinical placements has been found to pervade all year levels, with students coming to an understanding that they need to take a more active role managing their emotions in order to build self-confidence (Bartlett, Lucy, Bishee, & Conti-Becker, 2009). Workplace relationships have been found to have a significant influence on student confidence: when students experience being valued by the professional community their confidence is increased and they take initiative and seek out further opportunities for learning (Courtney-Pratt et al., 2012; Skøien, et al., 2009).

Positive learning environments have been described as those that engage with students on an individual level, engage with their fears, expectations, experiences and anxieties (Hughes, 1998). More recently, this description of positive learning environments has been extended to include those that enable students to develop their knowledge and practical skills through acceptance and ability to contribute to team processes and work (Newton, Billett, & Ockerby, 2009). This understanding of acceptance and contribution to teamwork as integral to the formation of positive clinical learning environments emphasises an interdependent relationship between students and clinical workplaces. The process of acceptance into a team and consequent development of students’ competence require patience and understanding of all members of the multidisciplinary team (Bartholomai, & Fitzgerald, 2007). A clinical placement model where students return to the same healthcare service, creating a sense of attachment and familiarity with the workplace, has been suggested as one way of harnessing the important contribution of student acceptance to clinical learning (Newton, et al.).
The development of physiotherapy professional practice capabilities during clinical placement experiences requires total immersion and engagement in practice (Plack, 2008). Therefore the role of engagement in practice development must be explicitly addressed in clinical education (Sabus, 2008). Clinical communities largely regulate student immersion and engagement in practice, with student learning largely determined by the opportunities available and students’ response to them (Jay, & Egan, 2006). Learning in clinical workplaces is a complex process, with student engagement moving beyond observation and interaction to include belonging and becoming a member of the community (Plack, & Driscoll, 2011). In clinical workplaces, a learning triad that includes students, clinical supervisors and entire practice communities has been identified as critical to students’ clinical learning (Plack, 2008; Plack, & Driscoll, 2011). Learning supports and barriers have been recognised from all aspects of this triad; importantly, the degree to which learning is supported or hindered in each triad has been uniquely defined (Plack, 2008). At a student level, lack of confidence, fear, shyness, language limitations or cultural differences can hinder learning (Plack, 2008; Plack, & Driscoll, 2011). Clinical supervisors who are demanding, condescending, uncaring or disrespectful can also hamper learning (Plack, & Driscoll, 2011), with clinical grading processes providing an additional threat and potential barrier to learning (Plack, 2008). A community that lacks empathy, is unwelcoming or too busy can exacerbate student stress and, combined with the fast pace of the clinical workplace, can further impede student learning (Plack, 2008). These findings illustrate a complex interplay between students, clinical educators and entire practice communities in shaping clinical learning outcomes during clinical placements. While these findings begin to address the influence of the complex interdependent relationship between students and workplaces they do not explore how these relationships are formed. Plack (2008) has identified the unique nature of each learning triad, highlighting the need for exploration of the manner in which student learning is uniquely shaped by individual practice environments.

In this section I have highlighted a largely unexplored interdependent relationship between physiotherapy students and clinical workplaces. While the social aspects of clinical workplaces have been given some attention, examination of the influence of socio-cultural dimensions of workplaces on the manner in which students elect to engage with learning opportunities is largely missing. There is need for a more textured exploration of all dimensions of context, in order to identify and harness
the possibilities offered by interdependent relationships between physiotherapy students and clinical workplaces in nurturing physiotherapy students’ clinical learning.

4.6 Development of professional practice capabilities through participation in practice

Throughout this chapter I have used situated and workplace learning literature as a lens to illuminate contemporary physiotherapy clinical education practices and to open possibilities for the development of new models of physiotherapy clinical education. Instances of resonance between contemporary workplace learning theories and current physiotherapy clinical education practices have been identified and discussed. Situated and workplace learning theories highlight participation and interaction as key features contributing to successful development of practice capabilities in workplace contexts. Through decentring the importance of the master (clinical educator), situated learning theories also open possibilities for new models of physiotherapy clinical education that harness the potential contribution to student learning of other health professionals, ancillary staff, patients and other students in clinical workplaces.

Understanding learning as participation in authentic work activities also draws attention to the contested nature of workplaces. Boundaries confront all newcomers; organisational structures and power relations within workplaces underpin access to and participation in workplace communities. These boundaries to participation represent potential sites for cultivating and fostering physiotherapy students’ clinical learning.

Workplace learning theories privilege neither the social nor the personal but the relations between them, highlighting the interdependent relationship between individuals and the setting in which they work and learn. The manner in which students elect to engage with workplace learning opportunities thus becomes key to understanding workplace learning. Contemporary physiotherapy clinical education literature remains largely silent on the manner in which interdependent relationships between students and clinical workplaces shape students’ clinical learning. This relative silence on a key aspect of workplace learning highlights the importance of developing a deeper understanding and awareness of the influence of these interdependent relationships in the formation of new student-centred models of clinical education.
The positioning of professional practices in workplaces highlights the importance of examining the dynamic and complex nature of workplaces to appreciate how distinct and situated demands of workplaces frame both requirements for professional practice and the development of professional practice capabilities. It is anticipated that a deeper understanding of the structure and texture of clinical education contexts will facilitate the development of effective, efficient, student-centred and context-specific clinical education models. Such models would be capable of producing physiotherapists well equipped to practise ethically and wisely in rapidly changing healthcare contexts.

Currently, there is no gold standard model of physiotherapy clinical education, with various models in use in physiotherapy education programs. Contemporary clinical education models mostly privilege a narrow band of socio-cultural dimensions of clinical workplaces, including relationships with clinical educators as well as with other physiotherapy staff. These models largely fail to acknowledge or utilise the potentially significant contribution of the more complex and dynamic characteristics of workplaces to physiotherapy students’ clinical learning. Due to discipline specialisation and the complexity and uniqueness of individual workplaces it is imperative that discipline-specific research is conducted to address unique clinical education needs. In the next chapters I report results from the experiential part of this research that involved a fine-grained exploration of the texture of clinical education context.
Chapter 5 Clinical learning spaces: Dimensions and character

Chapter 5 builds on my understanding (as presented in Chapters 3 and 4) of professional practices, capabilities underpinning those practices, and the manner in which professional practice capabilities can be developed in workplaces. Examination of the fine-grained texture of clinical workplaces, in the experiential part of this research, has illuminated a multiplicity of complex and fluid learning spaces where physiotherapy students’ professional practice capabilities can be developed during clinical placement.

In this research, clinical learning spaces were found to form in spaces of fusion and intersection between the real-life experiences and challenging situations encountered in professional practice worlds, and according to the dispositions, experiences and responses of the physiotherapy students encountering them. These encounters ranged from softer/slower/incremental changes (e.g. students’ attitudes being gradually moulded by observation of professional conduct of their role models), to more dramatic/dynamic/major changes where quantum shifts arose through significant and highly memorable interactions by students with workplaces, colleagues and clients. In both cases, workplace elements were present to stimulate, respond to and realise the students’ development of professional practice capabilities.

I also found that clinical learning spaces form and can be actively created beyond clinical workplaces and included less typical spaces such as cars, cafes, and student accommodation. Regardless of where they occurred, clinical learning spaces were illuminated through this research as fluid and powerful spaces as well as quiet spaces of reflection, in which physiotherapy students’ professional practice capabilities could be developed. Clinical learning spaces could therefore be regarded as crucibles for both slow combustion as well as more explosive changes that promoted the development of physiotherapy students’ professional practice capabilities. Although the word “crucible” has various meanings, and can be understood to mean a heat-resistant receptacle typically used to melt or transform elements, in this thesis I use the metaphor of a crucible to represent a space in which concentrated forces interact to cause or
influence change or development of people (see e.g. Merriam-Webster, n.d.).

5.1 Purpose, frame and scope of this chapter

The findings from the experiential component of this research are reported in Chapters 5 and 6. When generating experiential texts through my research interactions with my student and clinical supervisor participants, I sought a deeper and richer understanding of the many and multidimensional influences of workplace factors on the development of physiotherapy students’ professional practice capabilities. Consistent with research conducted in the philosophical hermeneutic tradition, my deepening understanding represented a fusion of three horizons: my initial horizon or understanding that I brought to the research, the understandings or horizons of the authors represented in my literature text set, and the understandings or horizons of my participants expressed in my set of experiential texts. Throughout this process of text construction and interpretation all three horizons were in a constant state of interplay. Through constant movement between the parts and the whole of the evolving understanding of my research phenomenon, each horizon contributed to the formation of my final merged interpretation. This final merged interpretation is presented in Chapter 7.

The experiential component of this research included three distinct but interrelated text construction strategies and participant groups. These were:

1. Exploratory student focus group (n=12)
2. Observation, interview and photo-elicitation student group (n=12)
3. Clinical supervisor interview and focus group (n=12)

Each group had specific characteristics. In this thesis, participants sharing the same characteristics are assigned names beginning with the same letter. The convention for allocation of pseudonyms was fully described in Chapter 2 and is summarised in Table 5.1 Participant characteristics and pseudonyms, to assist reading of the findings chapters of this thesis. Pseudonyms are italicised, and the participants’ block quotes are presented in a different font to indicate the source and voices of the participants.

As planned in my overall research design, this study built on my first study involving interpretation of literature texts. From the literature study I generated a set of perspectives or emerging horizons that I used to dialogue with the experiential texts. The perspectives I used in my encounter with the experiential text set to produce this chapter were as follows:
• Clinical workplaces can act as complex and dynamic learning spaces
• Participation in authentic practice activities shapes student learning
• Learning spaces can occur beyond the direct workplace

Table 5.1 Participant characteristics and pseudonyms

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<tr>
<th>Participant group</th>
<th>Participant characteristics</th>
<th>Pseudonym allocation</th>
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| Exploratory student focus group         | Undergraduate physiotherapy students in their third (n=3) or fourth (n=9) year of study. 10 were female and 2 were male                                                                                                       | G for third year students  
M for fourth year students                                                               |
| Observation, interview and photo-elicitation student group | Undergraduate physiotherapy students in their second (n=9), third (n=2) and fourth (n=1) year of study. 8 were female and 4 were male                                                                                         | F for fourth year students  
T for third year students  
S for second year students                                                                  |
| Clinical educator interview and focus group | 7 were female  
5 were male                                                                                                                                                                                                                                                                     | C for all clinical supervisor participants to allow clear differentiation from student participants |

The use of these perspectives in my engagement with the experiential text set broadened my horizon of understanding of clinical workplaces as learning spaces and of the ways clinical workplaces can shape physiotherapy students’ clinical learning. In this chapter I identify and portray the dimensions of clinical learning spaces that shape student learning during periods of clinical placement. As described in Chapter 2, I developed five research sub-questions to guide the research process. I address my third and fourth research sub-questions in this chapter.

3. How does learning through professional practice during clinical education promote development of professional practice capabilities?

4. What factors in clinical education influence physiotherapy student learning and development of professional practice capabilities?
5.2 Space as an important concept and dynamic phenomenon

In the previous chapters I highlighted the complexity of both professional practices and the contexts in which they are enacted. I described professional practices as both embedded within practice contexts inclusive of practice traditions and embodied within individual practitioners through practice performances. I emphasised the dynamic and transformative nature of professional practice both for the practice itself and for practitioners. It is the complex nature of professional practice and professional practice contexts, as well as the pervasive and often tacit influence of these contexts on practice performance and development, that underscores the importance of seeking a means to open up and explore the complexity of professional practice contexts, allowing deeper examination of their influence on contemporary professional practice development and performance.

Little attention has been paid to researching learning spaces in higher education (Brooks, 2011; Graham, 2012). Recently, learning spaces have been identified as having physical, social and virtual elements (Beery, Shell, Gillespie, & Werdman, 2013; Graham, 2012). Importantly, a direct correlation between learning spaces and learning outcomes has also been demonstrated, with technology-enhanced learning spaces having a significant positive impact on learning (Brooks, 2011). However, Woolner, McCarter, Wall and Higgens (2012) cautioned against a simplistic, quantitative understanding of the relationship between environments and learning. These authors argued that the relationship between learning and the environment is complex and interactive. They further identified affordances as existing at the interface of individuals and their environments. Thus, examination of learning spaces requires an understanding of relationships between individuals and their environments as well as the dispositions and capabilities of the individuals. Importantly, such attention to learning spaces opens up possibilities for pedagogical innovation designed to promote active learning and increase student engagement (Brooks, 2011).

In contemporary education literature there is some use of space metaphors in the search for deepening understanding of knowledge and learning (Solomon, Boud, & Rooney, 2006). For example, organisational space has been investigated as incorporating material buildings as social objects (Kornberger & Clegg, 2003), teaching spaces are increasingly being
explored as virtual spaces connected by various communication and information technologies (Jamieson, Fisher, Gilding, Taylor, & Trevitt, 2000) and combined spaces where social and work overlap have been examined (Solomon, Boud, & Rooney, 2006).

Space metaphors appeal because of their emphasis on temporal, socio-cultural and power relationships as well as their ability to explicate relationships with wider social networks (Solomon et al., 2006). The concept of space incorporates many dimensions of context including physical, socio-cultural and temporal dimensions, and it encourages thought beyond the physical environment and closer questioning of taken-for-granted features of these contexts. Importantly, the concept of space also permits acknowledgement of the dynamic qualities of environments (e.g. incentives, changing personnel, pressures) as opposed to emphasis on their more permanent qualities (e.g. physical infrastructure). Understanding learning contexts as spaces also allows examination of relationships between individuals and their environments as important parts of learning contexts. The use of the term space sets the mind free to imagine and explore a broader range of contextual dimensions, both within and beyond clinical workplaces, capable of influencing physiotherapy students’ clinical learning.

In this research, the use of expansive terminology in relation to physiotherapy clinical education contexts facilitated my search for deeper and broader understandings of these contexts and the manner in which they can influence physiotherapy students’ development of professional practice capabilities. My choice to explore clinical workplaces as learning spaces helped me to explicate the dimensions and nuances of the complex, dynamic and interdependent nature of spaces where physiotherapy students’ professional practice capabilities develop in clinical education contexts. The concept of space expanded my capacity to look beyond considering influences as facilitating or inhibiting learning and to explore the manner in which contextual influences shape student learning in diverse ways, levels and combinations.

5.3 Clinical learning space influencing dimensions

As physiotherapy practices are largely enacted and learned in workplaces, this section focuses on the nature and character of spaces within workplaces that shape students’ clinical learning. For the participants of this research, many aspects of clinical workplaces, including situational (such as the size of the hospital and level of resource provision), relational
(such as patients), workplace culture (such as workplace hierarchies) and temporal (such as the fast-paced and haphazard nature of clinical workplaces) dimensions significantly influenced and shaped student learning. The nature and character of these dimensions are portrayed in this section.

5.3.1   **Situational dimensions**

The participants of this research identified situational dimensions of clinical workplaces as a factor that significantly shaped student learning during clinical placements. Physical architectures and the provision of contextual guides emerged as two key aspects of situational dimensions that significantly shaped student learning.

**Physical architectures shaping student learning**

Physical architectures were found to shape student learning in various ways. For the students and clinical supervisors, three key examples of physical architecture were particularly influential in shaping student learning. These elements were:

1. Hospital size and layout
2. Clinical equipment used for patient interventions
3. Information technology equipment such as computers.

1. **Hospital size and layout**

The hospital where this research was primarily undertaken was a large multi-storey building with several wings built perpendicular to each other. One of the students, Tom, described the shape of the building as like “a castle with high sides, with the majority of the wards on accessible levels”. During the observation phase of this study, I noted the complex hospital layout evidenced by many staircases and lift wells to access wards and clinical areas on different levels and wings.

The complicated layout of the hospital distracted students from their clinical learning, especially at the beginning of their placement. The students described expending a lot of energy familiarising themselves with the hospital layout at the start of their placements and experiencing anxiety related to becoming lost. This was in a large part due to the many “different weird, winding corridors and staircases”. The second year students in particular described the hospital as “intimidating” and at times “scary”. The students’ perception of the significant influence of the complicated hospital layout on their learning was also evidenced in the
large number of photographs of staircases that were taken by students in the photo-elicitation part of this research. An example of a student photograph of stairs is provided on page 185. For most students, this preoccupation with being able to find their way around lasted for only a few days, perhaps up to the first week. Sophie’s and Skye’s quotes captured the extent to which the need to familiarise themselves with a new environment provided a distraction from their clinical learning:

"At the start it was a big thing ... being able to familiarise yourself and find things ... in the first week a lot of my time was spent writing the map [in my head] and not concentrating so much on other things." Sophie

"At the start ... I would sometimes take 10 extra minutes to find the right ward and I was worried that my supervisor would be like 'where have you been'? ... I was nervous at the start, nervous about getting lost." Skye

The supervisors agreed that the complicated pattern of the staircases contributed to students’ feelings of being lost and provided an additional distraction that decreased students’ ability to focus on clinical learning. The supervisors contrasted complex environments with simple environments and concluded that simple environments provided less distraction from clinical learning. These views were evidenced in Craig’s and Carl’s quotes:

"The stairs, not knowing what level you are going to come out on ... they have no idea where they are.” Craig

"A simple structured environment helps anyone, ... one less thing to focus on, ... things that take away from 'hang on what am I here to do?’” Carl

2. Clinical equipment used for patient interventions

Resource provision was identified as another factor that significantly shaped student learning during clinical placements. For the participants, the resources available in workplaces impacted directly on patient interventions and consequently on what students learned from those interactions. The level of clinical resources available in workplaces was generally not seen to directly facilitate or inhibit student learning but rather to shape students’ learning outcomes.

When working in well-resourced clinical workplaces, students could formulate and implement a wide range of treatment interventions for patients. Therefore, student learning was influenced by the variety of treatment interventions they were able to generate and implement. As an example of equipment that shaped student learning, a photograph of a
physiotherapy treatment gym is included on page 185. Miranda and Fiona neatly captured the effect of adequate levels of resources on the provision of patient interventions in their quotes:

“You could actually do more functional things with the patients because you had more resources.” Miranda

“The range of equipment there ... meant I had plenty of things I could do for them [patients] ... really helped to broaden my range of treatments.” Fiona

Courtney described how the use of a range of equipment stimulated students’ interest in their learning. She also noted that students largely enjoyed using equipment, which improved their engagement with practice activities and translated to positive practice outcomes.

“Having more resources is great ... they do enjoy it ... it’s stimulating ... keeps you focused and interested ... the less stimulated you are, the less likely you are going to produce some nice outcomes [for the patients].” Courtney

The students also described the manner in which less well-resourced workplaces influenced their learning. They regarded such workplaces as opportunities to creatively develop treatment approaches to achieve desired patient outcomes. Therefore, less well-resourced environments did not necessarily act as a barrier to the provision of optimal patient treatment and student learning but rather shaped the type of learning that occurred. In less well-resourced workplaces students were challenged to think creatively to achieve optimal treatment outcomes with and for their patients. For example, Martine described her creative thinking when working in poorly resourced workplaces:

“I think the physical resources available in a facility has a big impact ... I learned a lot more in the dodgy gym because I had to problem solve and be resourceful.” Martine

3. Information technology equipment such as computers

Computer and Internet access was identified by the participants as another significant factor that influenced students’ learning in clinical workplaces. Access to computers and the Internet directly shaped students’ clinical reasoning and determination of the most appropriate patient interventions. This was achieved through access to the latest evidence-based treatment protocols, extra patient information (e.g. past histories, x-ray reports), and surgical information that could be included in determining likely patient diagnoses and most appropriate treatment options.
During the observation phase of this research, I noted the ubiquitous presence of computers in the hospital. Computer terminals were located in staff offices, nurses’ stations and corridors on wards. These computers were widely used by clinical supervisors, physiotherapy students and other staff while working on wards. On the wards, computers were routinely used to access current evidence-based practice information, clients’ past medical histories and test results such as x-rays, oxygen saturations and other blood tests. This enabled students to include a more comprehensive set of client information in their clinical reasoning and be more fully informed when determining most likely diagnoses and appropriate client interventions. The students acknowledged that timely access to patient information, afforded by computer access improved their ability to engage in clinical reasoning and discern most appropriate treatment interventions. The important contribution of computer access to student learning was evidenced in photographs the students took of computers. A student photograph of a computer is included on page 187. The supervisors also described an importance of computer access to students’ ability to practise independently, as students were able independently to build their understanding of patients’ conditions. Shelly and Caitlyn’s quotes illustrate the manner in which computer access shaped student learning:

“All the x-rays and looking at all of the obs ... you can read in the notes ... look at their haemoglobin ... chest ... white cell count ... it’s really good to put everything together ... it’s good that it’s so easy to access.” Shelly

“All the old medical records and x-rays are all on the computer ... to build their knowledge on that patient ... not having to sit down and say ‘can you tell me about this?’ They are able to show a bit more initiative.” Caitlyn

Access to the Internet, whether during or after work time, also had a significant influence on student learning during clinical placements. The students stated that their supervisors expected them to access current evidence-based treatment protocols, which they would have found difficult if unable to access the Internet. The lengths students went to in order to access the Internet in out of work time when it was not available to them at the clinical site highlighted the significant influence of Internet access to student learning. Meg and Monica described difficulties in accessing Internet on clinical placements:

“We couldn’t access anything ... it just made things kind of impossible and the place I was staying at didn’t have Internet either so I was in this little
Quickie Mart store and I just paid some Indian guy to use the Internet.”
Meg

“We didn’t have access to the Internet, we usually managed half an hour on a Saturday at the library because that was the only place we could get Internet.” Monica

In this section, the manner in which workplace architectures, in particular hospital size, clinical and technical resources, influenced students’ clinical learning has been identified and explained. Complicated hospital layouts were identified as a distraction to students’ ability to focus on their clinical learning, especially at the beginning of their placements. The level of resource provision in workplaces shaped student learning predominantly through the manner in which it influenced their clinical practice, such as patient assessment and formulation of treatment interventions. In particular, computer and Internet access also influenced students’ learning in clinical workplaces.

**Contextual guides influence practice and learning**

Contextual guides within clinical workplaces, in the form of practice cues and clues, emerged as a significant factor that shaped student learning. Contextual guides contributed directly to students’ capacity to perform required tasks and consequently learn from those performances. Practice cues and clues differ from general resources in that they provide an explicit guide to clinical practice and contribute directly to the development of students’ ability to undertake specific practice activities. The students in this research demonstrated particular reliance on contextual guides when they lacked confidence or experience in areas of practice, with writing in patients’ medical records providing one example.

Patient medical records provide a salient example of an area of practice in which many of the students lacked confidence. Students described relying heavily on practice cues and clues mostly in the form of completed patient medical records. For many of the students, particularly the second year students, medical record writing was a new and challenging experience. During a period of observation, Sam commented to me that medical record writing was the only area of practice that he felt inadequately prepared for. Sarah’s quote also highlights how unprepared she felt for writing in patients’ medical records:

“We have never written notes at uni ... that was one really big learning I did in there.” Sarah
Particularly for students who felt unprepared for writing in medical records, existing patient medical records provided useful cues on how to correctly document patient assessments and interventions. During periods of observation, the physiotherapy students spent considerable amounts of time completing patients’ medical records. At that time they often flicked back to completed notes to guide their writing and identify correct placement of specific forms and information. *Skye* encapsulated the way students used previous notes to guide their medical record writing practice:

"*Because they were new to me ... so I would know what they were doing ... looked at the file, at someone else's notes before.*"  *Skye*

Apart from being a useful guide as to how to write medical records, patients’ medical records also provided useful practice cues and assisted development of patient treatment protocols. Current patient notes were accessed via hard copy files that were generally stored in trolleys at or near nurses’ stations. Students’ practice was often guided by prior entries made by other therapists, particularly when treatment plans were recorded. *Scott* described how his patient treatments could be influenced by treatment plans recorded in patients’ medical records:

"*On the notes it might say, plan is to get them out of bed and mobilise.*"  *Scott*

The provision of hand wash was another contextual guide that significantly influenced students’ practice. During the observation phase of this research I noted the ubiquitous presence of hand wash. Hand wash dispensers were located at the end of every patient’s bed as well as at ward entrances and along corridors. This was not surprising, given that hand washing is widely accepted as an effective mechanism for ensuring infection control in health services (Lee, 2013). As would be expected, both supervisors and students used the hand wash prior to and following patient interactions. *Sonia* photographed the hand wash (see page 185) and in her photo-elicitation interview described how the ubiquitous presence of hand wash influenced her hand washing practice and led to the development of positive practice habits.

"*The hand wash ... in every single room ... in the passage ways ... absolutely everywhere ... I developed some really good habits with hand washing ... helps to reinforce that idea of 'touch the patient, treat the patient and use the hand wash'."  *Sonia*
In a similar way, Sarah described the manner in which her unrestricted access to an oxygen saturation monitor directly shaped her practice. Sarah described a shortage of oxygen saturation monitors on the wards, but noted that her supervisor left his monitor for her use. Sarah found that as she lacked confidence as a student she constantly took her supervisor’s monitor with her and consequently checked every patient’s oxygen saturation.

“There was always a shortage of sats machines, so he left it there ... I usually put that on my belt ... and specifically because you are the student and you are feeling a bit out of your depth, I just checked everyone’s sats.” Sarah

In this section I have identified a range of workplace contextual guides that directly shaped students’ practice and consequently their clinical learning. This significant contribution of workplace contextual guides to students’ clinical learning highlights the importance of closer examination of workplaces and the manner in which they shape student learning in the construction of high quality student clinical education experiences.

5.3.2 Direct relationship dimensions
This research revealed relational dimensions of clinical workplaces as significantly influencing students’ clinical learning. The participants identified relationships with three key groups within clinical workplaces as particularly influential on student learning. These were patients, clinical supervisors and nursing staff.

Patients can powerfully influence student learning
For all the participants of this research, interaction with patients represented a core part of clinical workplaces that had a powerful influence on student learning. This finding on its own is not surprising, as clinical placement experiences are often acknowledged as prime opportunities for students not only to translate theory to practice but also to develop practice knowledge that only the workplace can engender. Engagement with authentic patients activities could be reasonably argued to be an important element of placement experiences that facilitates this extension of students’ knowledge far beyond propositional knowledge (theory), encompassing practice knowledge and extending practice capabilities. What was interesting about these findings was illumination of the manner in which student interaction with patients shaped student learning. Such authentic patient interactions improved students’ ability to understand medical conditions and their impact on people’s lives, to solve problems and to refine a range of physiotherapy practice skills.
Interaction with patients gave students opportunities to experience the “real world” of clinical practice and provided an extra dimension to learning that could not be imparted through academic teaching, simulation, practising with other students, or textbooks. In the next quote, Sam encapsulated the important contribution of seeing patients to extending his pre-clinical learning and expanding his understanding of what real health problems and real treatments entailed.

“At uni, … you are trying to treat your best mate who doesn’t have a bad knee … you actually see someone who can’t actually weight bear … then it sticks a lot easier … a really good way to consolidate what you have learned at uni … we hear that there are times where you have patients that are a dead weight … as a 21 year old male you find it hard to comprehend someone who can’t move.” Sam

Authentic patient interactions were considered to enhance student learning in a variety of ways. Firstly, patient interaction promoted recall and expanded understanding of medical conditions, as students remembered real people they had seen and worked with. This depth of understanding of patients and conditions was further enhanced by continuity of student engagement with patients. For example, Tess described that she would always remember a patient she had seen prior to his surgery, during surgery, immediately post surgery and throughout his rehabilitation up to and including discharge. These findings are exemplified in the following quote:

“I imagine you tend to learn from seeing things and doing things and tend to remember the particular people that you had … this is what somebody looks like with COPD, this is what somebody looks like with an ulcer … I think that’s quite an important aspect of being in that environment.” Chloe

Secondly, interaction with patients provided students with an opportunity to problem solve, as each patient interaction presented a unique set of problems that required a unique set of solutions. The participants believed that working out solutions to patient problems enhanced both student learning and their recall of what had been learned. In the next quotes, Cameron, Carl and Stacey illustrated the benefits of problem solving to address unique situations.

“There is no one solution, there is no one right answer, you can’t learn the right answer to everything.” Cameron
“The right answer changes with every patient.” Carl

“It is actually beneficial ... by figuring it out yourself you learn it and remember it better.” Stacey

Thirdly, interaction with patients gave students opportunities to implement and refine a range of physiotherapy practice skills, including treatment techniques and communication skills. Through implementation of patient treatment techniques students could refine their skills via direct experience of the treatments and their assessment of the effectiveness of the interventions. Prior to undertaking clinical placements students had only practised physiotherapy techniques on other students and had therefore not experienced the powerful effect of witnessing patient improvement (or lack thereof) as a direct result of chosen interventions. Some students registered a degree of surprise that their interventions were in fact effective. The participants shared the view that students learned something from every patient, but the students found that challenging patients (that is, patients with more complex health issues, or who were not immediately compliant, or those with communication disorders) particularly facilitated development of their clinical and communication skills. This experience is illustrated in the quote from Tom:

“When you get a challenging client ... definitely you take lessons out of that you wouldn’t if you were seeing a straight forward hip [patient] ... you’ve got your very set routine ... a challenging person blows that all out ... you have to learn things about the way you have to approach them and how they react and the way you say your words.” Tom

In this example, Tom neatly described how different patient interactions shaped his clinical learning. When treating non-complex patients, Tom followed a set routine and therefore practised specific physiotherapy skills, but with more challenging clients he was learning how to be flexible and adapt his treatment and communication strategies in response to patient reactions.

Interestingly, given the contemporary focus on patient-centred models of healthcare, where establishment of equal partnerships between healthcare professionals and patients is paramount and is underpinned by acknowledgement of patients as experts in the knowledge of their conditions, only one participant identified patient knowledge as providing an important contribution to student learning. Sam, a second year student, stated that he learned a great deal about patient conditions from patients
themselves, as “they know more about their symptoms” because “they live with them”. Sam used a metaphor of how an owner of an old car knows how it works best, to describe how patients are experts in how their particular condition affects them. Sam’s use of this metaphor, seen in his quote, demonstrated his deep understanding and acknowledgement of patients as experts in their own conditions:

"It is just like your little old crappy car that touch and poke it this way to make it go. You know how it works better than anyone else." Sam

Given this significant influence of patient interaction on student learning, the supervisors also highlighted that while they would ideally select optimal patients for students to further enhance student learning, for various reasons that was often not possible in clinical workplaces. For the supervisors, identification of appropriate patients for students was complicated by the fact that many patients had non-physiological co-morbidities that were not immediately apparent. Further, they stated that in contemporary clinical workplaces, increasing numbers of patients presented with complex health needs, which meant that if students did not assess and treat complex patients there would be very few patients for them to treat. Finally, for the clinical supervisor participants, the selection of appropriate patients for students to assess and treat had to be balanced by what would be in the patient’s best interest. This highlights an important tension experienced by supervisors between provision of optimal patient care and creating optimal student learning experiences. Caitlyn’s quote encapsulates this tension in her resolution that patients should come first and students second:

"It’s what is best for the patient first and then … will it benefit the student?" Caitlyn

In this section, patient interaction has been revealed as a significant relational dimension of clinical workplaces that provided a powerful learning experience for students undertaking clinical placements. Patient interaction emerged as an important means of enhancing students’ understanding and recall of medical conditions, their performance of physiotherapy assessment and treatment techniques, and their interpersonal and communication skills. Patient interaction provided an important vehicle for students to develop advanced skills in problem solving and to discern unique solutions for each patient. The powerful but often variable learning that students constructed from patient interactions
was highlighted. The nature of this individual and powerful learning from patient interaction is further explored in Chapter 6.

**Clinical supervisors’ actions and intentions shape clinical learning**

The participants in this research viewed clinical supervisors as having a major role in shaping student learning during clinical placement experiences. Supervisors were key players in determining the level to which students participated in authentic practice activities, with students’ ability to independently assess and treat patients providing a salient example of such participation.

The students described how the supervisor strongly determined their level of participation in patient activities. In the following quotes Fiona and Shelly epitomised the students’ views as to the importance of supervisors in determining students’ active participation in workplace activities:

“*I think the clinical educator makes a big difference ... how much they actually let you treat.*”  Fiona

“*It all depends on your supervisor ... you can’t do anything, they do everything ... you just watch ... they don’t really let the students do much.*”  Shelly

Active participation in patient activities was important to student learning, as the students gained confidence in their developing practice capabilities through participation. When students were not permitted to participate actively in patient activities they experienced feelings of frustration, which could distract them from their clinical learning. Stacey and Tess described such experiences:

“*When you get to do more you feel more confident about what you are doing.*”  Stacey

“*Some of the physios aren’t too keen about letting us do stuff ... really frustrating ... doing things by myself is when I learn more.*”  Tess

For the clinical supervisors in this research, student immersion in the clinical workplace emerged as a strong factor that shaped student learning and consequent development of professional practice capabilities. Interestingly, in contrast to the students’ views, the supervisors did not necessarily privilege active student involvement in patient activities. The supervisors described immersion in practice experiences as student
inclusion in a wide range of clinical experiences, which could include student observation sessions. The supervisors considered that broad experiences incorporating a wide range of activities and exposure to different assessment and treatment techniques would better equip students for future graduate physiotherapy practice. These views are encapsulated in Callum’s description:

“`They don’t realise they are learning and you don’t necessary consciously teach them … just being in the environment you will learn … something gels and they have learned by osmosis … by including them as much as is possible they will learn more … that builds a far better, far more flexible, far more adaptable, and in some ways a far more confident physio.”` Callum

The participants identified observation of clinical practitioners as an opportunity for students to broaden their repertoire of treatment and assessment techniques beyond what was learned at university. Clinical supervisors placed a high degree of importance on modelling a broad range of positive professional behaviours, as students picked up different “tips and tricks” from their supervisors. Examples of “tips and tricks” included assessment techniques, flexibility in treatment approaches and communication skills. In their quotes Sam and Carl provided examples of the manner in which observation of clinical supervisors broadened students’ repertoire of assessment and treatment techniques.

“`You learn a lot of techniques and you learn the way a therapist holds himself with the patient in terms of physically and verbally ... that is really important.”` Sam

“`If students have seen me communicate well, and having a laugh with a nurse ... then they will see that it’s not that confronting and they can go and do that as well.”` Carl

The powerful influence on student learning of modelling positive professional practice was reinforced by clinical supervisors’ acknowledgement that students actively incorporated elements of educators’ clinical approaches into their own growing clinical repertoire. In her quote, Chloe provided an example of students’ incorporation of clinical educators’ practice into their own.

“`They tend to watch how we interact ... I have definitely heard some of the lines I have given to the patients being said by students the next day.”` Chloe
In this section the powerful influence of clinical supervisors on physiotherapy students learning has been portrayed. Clinical supervisors shape physiotherapy students’ learning both by determining students’ level of participation in workplace activities and by modelling professional practices.

**Relationships with nursing staff key to student learning**

Among the various medical professionals working in clinical workplaces, nursing staff were particularly significant to physiotherapy students’ clinical learning. Interestingly, the participants in this research did not regard nursing staff as gatekeepers to patients and consequently practice, a view that has been reported in previous research (Dornan, Boshuizen, King, & Scherpbier, 2007). Rather, participants highlighted nurses’ wealth of knowledge and their ability to provide physical assistance as required. The participants held nursing staff in high regard and identified a strong need to establish and maintain positive relationships with them. However, maintaining positive relationships with nurses was not always easy and required “finding the balance” in time spent between assisting nurses and completing physiotherapy work. Students often required assistance from clinical supervisors to navigate the complex and often confusing territory of establishing and maintaining positive relationships with nursing staff.

Nursing staff were regarded as holding a wealth of knowledge about medical conditions in general as well as about patients’ status and whereabouts. Nurses were viewed as possessing comprehensive understanding of patients’ conditions, in part developed through their constant contact with patients. Input from nursing staff facilitated students’ ability to develop more accurate assessments of patients’ functional abilities. Further, when students found patients’ beds empty, nursing staff could advise not only where the patient was but also when return was expected and, if the patient was undergoing a medical procedure, what restrictions might be in place when the patient returned. The students also often asked nurses questions when their supervisors were unavailable; nurses not only answered but also often provided valued advice. This important role of nursing staff in answering questions and providing advice to students was encapsulated in Scott’s and Carl’s quotes:

“If you ask them [nurses] they are more than happy to tell you how the patient is going and explain the charts or why the patient can’t get up today … or suggest what I could do.” Scott
“I have seen nurses in our environment giving valuable advice in a constructive way to the students.” Carl

As well as possessing a wealth of knowledge, nursing staff also provided a valuable source of physical assistance during patient interventions. The additional knowledge and the physical assistance provided by nursing staff contributed to increased safety and time effectiveness when students undertook patient assessments and treatments. For example, nurses often helped students with patient transfers, provided assistance when patients suddenly became unwell during mobilisation (including cleaning up vomit), and relocated accidentally dislodged intravenous lines and indwelling catheters.

The participants held a high level of respect for nursing staff and expressed a desire to maintain the high standards set by nursing staff on the wards. The students stated that they felt motivated by exemplary practice demonstrated by nursing staff on particular wards, as evidenced in Sam’s quote:

“Nurses ... they are it, they are everything, I think they are brilliant ... so kind and so genuine towards every patient ... easy to talk to ... they genuinely care about the wellbeing of the patients ... a beautiful way to be ... you then want to do the best by the patients and keep up with the standard.”

Sam

Nursing staff contributed significantly to student learning through sharing knowledge, assisting with physiotherapy patient tasks and setting aspirational standards of practice for physiotherapy students to attain. In this way nursing staff were integral both to the performance of physiotherapy practice and to physiotherapy students’ learning during clinical placements. This centrality of nursing staff to physiotherapy practice and student learning meant that relationships developed with nursing staff were considered critical to efficient and effective physiotherapy practice as well as student learning.

It is not surprising, therefore, that students often went to extraordinary lengths to establish and maintain positive relationships with nurses. The participants in this research highlighted the importance of reciprocity in the development of positive relationships with nurses. This meant that if nursing staff were expected to provide assistance to physiotherapy students they should, in return, provide assistance to nursing staff. Both clinical supervisors and students highlighted the importance of assisting
nursing staff even if it meant undertaking tasks they did not enjoy, as evidenced in Greg’s quote:

“Our physios were very much for ‘help the nurses as much as you can, do as much as you can for the nurses’, and I had to drain a urinary catheter and I wasn’t too pleased about that. Definitely an eye opener!”  Greg

Other tasks identified as nursing tasks that both physiotherapists and students completed in order to maintain good relationships with nursing staff included helping patients to don anti-embolus stockings, tidying beds, getting pans for patients, taking patients to the toilet and getting linen for patients including towels, sheets and blankets. This perceived need to assist nurses in order to maintain positive relationships led to students often experiencing difficulty in finding an appropriate balance between helping with nursing work and completing physiotherapy tasks. Often intervention was needed from supervisors to “adjust” the student-nurse relationship to ensure that students could complete their own work as well as assist the nurses. Students’ need for assistance in balancing their relationships with nursing staff was demonstrated in Meg’s and Monica’s quotes:

“You try and stay on their [nurses] good side but you can only do that for so long before these people need physio.”  Meg

“Every time a nurse saw me … come here and help me do this … I was seriously just their little run-around gofer. So I actually did complain to my physio … so they had to talk to them.”  Monica

The participants’ high level of respect for nursing staff in general was tempered by acknowledgement that nursing could at times be a complicated profession. This complex nature of nursing staff further challenged students’ ability to establish positive relationships with nurses. For the participants, this perception of complicated relationships, related to nurses at times being “strong minded individuals” and were sometimes linked to prior negative experiences with nursing staff. Therefore, during clinical placements students were learning about the tact and interpersonal communication skills required to establish and maintain collaborative working relationships with nursing staff. In the next quotes, Craig highlighted the complexities of dealing with the nursing profession and Stacey emphasised the need for tact and extreme care when working with nurses.

“Nurses … can be a tricky profession sometimes. If you don’t approach it the right way … things are sometimes more difficult.”  Craig
"You have to be very tactful because you don’t want to get on their toes … you need to be very, very, very careful.” Stacey

In this section I have depicted the integral role of nursing staff in shaping physiotherapy students’ practice and consequently their learning during clinical placements. Nursing staff shape student learning through sharing of their wealth of knowledge, provision of physical assistance and setting aspirational standards for practice. The consequent importance of establishing positive and reciprocal relationships with nurses to facilitating student learning was highlighted. Finally, the difficulty students encountered in establishing and maintaining relationships with nurses and their heavy reliance on clinical educators to negotiate this sometimes difficult terrain was discussed.

5.3.3 Workplace culture dimensions
This research revealed cultural dimensions of clinical workplaces as significantly shaping students’ clinical learning. The participants identified two main facets of workplace cultures as particularly influential on student learning. These were the invitational qualities of workplaces and workplace hierarchies.

Invitational qualities of clinical workplaces shape student learning
For the participants of this research, students’ learning was significantly shaped by the invitational qualities of clinical workplaces, or those features that welcomed them to join in the workplace culture and activities. These invitational qualities of clinical workplaces were largely determined by both physical and socio-cultural factors. The participants identified physical factors such as provision of desks for students as important, as such spaces gave students a recognised place to work, to reflect on past patient interventions and prepare for future interventions. Socio-cultural dimensions of workplaces also emerged as especially significant to shaping student responses to the workplace and thereby their learning. A welcoming workplace culture facilitated students’ ability to access learning opportunities through interaction with a broad range of clinical staff and active involvement in patient assessment and treatment.

Provision of designated work and recreational spaces for students presents a challenge in many clinical workplaces where space is often at a premium. For the participants of this research, provision of a designated student space in the form of a desk was important because it provided a space for
students to write notes, study and reflect, as well as increasing their sense of belonging. For Meg, not having a designated space to work accentuated her feelings of being in the way and consequently formed a barrier to her learning:

"They didn’t really have room for students and so you were kind of just shoved into a corner … ‘this is your 10cm space and don’t come out of it because you’re going to get in the way of everybody else’ … so if you wanted to study it was pretty much impossible.”  Meg

Charles also emphasised the importance of students having their own desks and acknowledged the difficulty of providing students with a designated desk in many clinical workplaces. Charles used the term “hot desking” to describe a situation where students, not having a desk of their own, were required to sit at whichever desk was free at any given time. Charles believed that the provision of designated student desks was important because it provided a quiet space for students to reflect.

"Having a work space is really important and in some environments that’s really hard. We’re lucky … we’ve got a designated student area with computers… I know that at some of the other sites they don’t have that luxury, so it’s a case of hot desking … in their own designated space … they’ve got a quiet area where they can reflect.”  Charles

The students reported feeling ill at ease and needing to complete tasks more quickly when using other staff members’ desks. These feelings were due in a large part to acknowledgement that working staff members deserved priority access to desks. Mallory and Meg’s quotes highlighted the difficulties students encountered when they had no desk of their own:

“you are using someone else’s desk and you have to share and obviously they are the working physio so they get priority.”  Mallory

“and angry OT comes because you are a physio student at their desk.”  Meg

This concept of “hot desking” or sharing desks with other allied health staff is interesting because it draws attention to the fact that student spaces in many clinical workplaces are in fact shared spaces. Spaces where students both work and take breaks during clinical placements are often shared with other health service staff. For the students in this research, writing in patient medical records, particularly on the wards, was often hindered by their inability to find a place to write in these records without interruption. During my period of observation, I noted the crowdedness of many of the
allied health rooms where patient medical records were completed. Students were often required to write notes while kneeling or crouching at the edge of desks. In her photo-elicitation interview, Stacey’s comment that it was amazing that she was able to take a photograph of the allied health room where patients’ medical records were completed (see page 187) with no people in it emphasised the usually crowded nature of these spaces. Sarah’s quote encapsulates the issues around shared spaces:

“...the note writing room ... everyone jostles for seats ... there is always people coming and going ... it was really intimidating at the start ... and everyone pushes the other out of the way to get a bit of table space.”  Sarah

In clinical areas lacking a designated physical space for students, a sense of welcome could be created by the friendliness of the physiotherapy staff. The quotes from Monica and Mallory illustrate this:

“didn't have a desk or anything ... we pretty much sat on the floor ... I found it a good learning environment because we were really comfortable with all the physios that were there. They were all really friendly so you could just ask them anything.”  Monica

“It comes down to the people more than the place.”  Mallory

For the students, who reported their placement experiences at a range of health services, smaller, mostly rural hospitals often provided a more welcoming, caring and inclusive environment than larger metropolitan hospitals. Many of the supervisors described the hospital where this research was undertaken as having a “country” feel and reasoned this had a positive effect on students as a result of increased friendliness and an increased sense of belonging. This was captured in Caroline’s quote:

“There is definitely more ownership and community in a country place ... a more friendly environment ... city doesn't have a belonging ... we're a friendly hospital ... the students would feel that they are part of the community, so that’s a good thing.”  Caroline

The students explained that this rural or small health service sense of welcome and inclusion was often evidenced through provision of a desk, library access, and the level of support and care from clinical supervisors. In this quote Margot described the increased support she experienced at a smaller, rural hospital, from both her clinical supervisors and patients:
“In [rural town] supervisors were fantastic ... we felt so comfortable ... in contrast to Sydney as soon as you walked out of gym they didn’t want to know you ... they didn’t care ... whereas the small country town they’re just so supportive.” Margot

Physiotherapy lunchrooms were also important spaces where students forged relationships with other physiotherapy staff. Pivotal to the formation of these relationships was a sense of welcome generated through the students feeling invited to join the physiotherapy staff for lunch. Many of the students took photographs of the physiotherapy staff lunch room (see page 187 for an example) and discussed the way being invited into the lunchroom influenced their learning. The students stated that formation of positive relationships with physiotherapy staff was key to their ability to foster learning through asking questions and accessing practice experiences. In their quotes both Meg and Sarah highlighted the significant contribution of shared lunches to the development of positive relationships with physiotherapy staff, noting their own subsequent ability to ask questions and access a broader range of practice experiences.

“Just making other people approachable, we went to lunch a couple of times ... if you just sit down and have a cup of coffee and get to know them a little bit you can just walk up and say ‘I’ve got nothing [to work] on can I come with you?’” Meg

“You feel invited at lunch time ... you feel welcome ... you feel a bit more confident when you see other physios on the wards to actually ask questions.” Sarah

The clinical supervisors were aware of the need to share both their work and recreational areas with students. For the supervisors, sharing recreational spaces such as lunchrooms created a tension between meeting their own needs for relaxation during breaks and meeting students’ educational needs. While the supervisors acknowledged the importance of students being invited to share lunch times with physiotherapy staff they were conflicted as to how they should behave during breaks when students were present. While the supervisors firmly believed they should maintain a professional persona with students at all times, they also acknowledged the benefit of students viewing supervisors as people who laugh as well. Caroline’s quote exemplifies this tension in clinical supervisors regarding their behaviour with students, particularly during breaks.
"It’s a tricky thing… we invite our students to lunch … it’s good that they can feel welcome … clinicians also need a bit of a break sometimes … we have to be careful to keep professional persona on … we would like to crack some rude jokes sometimes … they are going to approach you more readily if they feel that you laugh as well as you are being serious.” Caroline

In this section I have examined the manner in which invitational workplace qualities shaped student learning during clinical placements. Invitational qualities of clinical workplaces were formed by physical factors (such as provision of designated student desks) and socio-cultural factors (such as sense of welcome and inclusion). Workplaces where students felt welcomed and included enhanced their access to authentic practice experiences.

Workplace hierarchy
The participants of this research found hierarchies to be firmly entrenched in the clinical workplaces where they worked and undertook clinical placements. Workplace hierarchies were clearly described, with the students in particular demonstrating a high degree of sensitivity to hierarchies in the workplace through fine-grained descriptions of them and a perceived need to comply with existing workplace practices. Hierarchies were evident both in the status afforded to particular professional groups and in a range of workplace activities such as physiotherapists’ preferred assessment and treatment practices.

Workplace hierarchies significantly influenced students’ ability to engage in authentic professional practices. In their descriptions of such hierarchies, the participants particularly noted the high status of doctors in clinical workplaces. The students seemed somewhat bemused and surprised by this hierarchy within clinical workplaces. Monica commented that doctors were considered to be “God” and Meg described a “weird” experience in a meeting where particular chairs were reserved for consultants and no other staff member would sit in them. While the participants described workplace hierarchies, at no time did they mention overtly challenging them. This degree of acceptance and entrenchment of hierarchies is exemplified by Craig’s quote where he expressed frustration, when even as a senior physiotherapy clinician he experienced being interrupted by a medical team. While Craig appeared frustrated by this experience, as it interrupted his clinical work, he seemed to accept it as an annoying part of his professional practice.
“you are seeing the patient and the whole medical team walks in, you are kind of shoved aside, even as a senior physio, you are shoved aside.” Craig

Students’ ability to engage in and learn from professional encounters with patients was also influenced by workplace hierarchies. In particular, the status of doctors meant that doctors who needed to see a patient could unexpectedly interrupt physiotherapy students’ patient consultations. This could distract students from their clinical learning as they were often left feeling frustrated by such interruptions. In the following quotes Skye and Christina described how medical practitioners disrupted students’ work.

“If they [doctors] wanted to see a patient you would leave even if you were in the middle of a treatment … it was a bit annoying.” Skye

“Because of the strong individuals and the hierarchy of the place ... the students felt at times if the doctor has walked into the room they basically were pushed out of the way.” Christina

Access to medical records was another dimension of students’ practice that was strongly influenced by workplace hierarchies. The students described doctors’ preferential access to medical records. Sarah described how when doctors requested particular medical records all staff, including students, “gave them up” and Skye described this practice of surrendering medical records to doctors as “accepted” but “a bit unfair”.

During the observation phase of this research, I noted the strong influence of doctors on students’ and clinicians’ access to medical records. As I watched, during a medical ward round, the trolley of medical records accompanied the doctors on the ward round. Further limiting students’ access to medical records was a direct order issued by one of the doctors that “no patient notes were to be removed from the trolley during the ward round”. During this particular ward round, the clinical educator advised Stacey (the student I was observing) to “quickly grab the required notes and write on them just around the corner”. This was to enable Stacey to complete the notes and at the same time observe the progress of the ward round and quickly return the notes if they were required. In her interview Stacey described how, as her placement progressed, she learned to “steal” patient notes and became increasingly confident to do so. This is an interesting example of how hierarchy shaped student behaviour and learning during placement, as an important learning for Stacey during placement was how to circumvent existing hierarchies to gain required access to patients’ medical records.
All participants also described the important influence of customary workplace practices, or “how things were done” in particular health services on students’ clinical learning. As an example of the influence of physiotherapists’ preferred practices on students’ learning, Sonia described how the frequent use of McKenzie exercises by outpatient physiotherapists prompted her to undertake further reading about the McKenzie treatment approach. The students also described a strong pressure to conform to workplace practices, including physiotherapists’ preferred documentation and treatment strategies, which significantly shaped their practice and consequently their learning. The students’ ability to implement treatment approaches was constrained by the workplace physiotherapists’ preferred approaches, thereby shaping learning in line with preferred workplace practices. In these quotes Tess and Skye described this perceived pressure to conform to physiotherapists’ preferred practices:

"I would feel it was too risky to do or ask about doing a deep breathing exercise different to what they liked … whenever I ask you what exercise to do just say squats and I will be really happy." Tess

"You have to document everything the way they want it documented … I was just interested in getting the notes right and setting them out right and using the right abbreviations.” Skye

The students also identified a strong hierarchy within physiotherapy departments, based on physiotherapists’ level of seniority, which was in turn determined by individual physiotherapists’ level of clinical experience and expertise. The students greatly respected senior physiotherapists, and although at times they felt intimidated, they also experienced a strong desire to impress them. This respect/wariness mixture is illustrated in the following quotes:

"The clinical supervisor, Elizabeth – what she says goes – and I’m quite wary of what she says and I try to impress her.” Sarah

"Grade 2s [senior physiotherapists]… the respect thing, – she knows a lot more than me, – don’t listen to me talk to her.” Sam

Interestingly, as a consequence of workplace hierarchies the students established a “hierarchy of questioning” as they found it “daunting to ask someone higher up a question that might be stupid”. This hierarchy involved first asking questions of other students, then Grade 1 physiotherapists (preferably recent graduates), and finally Grade 2 physiotherapists or clinical supervisors. The students gradually gained
confidence to ask senior clinicians questions that could be considered silly if other students and junior physiotherapists were unable to answer them.

The participants clearly positioned students at the bottom of well-entrenched hierarchical systems within clinical workplaces. The students were acutely aware of their student status, which they perceived was amplified by wearing a different uniform that made them “stick out like a sore thumb”. Many students emphasised this perceived low status of students, often referring to themselves as “just a student”. This perception made it difficult for students to identify their role and where they fitted in clinical workplaces, as they “weren’t physiotherapists yet”. In particular, students had difficulty determining the extent to which they could challenge physiotherapy practices and argue their ideas in relation to patient assessment and treatment interventions. Students often perceived that experienced physiotherapists “knew better”, and thought “who were they to argue?”. This difficulty in determining their role, together with acknowledgement that supervisors were marking their performances, often meant that students refrained from challenging current physiotherapy practices. Instead, they often stated that they would not undertake specific practices in the future. In this quote, Sarah described her reluctance to challenge her supervisor, despite her reservations:

"Certain things he would do, I would think 'oh I would never want that done to me’... but you’re not in a position to say anything ... they are your supervisor and they mark you ... no point saying anything unless it’s really dangerous.” Sarah

In this section, workplace hierarchies entrenched in clinical workplaces, were found to significantly shape physiotherapy students’ access to practice activities and consequently their learning during clinical placement. Students’ access to both patients and patients’ medical records provided a significant example of the manner in which the perceived status of doctors in workplaces shaped physiotherapy students’ clinical learning. Also significant was students’ perception of their low position in workplace hierarchies and their consequent role confusion, which impeded their ability to implement their preferred patient interventions, particularly in situations where they felt unable to challenge the views of more experienced physiotherapists. The implications of this identified inability of physiotherapy students to challenge other professionals in order to achieve optimum outcomes for their patients are discussed in Chapter 7.
5.3.4 Dynamic and unpredictable nature of clinical workplaces

The dynamic and often haphazard and random nature of clinical workplaces was identified as a significant temporal dimension of clinical workplaces that shaped students’ learning. The students were surprised to discover the strong influence of both the fast pace of clinical workplaces and haphazard nature of workplace activities on their clinical learning. These factors shaped students’ clinical learning through their significant influence on students’ ability to both plan for and complete patient activities. Time restrictions due to the fast pace and unpredictable nature of clinical workplaces meant that in order to practise effectively in these workplaces, as well as technical skills, students needed to develop well-honed time management, communication and negotiation skills. The dynamic and unpredictable nature of clinical workplaces emphasised the importance of flexibility and adaptability as core professional practice capabilities underpinning contemporary physiotherapy practice.

During periods of student observation, I noted that the clinical workplaces where this research was undertaken were very busy, wards being particularly busy spaces. While I observed students I noticed that staff always moved quickly, imbuing all their actions with a sense of urgency. The students were sensitive to the fast pace of clinical workplaces, as evidenced in Sam’s and Tom’s quotes, with Tom commenting particularly on the fast pace at which supervisors moved:

“Everything goes at a million miles an hour and you are trying to catch whatever goes past you.” Sam

“Keep up with the supervisors ... they walk pretty fast ... you don’t want to fall behind.” Tom

In ward environments students also regularly encountered unpredictable interruptions to their plans, for daily activities such as patient showering and toileting, clinical tests such as x-rays, and arrival of patients’ visitors, that interrupted their scheduling and completion of patient interventions. Students expressed surprise when they encountered barriers to accessing patients because of the unpredictability of events within clinical workplaces. Sarah’s and Meg’s quotes encapsulate both the degree to which the unpredictability of clinical workplaces influenced their ability to plan for and treat patients and their lack of preparedness for such events:
“That was something I didn’t know, that patients are not available ... you can have a great plan for the day, every day it is just blown to shreds.”  
Sarah

“I never realised until my last placement how much the routine of the day can just absolutely mess up any plans you have to see a patient.”  
Meg

The unpredictability of clinical workplaces also often meant that students were unable to follow patients through their full treatment trajectory toward discharge. Students often described being unable to follow up treatments due to patient unavailability at scheduled treatment times, with the result that other physiotherapists treated and discharged those patients. The students expressed disappointment if they could not continue patient treatments through to discharge. Stacey’s quote encapsulated this disappointment and highlighted her need for a sense of closure to her treatment sessions with patients:

“That was one of the things I was disappointed about, sometimes you wouldn’t get to see a person before they were discharged.”  
Stacey

Students also stated that if they did not undertake patient treatments at scheduled times the treatment plans they had formulated would then never be used. This inbuilt obsolescence of patient treatment plans was in part due to rapid improvement exhibited by some patients in acute wards and in part due to the type of equipment that was available where the planned treatment session was to be undertaken. In those circumstances students needed to demonstrate flexibility and formulate alternative treatment plans, often at short notice. In the next quote, Fiona described how a planned treatment session in the gym had to be cancelled and the treatment undertaken on the ward instead. Although Fiona bemoaned the time spent preparing a session that didn’t happen she acknowledged the benefits.

“Frequently we have had patients who aren’t ready to come down to the gym at the time that has been scheduled ... I’ve had to create a new treatment plan because we no longer see them in the gym, we’ve got to make time to go and see them on the ward ... The time I spend preparing the session that now is never going to happen, but I think it will make me a better practitioner.”  
Fiona

The clinical supervisors also acknowledged the unpredictability of clinical workplaces as a strong influence on student learning. They stated that well-developed time management and negotiation skills were critical to successful clinical practice and clearly recognised that effective patient care
was underpinned by well-developed communication and negotiation skills. Thus, the unpredictable nature of clinical workplaces provided a catalyst for students’ development of professional practice capabilities such as communication and negotiation skills. In the following quote Clare encapsulated the view of the significance of communication and diplomacy skills to the achievement of positive patient outcomes:

“Administrative juggling ... ultimately results in delivery of a good service ... students have to develop some skills in communication and diplomacy and negotiation.” Clare

Due to the lack of predictability of clinical workplaces, flexibility was recognised as critical to the achievement of successful patient outcomes. This flexibility was identified by participants as the ability to “change tactics” when planned patient interventions could not be implemented because of unexpected activities in clinical workplaces. The clinical supervisors highly valued students’ ability to quickly change patient treatment plans and to adapt to unanticipated changes in patient circumstances. The supervisors viewed this ability to be flexible in the face of unexpected activities as a particularly important practice capability, because unpredictability represented the nature of physiotherapy practice in clinical workplaces. Sarah’s quote demonstrated her view of the need for flexibility in her practice and Callum’s quote demonstrated his view that the ability to use initiative was integral to physiotherapy professional practice.

“Often you go in and the bed is empty. Then you have to change tactics ... you’ve got to be interchangeable, definitely.” Sarah

“There are times were you have to just wing it and be flexible and make it up as you are going along and that is the nature of what you do.” Callum

In this section I have portrayed the significant influence of the dynamic and often haphazard nature of clinical workplaces on students’ clinical learning. Student unpreparedness for the uncertainty inherent in clinical workplaces is a significant finding, with important implications for the manner in which physiotherapy students are prepared for clinical placements. Another significant finding was the identification of the essential place of flexibility and highly developed communication, time management and negotiation skills in the delivery of effective physiotherapy services. This is an important finding because it has implications for future curriculum development that ensures the
preparation of work-ready graduates capable of flourishing in contemporary clinical contexts.

5.4 Examples of space

This research also revealed clinical learning spaces that formed beyond the immediate workplace. Three examples of these spaces that were identified as particularly influential on student learning are portrayed in this section. These were cars, student accommodation and student activity.

5.4.1 Cars as learning spaces

Learning spaces beyond the workplace, such as the car, were particularly significant learning spaces for some students. Both clinical supervisors and students noted that the casual environment created by car travel between work activities provided an opportunity for discussion with supervisors and other allied health professionals and provided rich clinical learning opportunities. The informal nature of car travel between work activities significantly shaped the atmosphere of the learning space created. Not all students were required to drive from home or their accommodation to the clinical site but those who did, whether alone or with other students, also commented on the car as a learning space.

Some students and supervisors undertook car travel together between work activities, such as travelling from the clinic to clients’ homes, hydrotherapy centres and outreach centres. The car became a particularly significant learning space for students in rural placements, as they were often required to travel long distances with allied health teams to provide services to isolated communities via outreach clinics, as evidenced by Martine’s quote:

“I spent a lot of time in the car because we covered a distance of 900 kms”.

Martine

Car travel between work activities gave students and supervisors uninterrupted time to plan client interventions (on the way to work activities) and to debrief and provide feedback (on the way back to the clinic). During car travel, students and supervisors could hypothesise together about client interventions, reflect on treatment interventions provided and collaboratively develop plans for future treatment interventions. Supervisors could therefore help students to scaffold and extend their clinical reasoning capabilities. Supervisors also used the time spent travelling in cars to share their clinical experiences with students, effectively broadening students’ bank of clinical experiences. Thus car travel was often effectively used for learning, but a few students found that the
relaxed atmosphere of the car could negatively influence their ability to maintain focus and concentration on discussions with supervisors and other practitioners.

The less formal environment created during car travel also provided a space for casual conversations centred more on social aspects of both students’ and supervisors’ lives. These more casual conversations were seen as important as they facilitated the development of good rapport between students and supervisors, ultimately leaving students feeling more relaxed and empowered to ask questions as needed. The less formal environment of the car was also identified as a space where students were more likely to discuss any issues or problems, both of a personal or professional nature. This was important, as when supervisors became aware of issues or problems that individual students had encountered they were able to adjust placement parameters accordingly. The contribution of this less formal environment of the car to casual conversations between students and clinical educators was evidenced in Tess’s and Charles’ quotes:

"You have spent so much time together ... you feel more comfortable to talk about any problems you are having and any questions as well". Tess

"I have the student come to hydrotherapy with me ... that's a great opportunity ... just be open about any issues they're having ... often we'll just talk social stuff ... puts the student at ease." Charles

Apart from work-related car travel, the car was also an important learning space for students who travelled by car from their accommodation to the placement site. When students travelled alone, the morning car trip provided an opportunity to undertake mental rehearsal of patient interventions for the day. For example, Stacey used the 40-minute drive from her accommodation to the clinical placement site to run through assessment protocols for her patients for that day, to ensure that she would not forget anything when performing these assessments. Stacey found that mentally rehearsing assessment protocols while driving and then using her notebook to check her mental rehearsals was a productive use of her travel time to facilitate learning and improve clinical performance. For Stacey, car travel significantly shaped her learning, evidenced in the fact that she took a photograph of her car (see page 187) for the photo-elicitation component of this research.

When students travelled together from their accommodation to the placement site, some of the time in the car was spent discussing what had happened at the hospital that day and sharing various clinical experiences.
The students found this a useful way of gaining a broader understanding of the scope of physiotherapy practice and therefore other areas of practice they might experience on future placements. Skye found these discussions interesting and helpful, as highlighted in the following quote:

“We travelled together … on the way home it was definitely physio talk and client talk and about the hospital … it was useful to know what the other students were doing … that was interesting.” Skye

In this section I have revealed car travel as a significant learning space for students during clinical placement. Car travel provided an opportunity for students to both scaffold their clinical reasoning skills and build a positive relationship with clinical supervisors. Both students and supervisors valued the opportunity provided by car travel to build a positive relationship and broaden students’ understanding of the physiotherapy profession.

Generally, the relaxed atmosphere created by car travel facilitated open discussions between students and supervisors, but it could negatively influence students’ ability to concentrate on longer trips. Students also appreciated car travel as a time to share experiences with other students and to mentally rehearse client treatments. In this way, car travel significantly contributed to student learning during clinical placement.

5.4.2 Accommodation as learning spaces

Student accommodation, whether in on-site accommodation or with family or friends, was another significant clinical learning space beyond the workplace. During clinical placements students stayed at a range of different accommodation venues including on-site hospital accommodation, family residences and friends’ residences. For many students, accommodation was a significant and positive part of their clinical learning environment. This was particularly evident when accommodation was shared with other students, both from the same and different universities, as well as with family or friends. Student accommodation was a valuable learning space, a space where students could debrief, reflect and discuss clinical experiences with other students or family and friends. The many photographs different students took of their accommodation during the photo-elicitation part of this research evidenced the significant contribution of accommodation to student learning. An example of a student accommodation photograph is provided on page 189.

Many students shared accommodation with others, both from their own and other universities, or with new graduate therapists. These students appreciated the opportunities to interact with other students from their own
and different universities that were created by staying in on-site accommodation or with friends. They also valued opportunities to interact with students from different professions and broaden their clinical knowledge through “trading stories”. Further, the students felt that the relaxed atmosphere of their accommodation was conducive to their learning. This interaction with other students, away from the perceived pressure of performing on clinical placement, facilitated sharing of resources and knowledge and provided an opportunity to gain different perspectives to assist in the construction of their clinical professional knowledge, as evidenced by Maryanne’s and George’s quotes:

“We shared resources and discussed things so it was actually quite a good experience to have others there who you could learn off.” Maryanne

“I learned a lot away from the hospital, from other students and new grads as well, especially in that casual [setting] ... where you’re not in front of a patient ... I find learning takes place quite well there.” George

Students also appreciated staying with other students who were at different stages of their study. They described the ability to discuss clinical problems with students a little older and more experienced than themselves as particularly helpful, and also found the opportunity to discuss future academic and clinical placement pathways advantageous.

Those students who did not stay at the hospital-provided student accommodation typically stayed with either family or friends for the duration of their clinical placements. Both clinical supervisors and students viewed the opportunity for students to stay at home (or in home environments) as having a significantly positive influence on students’ clinical placement experiences. For example, Sarah discussed how important it was to be able to go home and relax, “just flop” and debrief about her day with her family. This was particularly important when Sarah had experienced confronting issues at the hospital during the day. Examples of issues that Sarah found confronting included viewing patient wounds, witnessing patient incontinence, and dementia. The ability to relax, partly through debriefing with her family, left Sarah refreshed and re-energised to tackle the next day on placement, as seen by the following quote:

“For me it's been easy going home ... a huge factor in how you learn ... it has been nice to go and flop at home ... [work was] a bit gory which is always
the first thing you go home and talk about ... you need to debrief a bit about it.” Sarah

During the clinical supervisor focus groups, prompted by Sarah’s photograph of her family dining room table (see page 189), Christina shared her views of the significant benefit students could receive from family during clinical placements. Christina explained that the acceptance students experienced at home as well as the opportunity to debrief and reflect significantly benefited those students.

“The family dinner table ... the talking, the debriefing, ‘oh mum and dad I saw this person ... they were sick ... this person yelled at me’, ... at home people like you ... it doesn't matter if you did a good or bad job ... they are there ... also the source of reflection and debriefing.” Christina

While accommodation provided a space to reflect and debrief, the perceived quality of the student accommodation itself also had a significant influence on student learning. Students noted that, if they were staying in what they considered substandard accommodation, they were less likely to engage with clinical learning opportunities as they would be “down in the dumps” and only thinking about going home. This strong influence of students’ perceptions of the quality of their accommodation on their wellbeing and ability to engage in clinical learning opportunities is more extensively explored in Chapter 6.

These findings illuminate the significant and varied manner in which student accommodation can shape student learning during clinical placements. For some students, accommodation can be a valuable learning space, a space where they can debrief, reflect and discuss clinical problems with other students or family. Students perceived standard of their accommodation could also significantly influence their wellbeing and consequently their ability to engage with workplace learning opportunities.

5.4.3 Activity as a space for reflection and relaxation

For the students in this research, undertaking physically active pursuits outside the workplace provided a space to undertake both reflection and relaxation. For many, physical activity provided a reflective space that enabled them to process the large amount of new information and experiences they encountered each day. Many of them also found clinical placements overwhelming, as they were required to navigate new and often complex clinical contexts. Physical activity supported students’
ability to relax and unwind after a stressful and busy day in clinical workplaces and positively contributed to their overall feeling of wellbeing. Interestingly, only two of the supervisor participants discussed the important contribution of physical activity to students’ overall sense of wellbeing and no supervisors identified physical activity as a space that students might use for reflection.

Significantly, the students in this research clearly articulated how undertaking physical activity provided a space for reflection. For many of them, physical activity provided a quiet space, removed from distractions, where they could think clearly. The students described how they used the time while exercising to review the day’s activities and identify how their performance could be improved; in short, to reflect. Scott described how he spontaneously reflected while riding his bike every night (for up to 3 hours) and how he found that when his body was active his thinking was clarified. A photograph of Scott’s bike is provided on page 189. Sarah found that the isolation and quietness of running and swimming facilitated her ability to reflect and think about her day.

"You just get hit with it all at once ... you have got to digest it ... I rode every night ... thinking about what I have seen ... what I did that day ... if I could improve ... I did a lot of my thinking on the bike ... I seemed to have a lot of clarity in my thoughts." Scott

"I often think about it on my own ... when I am running or swimming ... it’s that quiet time when you can’t talk to anybody else and your mind goes ... I run or swim every day." Sarah

While both supervisors and students identified an important contribution of physical activity to the maintenance of students’ general wellbeing, the significance of the contribution was more strongly emphasised by the students. Craig and Charles both identified the importance of maintaining an active lifestyle to help them to relax and maintain a healthy balance between work and leisure. Both Craig and Charles actively encouraged students to participate in relaxation activities to maintain wellbeing.

"I would be telling them ... go for a surf after work ... not to stick at their books all the time ... you need time to chill out." Craig

"It’s a healthy balance to have interests and active interests outside of their study or their work." Charles
The students clearly identified participation in physical activity as significantly contributing to their overall feeling of wellbeing during clinical placement. The students reported participating in a range of physical activities during placement including walking, running, swimming, cycling and surfing. As an example of the positive contribution of physical activity to wellbeing, both Skye and Sam reported feeling more relaxed and happier as a consequence of undertaking physical exercise. Sam also provided a photograph of the beach where he exercised daily (see page 189).

"Go for a walk on the beach … it was relaxing.” Skye

"I'd come home from placement … run to the beach … go for a bit of a surf … beautiful … a lot happier … when you are healthy you are happy.” Sam

Interestingly, students who failed to maintain their usual fitness routines noted how lack of exercise negatively affected their overall wellbeing. For example, Tom commented on how not exercising contributed to feelings of frustration and Stewart indicated that he would make extra effort to ensure he was able to maintain exercise routines on subsequent placements.

"It is definitely a way that you can clear your head … my ankle hurt … so I didn't exercise too much … led to some frustration.” Tom

"Next time I'll probably go down a day earlier find somewhere to go … I'm happier in a gym.” Stewart

These findings are important because they elucidate the importance of physical activity as a space for students to undertake reflection and maintain their general wellbeing. The finding that students were innately reflecting during physical activity is particularly salient given the acknowledged role of reflection in the construction of professional knowledge and the development of professional practice capabilities. Adding to the significance of this finding is the fact that the supervisor participants did not identify physical activity as an important space for student reflection. The implications of these findings for the development of professional and practice-based curricula are explored in Chapter 8.

5.5 Conclusion

In this chapter I have portrayed the nature and character of spaces within and beyond the workplace that influence students’ learning during clinical education experiences.
Many and varied aspects of clinical workplaces, including situational (such as the size of the hospital and level of resource provision), relational (such as patients), workplace culture (such as workplace hierarchies) and temporal dimensions (such as the fast-paced and haphazard nature of clinical workplaces) significantly influenced and shaped student learning. Thus a broad and dynamic range of spaces that frame and shape clinical learning within and beyond clinical workplaces has been revealed.

Exploration of workplace influences, engagement in professional practices and clinical supervisors’ actions and intentions revealed the multidimensional, dynamic and interdependent nature of clinical learning spaces. This study illuminated the centrality of relationships in the development of physiotherapy students’ professional practice capabilities during clinical education experiences. A broad range of relationships both within and beyond workplaces has been identified as central to physiotherapy students’ clinical learning. Exploration of clinical learning spaces could therefore be considered a study of connections.

Through this exploration I have come to understand clinical education as a learning space where workplace influences, broader environmental influences, engagement in professional practices and clinical supervisors’ actions and intentions combine to shape the development of physiotherapy students’ professional practice capabilities. These learning spaces are powerful spaces for the development of physiotherapy students’ professional practice capabilities. Clinical learning spaces understood as new spaces created by intersections between students’ worlds and professional practice worlds (represented by clinical workplaces) are examined in Chapter 6.
Chapter 6 Clinical education as student engagement in workplace spaces

This chapter is the final findings chapter of this thesis prior to drawing all the findings together into a model of clinical learning spaces presented in Chapter 7.

This chapter builds on the findings of Chapters 3, 4 and 5. In Chapter 3 I portrayed the nature of professional practice, capabilities inherent in professional practice, and the broad context in which professional practice evolves. This chapter, in particular, builds on the understanding that both individual capabilities and context are central to the enactment of professional practice and the development of professional practice capabilities.

In Chapter 4, participation and interaction in authentic workplace activities were identified as key features contributing to successful development of students’ practice capabilities in workplace contexts. This understanding is especially important to this chapter as it highlights the strong influence of the workplace (in its rich opportunities, complex and dynamic realities), combined with students’ active participation in practice activities, on student learning.

In Chapter 5 I portrayed the dimensions and character of clinical learning spaces and revealed them to be complex and dynamic learning spaces that frame clinical education. These learning spaces were found to represent powerful spaces for the development of physiotherapy students’ professional practice capabilities.

In this chapter I look beyond the observed workplace environment and explore the manner in which student interactions with dimensions of clinical workplaces (like elements in a fired crucible) ignite and shape learning. In particular, the manner in which these encounters with workplaces are received and construed by students is explored. Such learning spaces, formed at the intersections of dimensions of clinical workplaces and individual students’ dispositions and experiences, were found to be fluid, relational and uniquely experienced spaces that powerfully shaped student learning.
6.1 Students’ experience of clinical workplaces as learning spaces

In this section I illuminate the way in which clinical workplaces were encountered and experienced by the physiotherapy students in my study. In particular, I examine the powerful way in which the students’ encounters with workplaces and key players in these workplaces created unique learning spaces that significantly shaped their learning. The disparity between students’ usual experiences (of life and learning) and their experiences in clinical workplaces was highlighted in the students’ interactions with patients. The influence of individual patient encounters on student learning is explored in detail below, with particular focus on students’ level of discomfort during many patient encounters. I explore the manner in which these often confronting spaces in clinical workplaces shaped students’ participation in professional practice activities and consequently shaped students’ learning.

6.1.1 Patient encounters represent new realities

Clinical workplaces represented new and very different realities for the students in this research. Prior to undertaking clinical placements the students reported having had little or no experience with hospital environments. Clinical workplaces, particularly the hospital environments where this research was undertaken, were perceived to be very different from the academic and personal environments students had previously experienced. Patients, particularly those who were critically unwell or in palliative (typically, end of life) care, represented a new and often confronting aspect of clinical workplaces for these students. Such authentic and challenging patient encounters significantly shaped students’ learning while they undertook clinical placements.

While undertaking clinical placements the students encountered many patient presentations (or conditions) for the first time. Although the students had learned about different patient conditions at university, they considered that their academic learning had not adequately prepared them for the reality of meeting patients with particular conditions. For example, students reported feeling particularly under-prepared for working with patients with cognitive or communication issues or with multiple co-morbidities. From their academic studies the students were unable to imagine how many patient conditions would present in real life. For example, in the below quotes Chloe and Skye discuss some “unexpected encounters” and feelings of lack of preparation. In Skye’s case, the
translation of propositional knowledge (academic knowledge of diseases and syndromes) to professional practice (dealing with the reality and implications of diseases and syndromes for individuals in real life) became a meaningful part of her clinical learning.

"I think it is quite different when you are learning in the classroom and you hear about a ventilator or a drain or a tube but to actually see it attached to somebody is quite different." Chloe

"When I am on the wards … you haven’t seen sick patients … I hadn’t seen someone really jaundiced … even if you said I saw a yellow person (I wouldn’t have expected …)" Skye

Opportunities to interact with patients with real conditions presented powerful learning opportunities for the students. The students considered their inability to practise on individuals with real conditions to be a limitation of the academic environment. As a consequence, while on placement students were unsure of what to expect in relation to how various patient conditions would present and respond to treatment interventions. Through patient encounters, students developed their understanding of the manner in which various conditions presented and responded to physiotherapeutic interventions. They expressed excitement when they were able to experience real patient conditions and surprise at the speed of patient recovery, as evidenced in Fiona and Sonia’s quotes:

"The first time I felt a spastic catch I got this huge smile on my face … I had never felt a spastic catch … that was a little bit exciting for me, horrible for my patient to have a spastic catch, really exciting just the same." Fiona

"It was quite amazing … you don’t realise how fast things work.” Sonia

Clinical workplaces were also often confronting for students when they encountered unpleasant patient conditions and patients who were critically unwell for the first time. The students were generally confronted by exposure to vomit, faeces, urine, genitals, open wounds, stomas, etc., as well as patients who were critically unwell or disfigured. In the next quote, Sarah described being distressed by “gory” things and unhealthy patients in comparison to her own good health:

"Lots of drips and drains … vomiting … disfigured … a bit gory … poo and wee and genitals … a scary time … it’s the first time you ever saw amputations … I had to massage the amputation … it’s a distressing thing
when you start seeing patients every day that are not healthy and you have always lived in a very healthy, happy sort of environment.” Sarah

Patient mortality was another noteworthy dimension of patient encounters in clinical workplaces. Students found working with palliative care patients upsetting, particularly as they often thought about patients in terms of their own relatives or even themselves. As the students in this research were all undergraduate physiotherapy students and therefore were all aged in their early twenties, many had had little experience with death and dying prior to undertaking clinical placements. Many of the students found working with patients receiving palliative care distressing as it required them to face the realities of terminal illness, both personally and in relation to their limited professional experience. In these encounters students experienced powerful learning about the scope and limits of physiotherapy practice rather than development of physiotherapy technical skills per se. These challenges when working with palliative care patients and the learning undertaken are neatly captured in Stacey’s quote:

"It’s really sad ... scary ... that could be my mum or that could be my grandma ... so to come to a realisation that she is not getting any better and it might only be a matter of months ... their life is just done and you can’t do anything about it, so you kind of feel worthless. I should be able to help but sometimes you can’t help.” Stacey

Although students often found working with patients confronting, they acknowledged a key role of patient interactions in the development of their professional practice capabilities. For example, Sam chose to photograph a forearm support frame (page 233) to exemplify his engagement in patient activities, since he routinely used the frame to mobilise patients. Tess took a photograph of a bed on a hospital ward (page 233) to highlight the significant contribution of patient interactions to her learning. The students valued these clinical experiences as they “learned how things were done in real life” through interactions with patients with real conditions. Through these encounters students could see how other therapists had adapted assessment and treatment techniques that the students had learned at university to suit individual patient presentations. In clinical workplaces the students also learned to adapt assessments and treatments in response to time pressures, which resulted in more practical and functional practice.

In this section I have explored student engagement with authentic patient activities as a new reality for students undertaking clinical placements. This exploration revealed a diverse range of strong emotions, such as
excitement, surprise and distress evoked by patient encounters in clinical workplaces. Through patient interventions, students developed their technical skills and their understanding of the effectiveness of particular physiotherapeutic strategies. Students also expanded their understanding of the scope of physiotherapy practice through interactions with critically unwell and palliative patients. Students’ encounters with real patient conditions, often for the first time, meant that translation of propositional knowledge to professional practice formed a significant part of clinical learning for the students in this research. Importantly, they were also building up their practice-based knowledge (derived directly from practice) beside their theoretical knowledge.

6.1.2 Student involvement shapes clinical learning spaces

In Chapter 5, observation was identified as a significant part of many students’ clinical learning experiences. In this section I sharpen my focus and more closely examine the manner in which students’ active involvement in clinical activities shapes the character of learning spaces. Periods of observation are examined as a salient example of learning spaces where students typically experience low levels of active involvement in clinical activities. For the participants of this research, the level of active student involvement in clinical activities significantly influenced their clinical learning.

Students found it difficult to maintain concentration when they had low levels of involvement in patient treatments, such as occurred during periods of observation. Students admitted that often during periods of observation, although they were watching, often they “were not taking anything in”. They identified various reasons for this lack of focus, including strong feelings of “being in the way”. For example, Skye described being distracted from observation of patient treatments by her need to find a space to stand where she would be out of the way.

For the participants, this waning of student concentration could be addressed partly through directing students’ attention towards specific aspects of the patient intervention and partly by actively engaging students through questioning and providing tasks to perform. This is exemplified in Tess and Carl’s quotes:
“When you keep observing … I just tune out really … if they’re not saying what do you think? What should we do? It’s hard to just watch … can’t concentrate.” Tess

“If they are just watching, they can drift off … and be missing things … encourage them to be engaged … I’m going to ask you afterwards whether you picked up on something that I did … or I will ask you about my handling … I’m not saying that I do that every time but it is a good thing to do.” Carl

During the observation phase of this research I watched clinical supervisors model advanced communication and patient handling skills, including how to adapt practice techniques to suit individual patient requirements. However, physiotherapy students often described being unable to focus on the performance of technical skills during such encounters due to intense feelings of “awkwardness”. In the next quotes Stacey and Stewart both identify intense feelings of discomfort experienced during periods of observation as well as the significant positive contribution of participation to their learning in these uncomfortable situations. In both these circumstances Stacey and Stewart identify that their clinical learning was enhanced by participation, with Stacey realising that she could enhance her learning on future placements by offering to assist her supervisor.

“I felt really bad for her [patient] … I try not to stare … she [supervisor] will just get me to do little things … we are all actually there to be involved and help her [patient] … you do feel awkward sometimes … too distracted to learn … you do have to get over that feeling to actually learn and make the situation worthwhile … next time what could I do to help?” Stacey

“Would you like to help? … You feel like you are connected … the patient, the supervisor and you rather than you just standing back and watching … I just feel put off by not being involved … I am still interested … it’s like you are in a confidential thing and you are just on the outside looking in … we’re just students and you have got to stay out of the way … you feel like you are interrupting … it’s not your place to talk to the patient.” Stewart

In this section the influence of student involvement in patient activities on student learning has been illuminated. In particular, periods of observation were revealed as learning spaces where, through lack of active involvement, students were often distracted from learning technical skills such as patient handling and communication skills. The development of
such skills was enhanced by inclusion of students in patient encounters through allocation of a small task or by focusing students’ attention on a particular aspect of the encounter and questioning later.

6.1.3 Student status within the workplace shaped clinical learning spaces

As reported in Chapter 5, the participants of this research found hierarchies to be firmly entrenched in the clinical workplaces they visited during their clinical placements. Further, the physiotherapy students were perceived to be at a particularly low level in these hierarchies, which significantly shaped their access to and engagement with practice activities. In this section I examine more closely the manner in which students’ low position in workplace hierarchies influenced their motivation and ability to engage with clinical learning opportunities.

The clinical supervisors and students both clearly identified the low status of physiotherapy students in clinical workplaces. This perceived low status was exemplified by Craig’s comment that “students unfortunately are the lowest in the hierarchy” and by Sarah who observed that as a student you “are at the bottom of the heap.” Students often described being “in the way,” “feeling useless” and “being a “burden”. Many of them perceived that they were a burden for their clinical supervisors and other staff because they were slowing them down. This caused students considerable anxiety; they were well aware of clinicians’ high workloads and that the supervisors had “a lot of patients to get through.” Scott’s quote is representative of students’ strong views that they were at times a burden for their clinical supervisors and slowed not only their supervisors but also other professionals in the workplace.

“More as a burden ... slowing people down ... I don’t really enjoy that ... I just try to ensure I am not in the way, if the nurse or someone’s trying to read the charts and I’m slowly writing my notes.” Scott

In that quote, Scott describes actively ensuring he is not in the way of other health professionals, and that might have distracted him from clinical learning. This sense of being a burden or feeling useless further affected students’ ability to engage with clinical learning opportunities; when they felt that they were in the way they felt “put off” and that they “wanted to give up”. In this way, feeling that they were a burden negatively influenced students’ motivation to engage with clinical learning opportunities.
Perhaps not surprisingly, given students’ strong feelings of being useless and being in the way, they also expressed a strong desire to “contribute” to the team and to “help out.” For example, Skye explained how on her placement when she ran the physiotherapy team meeting she wasn’t in the way because she was “helping out”. Tess identified washing teacups and changing pillowcases as ways in which she could make a positive contribution and consequently feel part of the team. This is significant because it highlights that students perform what could be perceived as non-clinical tasks in an effort to compensate for feelings of being useless, which could further distract them from their clinical learning.

As a routine part of their student status, the students also experienced prolonged periods of following and waiting for their clinical supervisors. Although they understood that following and waiting were unavoidable aspects of being a student, they identified both as tedious and disempowering. The students described following as “not a nice role”, as following their supervisors emphasised that students were not making worthwhile contributions to the achievement of patient outcomes. Sonia’s quote provides a powerful example of how unpleasant, confusing and disempowering students found this following role:

“The supervisor would walk off and we would follow him … we wouldn’t know if we were supposed to come or not … you feel like a dog, following him, on a lead.” Sonia

Student status within clinical workplaces also directly shaped student-patient interactions, particularly when other staff members such as nurses directed students to perform a different intervention to that which they had planned. Students strongly considered that it “wasn’t their place” to disagree with members of staff. Thus they would generally follow instructions from other members of staff and thereby change the learning that they gained from patient encounters. For example, Stacey described a situation where she was returning with a patient following a walk and was intending to measure and monitor his oxygen saturation levels before replacing his oxygen. Stacey had hypothesised that while this patient’s oxygen saturation would have decreased immediately following the walk, it would quite quickly return to his normal level. If this was shown to be the case, Stacey planned to use this information to justify her argument for weaning this patient off oxygen. However, when Stacey returned to the patient’s bed the nurse immediately replaced the patient’s oxygen despite Stacey requesting she monitor oxygen saturation first. Due to her student
status, Stacey felt it was not her place to argue with the nurse. However, as a consequence she lost an opportunity to determine how this patient’s oxygen saturation levels had responded to the walk and how long it would take to for those levels to return to normal. Instead, Stacey discussed this encounter with her clinical supervisor who spoke to the nursing staff about the important role of oxygen saturation monitoring in decisions to wean patients off oxygen. In this example, Stacey gained powerful insights that included how to work with nursing staff, which, while important, was considerably different from the clinic-specific learning she might otherwise have achieved.

In this section the manner in which students’ status significantly shaped their clinical learning was illuminated. Student status was revealed to influence students’ motivation and ability to engage with clinical activities. Also noteworthy was the way in which student status directly influenced student-patient and student-staff interactions and consequently student learning as a result of those interactions.

6.1.4 Students’ unique experience of clinical learning spaces

As described in previous sections, the manner in which the students encountered clinical workplaces created powerful learning spaces. These powerful learning spaces were created both within moments of patient encounters and when students reflected and debriefed later. These clinical learning spaces were fluid, with the character of learning that took place within these spaces being unique and at times unexpected. In this section, I explore more deeply the learning that students pursued in these space, created by individual students’ encounters with clinical workplaces.

During the observation phase of this research I witnessed a salient example of the creation of a powerful clinical learning space through a student’s encounter with a clinical workplace. This clinical learning space was created when Shelly was invited to watch a patient transfer. The briefness of this encounter is of particular note (the encounter lasted less than 5 minutes) as it emphasises the fluidity of clinical learning spaces. Student practice experiences are not always protracted; these powerful learning spaces are constantly opening up and closing within clinical workplaces. A vignette of Shelly’s experience is provided here.

While Shelly and her supervisor were completing patient medical records, her supervisor was invited to assist an occupational therapist
with a bed-to-wheelchair transfer for a patient who had undergone an above the knee amputation. Shelly’s supervisor indicated that he was free to assist and that it would be a good learning opportunity for Shelly. On their arrival at the ward the young female patient was sitting up in bed ready to undertake the transfer from bed to wheelchair for the first time. The patient had a catheter in situ and had gross oedema (swelling) of her stump. The occupational therapist took the lead and adjusted the bed height and positioned the wheelchair and slide board in readiness for the transfer. The occupational therapist and Shelley’s supervisor stood either side of the wheelchair, ready to provide assistance if required throughout the transfer, and Shelly stood at the end of the bed. The occupational therapist then talked the patient through the procedure of using a slide board to assist the transfer and checked with the patient that she was happy to attempt the transfer using the slide board. The patient immediately completed the transfer independently and Shelly and her supervisor returned to the staff room to complete their note writing.

Shelly later commented to me (during the period of observation) that she did not learn anything from the experience described above. She had felt very uncomfortable in the situation as she felt that she was watching something that she shouldn’t, and that she should not have been present. Shelly was confronted by seeing a young female patient with an above the knee amputation. She realised the seriousness of the situation and although she wanted to smile at the young woman she was concerned that her smile could be misinterpreted as laughter and this was definitely not a funny situation. Shelly’s revelation, that she had been unable to attend to the “nuts and bolts” of the transfer due to her intense feelings of not belonging and discomfort, illuminated the true character of the learning space that was created by her encounter with this practice experience. This was particularly interesting to me as I had assumed that Shelly would learn about teamwork between the occupational therapist and her supervisor, how to complete a bed-to-wheelchair transfer including positioning of therapists, bed, wheelchair, and slide board, and provision of appropriate patient instructions. Instead, Shelly stated that she had not learned anything but through her opportunity to debrief with me afterwards realised that she was developing her ability to cope with confronting issues and uncomfortable situations.

This vignette of Shelly’s experience provides a striking example of the creation of a potentially powerful learning space by a student’s encounter
with practice experiences. The importance of identifying the nature of learning that takes place in such spaces and providing students with opportunities to reflect on their experiences in order to make learning explicit is also highlighted. This very brief patient encounter (less than 5 minutes) opened a learning space where Shelly struggled to become comfortable in an uncomfortable and confronting situation. This vignette also highlights the unique character of the learning spaces created by such situations. Other students with different dispositions and experiences might have learned different things from this encounter, including how to complete a bed-to-wheelchair transfer using a slide board. Even Shelly herself might have learned different things from this encounter had it occurred later in her placement when she was perhaps more comfortable in clinical workplaces. Further, her learning might have been shaped differently had she been prepared for the encounter or offered an opportunity to debrief and reflect on both the encounter itself as well as her reaction to it.

Another salient example of the formation of a powerful clinical learning space through a student’s encounter with clinical workplaces was Tom’s daily experience of crossing a No Smoking line painted at a hospital entrance. Tom’s photograph of the No Smoking line is provided on page 233. Tom chose to photograph the No Smoking line, partly because it emphasised to him the different nature of the hospital environment and partly because he was bemused by the fact that both patients and medical staff smoked on the other side of the line. Tom found it difficult to understand that people were not able to “connect the dots between their health and their smoking”.

Having seen patients smoking outside the hospital caused Tom to reflect on the effectiveness of patient education and conclude, “some people are stubborn and not likely to change”. However, while he respected individuals’ choice he would not “give up” on encouraging positive health behaviours. Tom also identified that the unique nature of the hospital world affected patient behaviour, particularly patient compliance with his suggested treatments. Tom found that patients in hospital were more likely to be compliant with his treatments and exercise suggestions, as in the hospital patients were focused on their conditions and had little else to occupy them. Whereas once patients were discharged and returned to the “real” world, Tom believed that they would be less compliant with home programs, as in that world there was an increased likelihood that other matters would distract them. This view is encapsulated in Tom’s quote:
“The hospital is an isolated environment ... very different from outside ... the lighting and the temperature control ... people are more aware of their conditions ... once they come out they get distracted by other things ... once they cross that line they do what they want.” Tom

Interestingly, as our conversation progressed Tom revealed that while he had a few friends who smoked, he did not smoke and neither did most of the physiotherapy students in his year level. It is likely that both Tom’s non-smoking and health professional status increased his awareness of the irony of people smoking outside the hospital. Tom also disclosed that he enjoyed a song by a British rock band related to smoking outside hospitals, and whenever he walked over the No Smoking line he thought of the song. Although Tom had enjoyed the song before going on placement he had not thought of its significance or meaning to himself until he encountered people smoking on the other side of the No Smoking line.

This vignette of Tom’s experience crossing a No Smoking line provides another example of a clinical learning space created by a student’s encounter with the hospital environment, and of the effect of time for reflection on learning. Tom photographed the No Smoking line partly because of his experience crossing the line and partly because of his beliefs about smoking and his musical interests.

Other students with different interests might well have crossed the No Smoking line every day without giving it a second thought. The act of having chosen the No Smoking line to photograph for this research meant that Tom had already thought beyond its irony to possible implications for his physiotherapy practice. Tom further developed these views through our discussion in his photo elicitation interview. In this way, Tom had undertaken powerful learning about patient compliance both within and outside hospital environments, as a direct result of his experiences as well as the provision of a space for reflection.

In this section, clinical learning spaces have been identified as forming at points where individual students encounter clinical workplaces. These clinical learning spaces were found to be fluid and unique (to the individual) spaces that sparked powerful and meaningful learning for individual students. Significantly, the learning that was generated within these spaces was sometimes surprising and not always what clinical supervisors might expect. This is a particularly important finding, as it highlights both a likely schism between the intended curriculum and the lived curriculum within clinical workplaces and the need to better
understand the clinical learning that is occurring while students are completing clinical placements. A better understanding of the lived curriculum during clinical placements may underpin the development of increasingly student-centred and effective clinical education models.

6.1.5 Conclusion
In this section, clinical learning spaces formed by individual students’ encounters with clinical workplaces have been revealed as potentially powerful and unique learning spaces, both within moments of these encounters and when students reflected and debriefed later. Many workplace factors, including patient encounters (particularly patients who were critically unwell), entrenched hierarchies (particularly students’ low position in these hierarchies) and students’ encounters with other staff, significantly shaped these learning spaces. The unique nature of clinical learning spaces and the learning that occurred within them was revealed by exploration of the manner in which individual students encountered clinical workplaces.

Importantly, students’ active participation in workplace activities (including observation) was revealed as a critical element in shaping students’ clinical learning. Through participation in professional practice activities such as patient assessment and treatment the students developed professional technical skills and deepened their understanding of the scope of physiotherapy practice. Thus, translation of propositional knowledge to professional practice and the development of new practice-based knowledge formed a significant part of students’ clinical learning.

This exploration of clinical learning spaces formed by individual students’ encounters with clinical workplaces has highlighted both the way in which these spaces shaped student learning and the broad range of learning that students gained within these spaces. Students on clinical placements experienced holistic personal and professional growth beyond the development and application of professional practice skills.

6.2 Student disposition shapes clinical learning spaces
In this section I examine the manner in which students’ dispositions shape the way they engage with clinical learning opportunities. In particular, I explore how students’ confidence and wellbeing shape their clinical learning. Given the central role of confidence and wellbeing to student learning, a wide range of factors that influence students’ confidence and
wellbeing is considered. As well, actions taken by clinical supervisors and students to foster student confidence and wellbeing are elucidated.

6.2.1 Student confidence shapes clinical learning
Throughout this research, students’ confidence emerged as a critical factor that shaped the way they engaged with clinical learning opportunities and consequently the learning that resulted from that engagement. In this section both the manner in which student confidence shaped clinical learning and the way in which workplaces influenced student confidence are explored.

This research revealed that student confidence directly shaped student learning in two key ways:

1. Students’ level of confidence influenced the quantity of challenging experiences clinical supervisors offered.
2. Students’ level of confidence directly affected the quality of their practice performance.

The student and clinical supervisor participants both observed that students who exhibited higher levels of confidence were offered more challenging experiences earlier in their placements. Therefore, confident students were able to learn from and build on those early experiences and consequently learn more throughout their clinical placements. This is reflected in the following quotes.

“If they’re confident to start with they are given those challenges ... they keep improving because learning is about being challenged ... if you have that confidence and positive experiences early ... you can build ... and learn more.” Tom

“If the student is confident we’ll wean ourselves off, we won’t be in the room ... if they’re really confident we’ll say ’at the end of your session, just let us know how you went’.” Charles

Students’ level of confidence also directly affected the quality of their practice performances, such as in patient interventions, note writing and reporting in team meetings, and consequently influenced what they learned from those performances. Both students and clinical supervisors noted that when students felt confident, their practice performance improved. Sophie observed that when she was confident, her patient interactions were smoother, which provided better practice and
consequently positive learning. Sophie also explained that when patient interactions didn’t go so well or she had “jumbled it around a bit” she lost confidence for the next patient and then that didn’t go so well either. Charles also commented that when students lose confidence their “thought processes go out the window” and “their brains become mush”, negatively influencing their practice performance.

The clinical supervisors and students also described student confidence as particularly critical to the establishment of patient rapport, which in turn underpinned positive patient interactions. Fiona explained that when she felt confident she could build relationships with patients more quickly, and Charles observed that patients were more responsive to confident students. Student confidence was also viewed as vital to gaining patients’ trust, which underpinned compliance and consequent achievement of positive therapy outcomes. For example, Carl explained that if patients lacked confidence in students they might not relax to allow passive movement of a joint or might not “push into therapeutic pain”, thus not allowing students to experience an effective therapist role (or gaining positive therapeutic results for themselves). Patient interaction, in part shaped by student confidence, influenced therapeutic results and consequently what students learned from those patient interactions. In the next quotes, Tom and Chelsea described the critical role of student confidence in gaining patient confidence and compliance in order to achieve positive treatment outcomes.

"By having their [patients’] confidence [in you] you are more likely to see the outcomes of your objectives … it is important to get their confidence.” Tom

"Confidence impacts on their interaction with patients … if you are nervous your patients don’t think you are doing a good job … that whole confidence thing, even if it’s a bluff, impacts on the relationships with the patients and whether they want to continue doing stuff.” Chelsea

While students commenced placement with different confidence levels, due in a large part to their innate personality or disposition, clinical experiences were also found to strongly influence those levels. Importantly, given the vital importance of student confidence to shaping student learning, student confidence was found to be a fluid entity that could be enhanced or diminished by clinical experiences and feedback on their performance. In general, the students found that their confidence was enhanced through participation in authentic workplace activities, particularly when those opportunities did not entail constant surveillance
by their clinical supervisors. Both students and clinical supervisors acknowledged that students’ participation in independent patient activities signalled that clinical supervisors believed that they were competent, which increased students’ confidence, as demonstrated in Sophie and Caroline’s quotes:

“It was a confidence booster when you felt like they obviously thought you were competent enough.” Sophie

“If they [students] have a sense that we respect them and they have knowledge … then they would have the basic confidence to go in and have a try.” Caroline

The students also found that other placement factors, such as the presence of other students, provision of adequate time to complete patient interventions, encouragement and positive feedback received from clinical supervisors, as well as the degree of welcome and acceptance they experienced in the workplace, all positively contributed to building their confidence. In this quote Fiona described how acceptance in the workplace, evidenced by being treated like one of the team, increased her confidence:

“If you are treated like one of the team and your opinion is valued then you are not questioning yourself quite as much … I’m feeling more confident.” Fiona

The fluid nature of student confidence was also clearly demonstrated in students’ descriptions of workplace factors that diminished their confidence. The students were unanimous in their view that being watched invariably led to a loss of confidence and consequently poorer quality of performance. They described being watched by their clinical supervisors as nerve-wracking and at times scary, and were amazed at how “dodgy” they could become when someone was watching them. This strong effect of being watched on students’ confidence and consequent performance quality is encapsulated in Gabby’s quote:

“I was so nervous … if she [the supervisor] was in the room and standing next to me I wasn’t absolutely hopeless but she could tell I got too nervous … as soon as she turned her back I was like a new person and my patient even said, ‘oh gosh you’re incredibly nervous when she’s around’.” Gabby

In this section the manner in which student confidence shaped clinical learning has been portrayed. Student confidence was found to be integral to determining the quantity and quality of students’ practice performances
such as patient interventions and consequently student learning during placements. Importantly, given the centrality of student confidence in learning, that confidence has been revealed as a fluid entity that can be enhanced or diminished by workplace experiences. This susceptibility of student confidence to workplace experiences underscores the fluid and individual nature of clinical learning spaces.

6.2.2 Wellbeing shapes engagement with clinical learning opportunities

The clinical supervisor and student participants considered that clinical placement experiences were physically, cognitively and emotionally challenging for students. Students’ wellbeing emerged as a significant factor that influenced their ability to engage in and maximise the learning potential of practice experiences offered by workplaces. In this section, the manner in which wellbeing influenced students’ engagement with learning opportunities is explored. Further, factors that affected students’ overall sense of wellbeing are discussed.

Students’ sense of wellbeing on any particular day clearly influenced their ability to engage in and maximise the learning potential of practice experiences offered by workplaces. In particular, students’ overall sense of wellbeing strongly influenced their level of assertiveness and motivation to participate in clinical learning opportunities. For example, Martine identified her level of assertiveness as directly related to her engagement with learning experiences in that “it was easy to miss out on learning experiences” when she was not feeling particularly assertive. Tom described a clear relationship between his level of participation and his motivation to learn, as when “you’re not doing much and you’re not really enjoying it, then you don’t do much even if you are given the chance”.

A number of personal contextual factors were identified as significantly affecting student wellbeing. These factors included students’ physical and mental health, family and relationship stresses, bereavement, financial concerns and social engagements. These personal factors could increase students’ stress and fatigue levels and provide a distraction from clinical learning. Students’ stress and fatigue levels were identified as particularly significant components of their overall sense of wellbeing that could deleteriously influence clinical learning. These quotes from Stacey and Chelsea are representative of the participants’ views that student learning was diminished when students were stressed and fatigued:
“When you are stressed you don’t actually learn as well … often if you are stressed you are not going to be sleeping as well so you are going to be tired and you are not going to learn if you are tired.” Stacey

“You don’t take anything in when you are overwhelmed.” Chelsea

Students’ physical health and mental health were both identified as central aspects of wellbeing that strongly influenced their ability to engage with clinical learning opportunities. The participants identified that students experienced a keen desire to complete clinical placements regardless of their state of health. Consequently they often undertook placement despite physical injury and health concerns. For example, one student completed his placement despite an ankle injury that required “heavy duty taping” and was “a lot more swollen at the end of the day”, even though he acknowledged that it “wasn’t good for concentration”, because he believed he had to “take what you had with you” and finish the placement. A photograph he took of the strapping on his ankle is provided on page 235.

The clinical supervisors identified mental health issues as a serious and increasingly prevalent issue affecting students’ ability to complete clinical placements successfully. Anxiety, stress and fatigue levels were identified as strongly influencing students’ ability to succeed on clinical placements. Cameron and Caitlyn’s quotes exemplify the significant impact of students’ mental health on clinical learning outcomes:

“I think one thing that is becoming more prevalent … anxieties, stress levels that students face when they are on placement … has a big impact on their learning experience … it can be a significant player in how well a student performs.” Cameron

“There’s a high number of physiotherapy students with mental health issues … that can really influence their ability to learn … [they] could they have stepped up to the next mark if it wasn’t for the fatigue … the few days off sick.” Caitlyn

Family and relationship stresses were identified as another personal factor that influenced students’ wellbeing and consequently shaped their clinical learning. As well as increasing students’ stress and fatigue levels, relationship issues were considered to distract students from their learning. For example, Sonia described leaving a long-term relationship with her boyfriend one week prior to placement. In consequence she had to move all her belongings from their shared residence just before commencing placement. Understandably, while Sonia was on placement this experience
was still fresh for her and provided a significant distraction from her
clinical learning, particularly outside work hours. The degree to which this
experience distracted Sonia from her preparation for placement is captured
in her quote:

"On my lunch break I was on my phone ... it's a rollercoaster ... as soon as I
am away I am thinking about completely other things, I'm on my phone, I'm
on Facebook, I'm on my phone again, I am completely taken over as soon as
I get home ... it is such a big thing going on for me.” Sonia

Bereavement was another factor that significantly influenced students’
ability to engage with learning opportunities while undertaking clinical
placements. Three of the student participants were personally affected by
the death of a close family member while undertaking placements. Other
students discussed the significant impact of bereavement on student peers
who had experienced the death of a family member or friend while
undertaking placement. The students who had personally experienced the
death of a family member described a significant influence on their
learning, in that they were unable “to take anything in” because they
“didn’t want to be there”. These students also concluded that they did not
take adequate time away from placement to grieve, and would on
reflection take off more time in the future. In this quote, Martine described
how difficult it was for her to continue attending placement when her
uncle had died:

"My uncle died when I was on placement so that whole impact was huge on
my placement ... as I was getting up to go to work each day all my cousins,
my mum and dad, all my auntsies and uncles were all getting together every
day for 7 days and planning a funeral and mourning together and having
time together and I just had to get up and go to work every day. That was
really hard.” Martine

Financial pressures were identified as another factor that significantly
influenced students’ wellbeing and learning. As the students in this
research attended a rural university, financial pressures incurred by clinical
placements were magnified by the fact that the majority of participants
were undertaking placements away from home. This added a significant
financial burden for these students as they were paying for
accommodation, meals and transport costs while being unable to pursue
their usual part time jobs. Many were also paying rent for their home
residence. The students were acutely aware of their financial status, the fact
that they were not earning any money and the need not to spend money.
This pressure was evident in the photo-elicitation component of this research, and is represented by Skye’s photograph of a petrol bowser and Stewart’s photograph of 2-minute noodles (see page 235). This added financial burden negatively affected students’ ability to have nutritious meals, relax and participate in social activities outside work hours. In the clinical supervisor focus group discussion, prompted by the photographs of a petrol bowser and 2-minute noodles, the supervisors discussed the influence of financial pressures on students’ wellbeing. Craig spoke of the significant impact of students not having “home cooked meals” on their physical health:

“So not every student comes through and has a home cooked meal … they get tired and they get colds and they’ve got no money.” Craig

The clinical supervisors also discussed the deleterious effect on their clinical learning of students working part-time jobs while on placement. The supervisors provided examples of students who worked long hours while completing clinical placements, including one student who worked every night. The supervisors were unanimous in the view that working outside of placement hours increased student fatigue, provided a distraction from clinical preparation and had a negative effect on students’ engagement with clinical learning opportunities. This view was encapsulated in Courtney’s quote:

“The person who holds a part-time job as well as having to go on placement and learn … takes your attention elsewhere and then essentially leaves you less focus at work.” Courtney

In this section I have illustrated the multi-factorial nature of student wellbeing and its significant influence on student engagement with clinical learning opportunities. A wide range of factors was identified as contributing to student wellbeing, with a healthy work-life balance being integral to students’ ability to engage with clinical learning opportunities and maximise the learning potential of clinical placement experiences. Besides influencing clinical learning, this range of factors also highlighted student vulnerability to physical and mental ill-health while undertaking clinical placements.

6.2.3 Accommodation shapes student wellbeing

In Chapter 5 I identified student accommodation as a valuable learning space, a space where students could debrief, reflect and discuss clinical problems with other students and family. In this section I explore the
strong influence of student accommodation on student wellbeing and therefore on motivation and ability to fully engage with learning opportunities provided by clinical sites. Of significant concern were students’ reports of having stayed in sub-standard accommodation, with experiences of rat-bait in kitchens, cockroaches and broken appliances.

The students considered that their accommodation significantly influenced their sense of wellbeing and the quality of their overall learning experiences when undertaking clinical placements. The strength of the influence of accommodation on student learning was evidenced by the large number of photographs of student accommodation provided in the photo-elicitation component of this research. A photograph of the accommodation taken by Tess is provided on page 237. The students stayed in a wide range of accommodation of different standards. The types of accommodation included hospital-provided accommodation and friends’ and family’s residences. Staying in sub-optimal accommodation adversely affected students’ wellbeing and consequently decreased their motivation to learn, regardless of the learning opportunities available in clinical workplaces. Conversely, staying in a good standard of accommodation positively affected students’ sense of wellbeing and had a positive influence on their engagement and learning. The strong influence of accommodation on students’ wellbeing and learning is demonstrated in Michelle’s and Margot’s quotes:

“When you are staying somewhere you don’t like ... you have a negative attitude ... it carries over onto your placement ... you don’t go there with a fresh attitude and motivated to turn up and just get a bit down in the dumps.”  Michelle

“If you stay at a place where you’re not comfortable and you don’t sleep well ... you’re tired and you have got placement ... and you know you’ve got to go back to the shit hole ... you don’t enjoy it, whereas one of my placements I had a really good experience ... it was just like home and you felt so comfortable ... having that really nice environment just made it so much better.”  Margot

The students identified a broad range of influences of accommodation on their wellbeing and consequently their learning. Some of these influences included financial stresses incurred as a result of having to pay “$200 a week” for accommodation, as well as travel stresses when “you spend half an hour getting to placement and half an hour getting home”. The students viewed staying close to the hospital where they were undertaking
placement as an advantage because “there was no stress getting to
placement, which made you more relaxed”. When students had less stress
associated with their accommodation they were better able to engage with
clinical learning opportunities.

While the clinical supervisors acknowledged that student accommodation
could influence students’ perception of the quality of their placement
experiences and ability to engage in clinical learning opportunities, they
were not specifically aware of the quality of accommodation provided by the
hospital where this research was undertaken. Interestingly, some of the
clinical supervisors, while unaware of the actual standard of student
accommodation, assumed from their own student experiences that the
standard of accommodation was most likely to be poor, as illustrated in
Callum’s and Clare’s quotes:

“You stay somewhere crappy, that often sets up the perception that the
placement wasn’t great, because you slept in a bed with fleas ... you’re tired
and grumpy all the time which means you don’t perform as well on your
clinical placement.” Callum

“I haven’t actually been there, but I’ve lived in hospital accommodation over
the years ... it’s not usually that pleasant.” Clare

The students held various views as to the quality of on-site hospital
accommodation, with Mallory describing the cramped conditions as not
conducive to positive clinical experiences and Sophie describing the
accommodation as “nice”, with the rooms providing a place to relax and
have quiet time if needed. Other students described their small room with
minimal distractions as conducive to study because they could spend more
time researching patient conditions and reflecting. Tom in particular found
the on-site accommodation conducive to study and reflection. Thus, the
manner in which student accommodation influenced students’ ability to
engage with clinical learning opportunities was specific to individual
students.

During the observation phase of this research, Tess offered to show me the
hospital-provided student accommodation. As I had received conflicting
reports about the standard of the student accommodation and as Tess felt
strongly about my seeing first-hand the nature of the student
accommodation I felt it was appropriate to accompany her on a tour of the
student accommodation. Tess had found the onsite accommodation
inadequate and was significantly distressed by her experience, as seen in her quote:

"I didn’t really like staying there; it wasn’t very nice ... construction work right outside my window ... that had a big impact on my learning, not sleeping pretty much every night." Tess

Tess took me on a tour of the student accommodation when her supervisor was unexpectedly detained for half an hour and Tess had some unanticipated free time. As we walked, Tess explained that initially she had a room that was close to the kitchen, which meant that she was woken early by nurses’ breakfast preparations as well as being close to a very noisy construction site. When Tess complained about the noise levels, the clinical co-ordinator had organised an alternative room.

The student on-site accommodation was a multi-story building located immediately opposite the hospital. The walk from the physiotherapy department to the student accommodation took less than 5 minutes. The ground floor of the building housed large lecture-style and tutorial rooms. We walked up two flights of stairs to reach Tess’ room, which was situated in a long hallway with many wooden doors. Students were each allocated a small room with a single bed, wardrobe, student-desk, ceiling fan, and bedside lamp. Each room had a small window, dressed with a holland blind and floral curtains. Tess felt unable to leave her bedroom door open due to lack of privacy and as the window had no screens she was also unable to leave the window open due to the large number of insects. Tess had used the term “prison cell” when describing her room, probably influenced by her inability to open her window and door.

The bathroom, kitchen, lounge and laundry facilities were shared with other students from Tess’s and other universities who were also staying in the accommodation. The bathroom was unisex and had three showers, three toilet stalls and hand basins with mirrors. Tess described being confronted one morning by the sight of a fellow student emerging from the shower in his boxer shorts. The kitchen did not have a conventional oven but had two microwaves, one of which did not work, and hot plates. Tess stored her food in labelled plastic bags in the pantry and had lost only a small amount to other hungry tenants. All cooking utensils and crockery were provided. However, Tess found it difficult to cook in the kitchen because it was often busy and she consequently needed to hurry.
The lounge room had a scenic view of the bay and three two-seater couches, one positioned with a view of the television. Tess explained that the television remote didn’t work and so they had difficulty changing channels. Tess therefore usually opted to watch television in her room on her computer. In the laundry a washing machine, clothes drier, iron and ironing board were provided. Tess commented that the washing machine did not clean clothes effectively and that she was unable to wash good clothes as the clothes drier was the only drying option.

Interestingly, despite Tess’ very negative perception of the student accommodation, my overall impression was that it was clean and functional with enough facilities to be reasonably comfortable. I had in fact stayed in similar quality hospital accommodation as a student, albeit many years ago. This further illustrated the very specific manner in which accommodation influenced individual students’ wellbeing and learning.

When students did not stay in the hospital-provided accommodation they generally stayed with family or friends. The clinical supervisors thought that staying with friends or family would provide a positive environment for students and would support their learning. In contrast, many of the students staying with friends found that the experience was not particularly conducive to learning while on placement. Staying with friends could have a negative effect on their sense of wellbeing through feelings of unease generated by living in someone else’s home, a perceived need to socialise with their friends, as well as physical discomfort induced by temporary bedding. These factors compromised students’ ability to undertake out-of-hours study and also increased their levels of fatigue, adversely affecting their ability to engage with learning opportunities during placement. Some students spoke of the stress of being a “visitor” in someone else’s home, which meant they were “careful or cautious of what they were doing”, were unable to relax fully and did not feel refreshed for placement.

Some students who were staying with friends described the negative influence of the physical discomfort of temporary sleeping arrangements on clinical learning through increased fatigue levels. Tom described sleeping on an uncomfortable mattress in a room with no curtains or screens, which meant that he was woken at sunrise and was plagued by insects. This combined to increase his fatigue levels during his clinical placement. However, he felt gratitude to his friends for providing him with accommodation in Sydney, with the added advantage of being close to the
hospital where he was undertaking placement, so he felt it inappropriate to comment to his friends about his discomfort and accepted it as part of his placement experience. Tom’s discomfort is captured in his quote:

“I had a blow-up mattress in someone’s front study ... it didn’t have a curtain so I would wake up whenever the sun rose and the mosquitoes used to get in through the window and shocking, shocking night’s sleep and the mattress would deflate overnight and then you would wake up and your back would be killing.” Tom

Students who stayed with friends also stated that they felt obligated to socialise with their friends, which provided a distraction from their focus on preparation for their placement and increased their levels of fatigue. Skye’s perceived need to stay up late to talk to her friend, which left her feeling tired the following day during clinical placement, is captured in her quote:

“I am staying with a friend so I will go home and catch up with her and stay up longer ... if I wasn’t staying with anyone I would go to bed earlier and then I wouldn’t be so tired the next day.” Skye

Interestingly, during Skye’s observation session, I had noted that she seemed fatigued and did not appear to be fully engaged in the clinical learning opportunities. For example, I noted that Skye was yawning while her clinical supervisor was talking to her about her possible contribution to a patient assessment and treatment session. When interviewed later, Skye did not recall her constant yawning and commented that yawning in front of her clinical supervisor would be very rude. This is a significant finding: Skye was not aware of her constant yawning as a consequence of her fatigue levels and it was a possible that her clinical supervisor could misinterpret her yawning as a lack of motivation, which could negatively impact on her assessment and learning opportunities.

In this section I have identified the strong influence of accommodation on students’ wellbeing and consequently their ability to engage with clinical learning opportunities. The students described a range of ways in which accommodation influenced their wellbeing and thereby shaped their clinical learning. The clinical supervisors did not display such a nuanced understanding. Of particular concern was the very poor standard of accommodation that some students reported. Interestingly, the perception of same/similar accommodation standards varied among the students,
further demonstrating the individual nature of spaces in the students’ clinical learning environment.

6.2.4 Spaces to nurture student wellbeing

Building on the previously discussed centrality of student wellbeing to students’ engagement with clinical learning opportunities, in this section I explore spaces both within and beyond workplaces used by students to foster positive feelings of wellbeing. The role of clinical supervisors in fostering students’ wellbeing is also explored.

Both students and clinical supervisors identified structured workplace breaks such as morning tea and lunch breaks as particularly important spaces in which students could “recharge” and be able to return to clinical environments “alert and able to take in information again”. The students identified that coffee provided a much-needed physiological boost to their energy levels, as they were often fatigued during clinical placements. The importance of the provision of coffee during morning tea and lunch breaks was underlined by the large number of photographs of either coffee or coffee cups provided by students during the photo-elicitation phase. Sophie’s photograph of coffee and a coffee mug is provided on page 237. This view of the benefit of coffee is also encapsulated in Skye’s quote:

“I have a lot of coffee whenever I am tired … I was very tired when I was on placement … the breaks I would always have coffee.” Skye

The students also described workplace breaks as providing an important opportunity to have “down time” where they could “chat” with other people without having “to concentrate on what they were saying”. The students also identified morning tea and lunch breaks as providing an important respite from the often “chaotic” ward environments. During these breaks students were able to “come down a bit after … patients,” debrief with other people, and relax by “talking about anything”. The restorative nature of morning tea and lunch breaks is exemplified in Sophie’s quote:

“Regular coffee break … lunch times … invaluable … a really nice time to chill out for 5 or 10 minutes and just relax and have a chat and then go back a bit more focused and feeling good again … just take a breath.” Sophie

The students also actively created particular spaces designed to enhance their individual feelings of wellbeing. These spaces, created both within and beyond workplaces, highlighted students’ individual requirements to
ensure maintenance of their wellbeing. Within work environments, students created spaces that provided “a good relaxing break”, which included their favourite food as well as sometimes a short respite from their supervisor, other work colleagues and students. For example, Tom described how he created a space to nurture his wellbeing by walking to the cafeteria daily to purchase chocolate milk. Tom’s photograph of a chocolate milk bottle is represented on page 237. In the next quote Tom described the manner in which this space improved his sense of wellbeing:

"Grabbing a milk to have with lunch ... costing my pocket but it was good to do ... It gave me a bit of time ... go for a bit of a walk but without having to think about anything ... create a bit of a routine ... better than just going to the common room ... gives you a mini break ... from working with your supervisor."  Tom

As another example of the unique nature of these student-created spaces, Sonia found the hectic and noisy nature of the lunch-room stressful and preferred to spend her lunch breaks on her own with her mobile phone. As with Tom, food played an important role in the construction of a relaxing space, but for Sonia this involved purchase of sushi. In this quote, Sonia described the restorative power of the space she created with her favourite food, her phone and coffee.

"It was a good break, on your lunch breaks, I would be on my phone and have my food, a good little release for me ... very comforting - you sit down and you relax with your phone and you relax with your food and your coffee ... and then you are fine again.”  Sonia

Maintenance of usual routines also emerged as particularly important to students’ wellbeing. This was in a large part due to the unpredictable nature of clinical workplaces. Sophie explained that she could cope with so much change, but "if everything gets thrown out of whack it would have done [her] head in.” The students described a range of routines that they tried to maintain while undertaking clinical placements, including exercise habits, eating habits, keeping up with emails and the university web site, watching television, banking and bed times. The students found that maintenance of their normal routines was calming and supported their ability to focus on their clinical learning.

Spaces students created to nurture their wellbeing also had a strong social dimension. For many of the students, contact with other people such as family, friends and other students, whether it was face-to-face or via
telephone or Internet, formed a particularly comforting space within which to nurture their wellbeing. Family represented a particularly significant source of comfort, as demonstrated by Sarah who described evening “debriefing” sessions with her parents as her “survival”. Also highlighting the significant influence of family and friends on students’ wellbeing was the considerable lengths students went to, to remain in contact with family and friends when not at home. Some students described phoning their family or friends every night, “regardless of the massive phone bill,” and others due to limited mobile coverage had to walk to particular locations to receive calls each evening. Stewart described using a mobile Internet device to ensure he could maintain contact with his girlfriend of one year from whom he had, prior to this placement, never been apart:

“I got one of those little USB sticks … I did like the Facebook and Skype to talk to my girlfriend, because I have been with her for a year and I’ve never been apart from her at all … found that real easy just to keep in contact with her.” Stewart

The students also appreciated being on placement with other students and purposively created social spaces where they could debrief and discuss their placement outside of the workplace. They described other students on placement as “supportive” and found that being with others “who were going through the same thing” was comforting. The students organised social events such as barbecues, pub visits and exercising together, to provide spaces where they could relax and share their experiences. Socialising in this manner created a space that allowed students to debrief and compare experiences with others who were experiencing the same thing. These views are captured in Margot’s and Tom’s quotes:

“It was great having about six or seven of us around … we could all meet up on the weekends and you just didn’t feel so isolated.” Margot

“I think it’s good to have other people on your placements because you can compare situations or tell horror stories and tell great things that have happened … if you’ve had a couple of bad patients and you talk to someone else and they’ve had bad patients, oh well you’re not alone in that.” Tom

The clinical supervisors also acknowledged the significant contribution of student wellbeing to clinical learning, but on the whole demonstrated superficial understanding of the significance of different spaces to nurturing student wellbeing. For example, most of the supervisors discussed the advantages of students catching up with family and friends
on weekends for “emotional health” but seemed unaware of the extent to which students utilised support from family and friends to nurture their wellbeing.

While the clinical supervisors were unanimous in their view that students required social support while undertaking placement, they differed in opinions of how this should be achieved. Some of the supervisors asked students how they were going on placement and if they had any issues. Other supervisors provided students with information about local activities in an effort to temporarily connect them into social networks, and a few invited students to out-of-workplace social activities. In part this range of views was due to a lack of clarity of the clinical supervisor role in relation to student wellbeing. This lack of clarity was clearly demonstrated in the focus group discussions. During the focus groups the clinical supervisors discussed to what degree providing social and emotional support for students was part of their role. The clinical supervisors expressed the view that they lacked the requisite skill set to address all of students’ wellbeing concerns, and strongly believed that responsibility for the development of students’ resilience and consequent wellbeing rested with universities and with students themselves. This questioning of roles and responsibilities of clinical supervisors is neatly captured in the quotes of Carl, Cameron and Clare:

“How much of a responsibility is it of the clinical supervisor? We can’t be everything to the students, we can’t be the nurturing hand, the moment of reflection ... supervising and giving feedback, we can’t be the nutritionist ... we can’t be ‘oh you need more sleep, oh what’s going on in your life?’ There has got to be some ... personal resilience ... you have to cope with life to be a physiotherapist ... to learn how to cope.” Carl

“The responsibilities between the university and the clinical school is a very, very grey area ... the university has the ability to provide resources to the clinicians ... I think that the responsibilities will lie with the universities.” Cameron

“What of that is our responsibility as a clinical supervisor or is that the responsibility of the student embracing their situation? ... That is going above and beyond, we have all got our own lives to lead ... Where do the boundaries sit in terms of clinical supervision and support for those issues, especially when they are away from home? ... I feel a burden of responsibility ... I worry about students sometimes.” Clare
In this section I have illuminated the nature of spaces, both within and beyond the workplace, within which student wellbeing could be nurtured. These spaces were often purposefully created by students and were unique, designed to meet individual students’ needs. A significant finding, given the centrality of student wellbeing to clinical learning, was the clinical supervisors’ lack of clarity in relation to their responsibility for and ability to promote students’ wellbeing during clinical placements. For the clinical supervisors, responsibility for student wellbeing was considered to rest mainly with the students. Interestingly, given that the clinical supervisors firmly believed that students should be primarily responsible for their own wellbeing, they were mostly unaware of the students’ actions to create individualised and unique spaces within which to nurture their wellbeing.

6.2.5 Conclusion
In this section I have further explored the manner in which spaces both within and beyond clinical workplaces influenced students’ confidence and wellbeing. Student confidence was found to be a fluid entity that strongly affected both students’ access to challenging patient activities and the quality of students’ professional practice performance. Students’ wellbeing was revealed as another significant factor that influenced their ability to engage in and maximise the learning potential of practice experiences offered by workplaces.

The students’ nuanced understanding of a broad range of factors that influenced both their confidence and wellbeing was described. Accommodation emerged as a significant factor that shaped students’ wellbeing and consequently their clinical learning. Another important finding was the manner in which students actively constructed spaces both within and beyond clinical workplaces to support their wellbeing. This finding further emphasised the fluidity and individuality of clinical learning spaces. The clinical supervisor participants were largely unaware of the students’ actions to enhance their own wellbeing and demonstrated a lack of clarity about their role in fostering student wellbeing.

6.3 Supervisory relationships shape clinical learning
In this section, the manner in which relationships between students and supervisors shape student learning is explored. To develop a deeper understanding of supervisory relationships, the influence of students’
dispositions, including attitudes and behaviours, on the character of supervisory relationships is examined. The manner in which supervisory relationships are formed and influence students’ clinical learning is also portrayed.

6.3.1 Trust is integral to student engagement in professional practices

This section builds on my previously developed understanding of the centrality of student confidence to students’ clinical learning to explore the manner in which trust (partly based on student confidence) further shapes clinical learning spaces and student learning. Trust is explored as a fluid and interdependent element of supervisory relationships, partly a product of students’ ability and confidence and partly a product of clinical supervisor disposition, particularly supervisors’ predisposition towards allowing students to treat patients independently.

The participants of this research clearly articulated the central role played by trust in opening up learning opportunities for students, particularly independent activities with patients. The students recognised the centrality of “hands on” experiences or engagement in authentic practice activities to their clinical learning and consequently experienced a strong need to prove themselves and gain clinical supervisors’ trust. The students considered that permission to treat patients independently and without immediate surveillance indicated that they had gained the clinical supervisor’s trust.

While the students actively sought clinical supervisors’ trust, clinical supervisors were purposefully gauging students’ abilities to determine safe levels of student engagement with patient activities. For the clinical supervisors, assessment of students’ abilities prior to allowing them to treat patients independently was central to ensuring patient safety and wellbeing. The clinical supervisors acknowledged that this process of assessing student abilities involved a large amount of surveillance as well as a staged progression towards student independence. To preserve patient safety and wellbeing, clinical supervisors supported students’ independence with patient conditions or treatment interventions only when they believed that students would be safe. For example, many of the clinical supervisors in this research demonstrated particular reluctance to allow students to mobilise patients independently, particularly patients who were unwell or had neurological impairments. Thus, as might be expected, the clinical supervisors prioritised patient safety and wellbeing above the provision of student learning experiences. The next quotes from
Caroline and Chloe exemplify the clinical supervisors’ prioritisation of patient safety above students’ autonomous experience, and their acknowledgement that progression of students’ independence was a staged process.

“It’s a good safety thing that someone else is just observing casually … I would always be there when a student got someone up for the first time … I am happy that they are being watched … we value and respect our patients … we would only be giving elements of the treatment or the type of patient that our students would be safe with.” Caroline

“Obviously there is a certain amount of watching that you have to do as a supervisor … once I know their general abilities … but perhaps not mobilising if it is a particular patient I am worried about … I will do it in stages.” Chloe

While the importance of limiting students’ level of engagement with patient activities to preserve patient safety and wellbeing cannot be denied, the level of student engagement was not determined solely by the level of students’ practice skills and abilities. The students in this research clearly identified that their participation in patient activities was also largely determined by clinical supervisors’ dispositions. Sarah’s photograph of a water bottle and patient lists, provided on page 239, was taken to represent her clinical supervisor and prompted Sarah to discuss the significant way in which her supervisor determined her level of independent practice. Sarah’s supervisor had provided her with a high degree of autonomy in patient activities.

Most of the students in this research experienced several supervisors throughout their placement and were therefore well placed to comment on the manner in which different supervisors provided access to practice activities. Through their experience with different supervisors, students identified different approaches to the provision of access to independent patient activities. They pictured this access as a continuum ranging from being unable to assist the supervisor with patient activities to having full independence through being “thrown in at the deep end”.

As the students often described experiencing different levels of independence along this continuum from one day to the next, they concluded that this had less to do with their abilities and more to do with the willingness of individual supervisors to trust them to be safe with patients. My interviews with the clinical supervisor participants also
revealed differences among supervisors in relation to their willingness to trust students to be safe in independent patient activities. This highlights an important contribution of clinical supervisors’ beliefs and dispositions to their ability to trust students with patient safety and consequently provide students with access to independent patient activities. Shelly encapsulated students’ views that the level of independent student practice was largely determined by individual supervisors’ dispositions; Chelsea further supported this view in describing her discomfort and inability to provide students with greater independence.

"It all depends on your supervisor ... some supervisors have been ... you can't do anything and they do everything ... they don't really let the students do much." Shelly

"I wouldn't let a student see a patient generally by themselves ... there are very few students I've actually let treat [patients] in the gym ... without someone keeping an eye on what they are doing ... I don't feel comfortable a lot of the time with them doing that.” Chelsea

In this section I have demonstrated the central role of trust in determining student engagement with authentic professional practice activities. Importantly, clinical supervisors’ level of trust in students’ abilities determined both the students’ level of access to patient activities and treatments and the level of student independence during those activities. Further, the level of supervisor trust was determined not only by students’ practice skills and abilities, but also by clinical supervisors’ dispositions and in particular their innate levels of comfort with allowing students to work independently with patients. Trust, and consequently engagement with workplace activities, has been illuminated as a fluid phenomenon that might vary from day to day and supervisor to supervisor, depending on individual clinical supervisors’ intentions and actions.

6.3.2 Supervisory relationships shaped by supervisor characteristics

This section builds on my previously developed understanding of supervisory relationships and explores the influence of multiple clinical supervisors and supervisors’ level of experience on the development of these relationships. In particular, the influence of supervision from a number of clinical supervisors on students’ learning is examined. This fine-grained exploration of the influence of a variety of clinical supervisors and
supervisors’ experience on student learning has further emphasised the unique and fluid nature of clinical learning spaces.

At the health service where this research was undertaken it was standard practice for all students to be supervised by a minimum of two supervisors (at different times). However, Callum explained that in his experience, due to the large number of part-time staff, students could in reality be supervised by up to eight supervisors over their placements. Sonia also described having seven different supervisors during a 4-week placement. There was general agreement among all participants that having more than one supervisor enhanced students’ clinical education experiences as long as supervisors’ expectations remained consistent. Fiona’s photograph of a student feedback book, provided on page 239, provided an example of the manner in which consistency amongst supervisors was promoted.

Participants perceived the advantages of having more than one clinical supervisor, which exposed students to different perspectives or ways of doing things, with the potential to tap into the knowledge of other people, as “one supervisor can’t know all of the information”. It also improved supervisors’ capacity to accommodate different student learning styles. The perceived advantages of having more than one supervisor are exemplified in Clare and Caroline’s quotes:

“We always share a student ... we always have two of us supervising ... it's good for the students to have different perspectives.” Clare

“We definitely have more than one supervisor on purpose so that if there are any issues or variances in how people learn, there are two people to reflect with.” Caroline

Students who experienced large numbers of supervisors also identified potential disadvantages. These disadvantages included limited ability for students to gain reliable feedback on their progression, student confusion as a result of hearing several different ideas, and difficulty in establishing relationships with their supervisors. During the photo-elicitation interviews, photographs of the emergency department prompted Sonia and Stewart to discuss their experiences with multiple supervisors. Sonia’s photograph of the emergency department is represented on page 239.

These perceived disadvantages are exemplified in Sonia and Stewart’s quotes, with Sonia concluding that having a large number of supervisors limited her clinical learning and Stewart concluding that having a large number of supervisors was unsettling.
"We had different supervisors, we didn’t get one supervisor who would tell us how we were progressing ... they didn’t get to know us ... they’d all say different things to us ... they were all different ... you were starting from scratch with each supervisor ... hard to get too much out of it.” Sonia

"I get a different supervisor each week pretty much ... you can see how everyone works but it is unsettling ... if you have seen the same person you would be a lot more comfortable.” Stewart

The students also revealed that supervisory relationships were shaped by clinical supervisors’ level of clinical experience. When supervised by junior physiotherapists, the students experienced a supportive learning space where they were comfortable to ask questions and they perceived that the junior supervisors were happy to assist them. On the whole, the students were not intimidated by junior physiotherapists and perceived that this was because junior physiotherapists had been students themselves not so long ago. The junior physiotherapists also provided appropriate role models for the students, who could aspire to their practice standards as they represented the closest step to the students’ current practice. Shelly’s quote captures the importance of junior supervisors as supportive role models:

*The younger ones ... just out of uni ... they knew how you were feeling, they knew what you were going through ... it was easier to talk to them ... to see that person who is just a little bit ahead of you ... I can get to be up there.” Shelly*

Senior physiotherapists shaped student learning by sharing their wealth of knowledge and clinical experience. Shelly’s photograph of a clinical shirt, presented on page 341, was taken to represent senior physiotherapists and their significant influence on her learning. This important advantage of senior (grade 2) physiotherapists as supervisors was captured by Sam:

*“Grade 2’s are wonderful because they are a wealth of knowledge and they can tell you all these different exercises, ones you have never heard of.” Sam*

Ironically, while students appreciated the more senior physiotherapists for their wealth of knowledge, they felt intimidated by them and were consequently reluctant to ask questions and access their knowledge. Sonia described her reluctance to ask senior physiotherapists questions:
“They are so wise so that if you do ask a question you don’t want them to think that you are stupid … their knowledge is just so wide that you don’t want to muck up in front of them.” Sonia

Interestingly, on the whole, the clinical supervisor participants did not demonstrate a nuanced understanding of the manner in which junior and senior physiotherapists influenced student learning. In particular, they were unaware of the students’ strong need to impress more senior physiotherapists. Some supervisors showed awareness that the students would relate better to junior physiotherapists who were closer to their own age. Callum exemplified the belief that junior physiotherapists related better with students. Interestingly, although Callum differentiated the influence of junior and senior physiotherapists he made the assumption that senior physiotherapists were jaded and did not identify students’ reluctance to ask senior physiotherapists questions.

“A 19 to 20 year old student who’s - pardon the French - shitting themselves on placement will often relate better to a 23 to 24 year old qualified physio than to a 35 to 40 year old jaded, cynical - I am too busy, I have got the world on my shoulders - trying to teach them … if you are a qualified physio you are capable of dealing with the students.” Callum

In this section I have identified the importance of achieving a balance of supervisory experiences in the construction of clinical learning spaces that provide a more integrated clinical education experience, where students’ needs for support and exposure to a broad range of assessment and treatment approaches are realised. The number of clinical supervisors students encountered, as well as the clinical experience of those supervisors, were revealed as significant factors capable of shaping student learning both positively and negatively. Importantly, clinical supervisors were generally unaware of the more fine-grained manner in which supervisors’ level of clinical experience shaped students learning.

**6.3.3 Student disposition shapes supervisory relationships**

In previous sections, the critical influence of relationships in general was explored, as well as the influence of supervisory relationships in particular on students’ clinical learning. The key role of relationships in shaping student learning was demonstrated, with the way in which positive relationships facilitated students’ ability to ask questions providing a salient example. To deepen my understanding of supervisory relationships
and their influence on students’ clinical learning, in this section I explore the effects of individual students’ dispositions on the development of supervisory relationships.

The clinical supervisor participants clearly described having less motivation to construct engaging and challenging learning experiences for students who showed a lack of interest in their area of clinical practice. Students who appeared uninterested, showed lack of initiative or explicitly expressed lack of interest in a particular clinical area potentially narrowed their range of learning as they were exposed to less engaging and challenging clinical experiences. Fiona’s photograph of a hoist used to facilitate gait retraining in patients with neurological conditions (page 241) provides a good example of the type of engaging patient experiences to which uninterested students might not be exposed to when supervisors felt less motivation to “go that step further”. The supervisors also considered that students who were less interested in the supervisor’s area of clinical practice were “hard work”, and it is likely that this increased sense of workload would further contribute to supervisors’ overall fatigue levels and consequent motivation to provide student learning opportunities.

Interestingly, students seemed oblivious to the strong influence of their interest in specific practice areas on their supervisors’ motivation to provide interesting and engaging clinical learning opportunities. In the next quote, Chloe commented on how students often express lack of interest in her area of clinical practice, and explained it would be in students’ best interest not to reveal that lack of interest as it negatively affected her motivation. Caitlyn exemplified the strong effect of student interest on her clinical education practice.

“I know myself, [I’m] probably guilty of wanting to show students who are very enthusiastic and very willing to learn - and you do try harder to show them things that they might want to see - as opposed to somebody who doesn’t really show that they want to be there every day. You think oh well ... somebody who has strong views of where they see themselves working ... probably not in their best interest to say that because it does change the way you think about them.” Chloe

“That [student interest] definitely affects your motivation to take that one step further ... going that extra mile would be influenced by their motivation.” Caitlyn
The clinical supervisors justified their decisions not to provide varied learning opportunities for disinterested students as they considered that there was no point challenging students who were uninterested. Chelsea captured this view and also stated that supervisors should not take students’ lack of interest personally.

“We do have students who come to neuro who know they never really want to do it … it depends on their willingness to learn … you can’t take that personally and you can’t push that person along. There is no point challenging someone who just wants to get to the end of placement just to pass and go off to private practice.” Chelsea

This exploration of the influence of students’ dispositions and behaviours on clinical supervisors’ motivation and wellbeing opens up a personal dimension to the supervisory relationship and indeed the supervisory process, as “clinical supervisors are people too”. It is only natural that personal likes and dislikes can influence the formation of supervisory relationships. Whereas most supervisors did not explicitly discuss how personal feelings might directly influence students’ clinical education experiences, Christina acknowledged that she found difficulty with arrogant students and indeed described a situation where she stepped away from assessment of a student whom she had found to be arrogant. As another example, during the clinical supervisor focus group, in a discussion of inclusion of students in out-of-work-hours social activities, Clare commented that she would be reluctant to invite some students to social activities, and even acknowledged feelings of relief when it was the end of the work day when she found supervision of particular students stressful.

“We are humans … the students who I always, always had the most trouble with, that really rubbed me the wrong way were the arrogant students.” Christina

“That’s good if the student’s nice and easy-going during placement, but you can have a student that is stressing you out and working you really hard and you go ‘thank god it’s 4:30.’” Clare

In this section, the significant effect of student dispositions on the development of supervisory relationships has been illuminated. In particular, the significant influence of students’ level of interest in particular areas of clinical practice on supervisors’ motivation to provide interesting and engaging experiences was revealed. Importantly, the
students demonstrated no awareness of the manner in which their behaviours could influence clinical educators’ construction of clinical learning opportunities. This finding highlights the importance of students’ awareness of how their communication, behaviour and attitudes directly influence clinical educators’ motivation to provide a variety of engaging clinical learning experiences.

6.3.4 Conclusion
In this section, a fine-grained examination of supervisory relationships revealed that both students’ and supervisors’ dispositions, including behaviours and attitudes, strongly influenced the character of supervisory relationships and consequently students’ clinical learning. Establishment of trust, determined by students’ abilities and supervisors’ dispositions, was identified as a key component of supervisory relationships that significantly influenced students’ engagement in independent patient activities. The importance of ensuring patient safety was revealed as a key element in supervisors’ ability to permit students to assess and treat patients independently. Level of supervisor experience was identified as another strong influence on the character of supervisory relationships and consequently the character of clinical learning spaces. Junior physiotherapists, who were often closer in age to the students, were considered by students to be more supportive and also provided appropriate role models. More senior physiotherapists were regarded as having a wealth of knowledge and inspiring students to undertake exemplary practice.

Students’ dispositions, attitudes and behaviours were also found to strongly influence supervisors’ motivation to provide interesting and engaging learning opportunities for students and consequently directly shaped student learning through participation. This strong influence of an interdependent relationship between students and supervisors on provision of workplace learning opportunities further illustrates the individual and fluid nature of clinical learning spaces.

6.4 Conclusion
In this chapter, exploration of students’ experiences of clinical learning spaces illuminated the dynamic and individual nature of these spaces. These new learning spaces, formed at the intersections of individual dimensions of clinical workplaces and individual student’s dispositions, were complex and dynamic spaces that powerfully shaped students’ clinical learning. Students encountered clinical workplaces as new realities,
very different from their prior personal or academic experiences. In consequence, these learning spaces facilitated powerful learning, both within moments of patient encounters and when students later reflected and debriefed. These clinical learning spaces were fluid, constantly forming and reforming through students’ repeated encounters with clinical workplaces. The character of learning that occurred in these spaces was unique and at times unexpected.

Students described development of their professional practice skills as well as a deepening understanding of the scope of physiotherapy practice through their participation in professional practice activities. Thus translation of propositional knowledge to professional practice formed a significant part of student learning. For the students, clinical workplaces could be distressing and confronting, leading to students sometimes experiencing clinical learning spaces as uncomfortable. This high level of discomfort experienced by students in clinical workplaces significantly shaped student learning. When in uncomfortable spaces, students experienced decreased focus on technical aspects of physiotherapy practice. Instead, they described how they were learning to cope with distressing and confronting situations that formed a routine part of physiotherapy practice in clinical workplaces. Interestingly, throughout the interviews, the students also demonstrated enhanced understanding of how they learned best in clinical workplaces.

Both students’ and supervisors’ dispositions were found to significantly shape students’ access to authentic patient activities and consequently the learning that students achieved through participation. In particular, students’ confidence, wellbeing and level of interest in the particular clinical area in which they were working were all identified as significant factors that shaped student learning. Supervisors’ dispositions were also revealed as significantly influencing students’ access to independent patient activities. Establishment of trust provided a salient example of the manner in which clinical supervisors’ dispositions strongly influenced student engagement with independent patient activities.

This examination of clinical learning spaces has illuminated the complex, dynamic, relational and unique nature of clinical learning spaces, as well as the learning that occurs within these spaces. These clinical learning spaces have been demonstrated to trigger holistic personal and professional growth beyond the development and application of professional practice identity, knowledge and skills. Thus, clinical learning spaces where
students interact with various dimensions of clinical workplaces can be considered crucibles for the development of a broad range of professional practice capabilities. The way that this broad range of practice capabilities coalesce to form professional identity and consequently professional practitioners capable of flourishing in 21st century contexts has profound implications for professional and practice-based education pedagogy and curricula. These implications are explored in Chapter 8.
Chapter 7 Clinical learning spaces as crucibles for students’ professional development

The goal of this research was to explore the development of physiotherapy students’ professional practice capabilities in a clinical education context. The overarching research question that guided my research was: How do physiotherapy students develop (and how are they helped to develop) professional practice capabilities in clinical education contexts? To answer this question this chapter draws together the findings from a series of hermeneutic studies: a study of theoretical texts (reported in Chapters 3 and 4) and a deep experiential study of the real world of clinical education (reported in Chapters 5 and 6).

To present my integrated answers to my research question I report the following responses:

- How capability provides a lens and framework for understanding professional practice development

- The nature of clinical learning spaces

- How the clinical learning space (as a general phenomenon and construct) and particular clinical learning spaces for particular individuals frame novice professionals’ development

- How the concept of a crucible can provide a model for understanding clinical learning spaces and the way they shape learning

The key findings of this thesis, including the nature of clinical learning spaces and the manner in which professional practice capabilities are developed within those spaces, are drawn together in a model of physiotherapy clinical education.

The implications of these findings for professional and practice-based education pedagogy and curriculum development are explored in Chapter 8.
7.1 Using a capability lens as a framework for understanding professional practice development

In Chapter 3 I portrayed professional practice as a complex, dynamic and experiential phenomenon that is embedded in practice contexts, embodied in and transformed through individual performances and grounded in the ethical aim of doing good for others. I employed a broad notion of capabilities as encompassing abilities, skills and qualities, reflecting the understanding that professional practice requires more than a combination of practice knowledge and technical skills. In this section I use the writings of contemporary philosophers Amartya Sen and Martha Nussbaum to expand this previously developed concept of capabilities in order to understand more deeply those capabilities that enable individuals to be effective in an ever-changing world. While Sen and Nussbaum do not write directly about clinical education, their broad understanding of capability as encompassing skills, qualities and contextual influences has strong resonance with the thesis I have developed in relation to the wide range of capabilities underpinning professional practice. In this section, therefore, I further explore the concept of capability as a useful way to understand the centrality of individual qualities and abilities as well as context to professional practice.

7.1.1 Capability as an important concept

Capability, understood broadly as abilities, personal qualities (e.g. integrity, empathy and ethical courage), judgement and potential to act beyond current competence, is central to the development of individuals who are ready to act ethically in uncertain, unfamiliar and dynamic contexts. Exploration and development of deeper understandings of a broad range of capabilities underpinning professional practices may assist universities to develop curricula designed to achieve the noble aim of producing graduates capable of changing the world for the better.

Education for capability

The notion of capability, as I discuss below, relates to a goal of education and to the practice abilities needed by graduates. These ideas are combined in the notion of capability that was created in the Education for Capability project conducted by the Royal Society of Arts in the UK at the end of the 20th century. While acknowledging that capability does not easily lend itself to a definition, John Stephenson (1992) provided the following description of capability in an attempt to capture its essence.
Capability is not just about skills and knowledge. Taking effective and appropriate action within unfamiliar and changing circumstances involves judgements, values, the self-confidence to take risks and a commitment to learn from the experience. (p. 2)

Stephenson embraced a holistic understanding of capability as the essential integration of personal qualities, skills and specialist knowledge that enables individuals to be effective in an ever-changing world. Further, Stephenson argued that helping students to develop their individual capabilities is an educational aspiration of the highest quality, one to which all universities should aspire.

**Capability in professional practice**

In professional education it is critical to consider the capabilities required of professional graduates. Stephenson (1992, p. 2) firmly supported the importance of capability in professional practice in the following argument.

Capability is a necessary part of specialist expertise, not separate from it. Capable people not only know about their specialisms; they also have the confidence to apply their knowledge and skills within varied and changing situations and to continue to develop their specialist knowledge and skills long after they have left professional practice.

The understanding of professional practices as complex, dynamic and transformative practices (ways of doing, knowing and being in the professional role) resonates with Stephenson’s description of specialist expertise as confidence to apply knowledge and skills in changing situations. A range of capabilities necessarily underpins these practices, implemented within shared traditions of practice, but uniquely realised by individual practitioners in uncertain, unpredictable and particular contexts, with the aim of achieving optimal outcomes for others.

**Exploring capability**

While the term capability may have varied meanings, capability can generally be understood to refer to those qualities and abilities that can be used to perform actions, particularly skilled and advanced actions, in unpredictable and challenging situations, and the ongoing development of the individual to perform different skilled actions in the future. This broad understanding of capability as encompassing qualities as well as abilities is particularly relevant to understanding the enactment of professional
practices. This understanding of capability acknowledges the view that professional practice demands more than a combination of propositional knowledge, professional practice knowledge, personal knowledge and technical skills. This argument is extended by the contributions of Brookfield (1995) and Barnett (1997), who both contend that professional practices are underpinned by critical thinking, thinking that seeks to analyse and produce alternative actions, with the expression of a critical thought being a definitive intervention in the world.

Professional practices are overlaid by personal attributes with specific personal qualities essential to enactment of ethical and expert professional practice. Assuming knowledge and technical competencies, Higgs and Gates (2013) further identified professional capabilities as encompassing individuals’ decision-making capacity and ability to act both professionally and soundly in situations of complexity, uncertainty and unfamiliarity. These authors further argued that professional capability requires personal attributes including confidence, skilled judgement, critical self-evaluation and recognition of when help is needed.

A broad understanding of capability embraces both current abilities and potential on-going development of current abilities for future action. The term “capability” highlights the importance of creation of an individual who is ready to act and, in the case of professional practices, is ready to act for the good of others in situations where uncertainty is ever-present. This understanding of capability extends beyond notions of competence and acknowledges that professional practitioners may be required to be ready and able to challenge current practices, to have the courage to challenge and change both themselves and the world for the better. This expansive approach to understanding the capabilities underpinning professional practice has the potential to inform curriculum development in a way that transcends traditional curricula and meets the complex and fluid demands of 21st century professional practice.

**Viewing capability as freedom**

In the contemporary higher education landscape, emphasis is placed on the development of professional practitioners capable of working toward the public good. The writings of Indian philosopher Amartya Sen provide a valuable lens through which to view and expand the previously developed concept of capabilities underpinning professional practices. In particular, Sen’s (1999) description of capability in terms of the combinations of valued or desired outcomes people are able to achieve provides a means to open
up the concept of capability. Sen’s (2005) understanding of capability draws attention to both intrinsic individual dimensions and extrinsic environmental dimensions of capability. This broader understanding of capability has particular significance for understanding both professional practice capabilities, with their development though inclusion of individual attributes and skills, and a significant contribution of extrinsic environmental factors to allow or enhance the use of the particular capability in relation to the job at hand. At the core of Sen’s writings is the conviction that there is an implicit call to people with power (like professionals) to take responsibility to bring about changes that would enhance human development in the world, particularly in relation to diminishing the effects of poverty (Sen, 2008). While Sen developed his understanding of capability to highlight and address social inequities, his view also has resonance for the development of a deep appreciation of the capabilities underpinning the performance of ethical and exemplary professional practice.

What people can positively achieve is influenced by economic opportunities, political liberties, social powers, and the enabling conditions of good health, basic education, and the encouragement and cultivation of initiatives (Sen, 1999). In this way, capability can be viewed as a positive form of freedom; the substantive freedom to achieve various and valued outcomes. Viewing capability in terms of freedom enables us to discern whether individuals are able to do the things they value doing and whether they possess the means or instruments or permissions to pursue what they might like to do (Sen, 2005).

Sen’s (2005) capability approach can assist identification of the possibility that two persons can have very different substantial opportunities to function, even when they have exactly the same set of means (such as income and primary goods). Difference in the capability to function can arise even with the same set of means for a variety of reasons, such as physical or cognitive differences among individuals (related for example to disability), variations in access to non-person resources (such as the nature of public health), environmental diversities (such as climatic conditions) and different positions in social networks (reflected in, for example, the need to comply with dress standards).

There is an emerging literature considering the implications of Sen’s notions of capability for education. Walker and Unterhalter (2007) argued that implementation of Sen’s capability approach facilitates exploration of
the conditions that enable individuals to make decisions on what they have reason to value; it connects individual biographies and social and collective arrangements. This focus on capabilities as freedoms rather than outcomes draws attention to the often neglected influence of human diversity, complex social relations, the sense of reciprocity between people, and the appreciation that people can reflect reasonably on what they value for themselves and others, and on what people ultimately are able to do or be (Walker & Unterhalter, 2007).

This understanding of capabilities, which implies democratic participation, access to opportunities and real scope for action, gives the concept of freedom a concrete basis that can be subjected to empirical scrutiny (Lambert, Vero, & Zimmermann, 2012). Understanding capability as a freedom or opportunity for participation has particular resonance for understanding professional practice capability and, in particular, professional practitioners’ ability to implement right and considered actions for the good of others. In a search for deeper understandings of both the capabilities underpinning professional practice and the manner in which those capabilities are developed in practice settings, understanding capability as a freedom draws attention to an important but previously neglected influence of context and an individual’s ability to act on capability development.

Sen’s capability approach has recently been used to open a path for conceptualising human development at work (Lambert et al., 2012). Lambert et al. contended that the capability approach places people at the heart of work processes through focus on individuals’ freedom to accomplish, that is, their power to achieve meaningful outcomes. These authors also highlighted the significant contribution of environment to capability development at work; they maintained that individual, social and environmental factors must be taken into account when understanding capability development at work.

Importantly, Lambert et al. (2012) recommended a shift of emphasis from a narrow appetite to learn, to a broader, more upstream idea of capability for aspiring to learn, which incorporates various factors both internal and external to the individual. This capability for aspiring to learn is future-oriented; it requires resources for participating and acting as well as contesting and challenging (when change is required), and is essentially both an individual and a collective matter. In order to promote the development of capabilities at work, Lambert et al. emphasise the
importance of respect and reciprocal trust, contending that the preconditions for development of any other capability at work include willingness to take into account the individual’s own needs, aspirations and values and the capability of voice, and the ability to express one’s opinion and to make it count.

It is significant that, while acknowledging an important contribution of context to capability in workplaces, Lambert et al. (2012) also underline the integral contribution of individual agency and freedom to the development of capabilities in workplaces. This is relevant to understanding the development of professional practice capabilities in practice contexts, as it highlights an urgent need to explore the dual influences of power networks within practice contexts and individual qualities on the development of professional practice capabilities. In this way the development of professional practice capabilities requires both occupational and personal development.

The American philosopher Martha Nussbaum has also contributed to the development of a broad approach to understanding capability that can be linked to the place of professionals in contributing to the common good. Nussbaum (2006) identified three capacities that are essential to the cultivation of democratic citizenship: capacity for critical examination of oneself and one’s tradition, capacity for global citizenship and capacity for narrative imagination. At the heart of all three capacities is freedom: the freedom to engage critically with tradition; the freedom to imagine citizenship in both national and world terms and the freedom to reach out in the imagination, allowing another person’s experience into oneself (Nussbaum, 2006). Nussbaum has thus drawn attention to a significant contribution of individual capacity for critical examination, societal relationships and empathy (through imagination obtaining an insight into the experience of another) to capability development. Nussbaum’s conception of capability is particularly salient for contemporary health professional practitioners who are required to discern best healthcare strategies in uncertain and dynamic contexts to achieve optimum outcomes for others.

**Conclusion**

The educational preparation of professionals is one of the essential social functions of the university (Walker, McLean, Dison, & Peppin-Vaughn, 2009). Therefore, a university committed to social transformation is responsible for enabling students while at university to develop relevant
capabilities that underpin ethical and exemplary professional practice. As professional capabilities form key dimensions of professional and practice-based education (Higgs & Gates, 2013), a broad and deep understanding of capabilities as freedoms could facilitate the evolution of professional education curricula that can produce professional practitioners capable of responding credibly, creatively and ethically to contemporary healthcare challenges. In this way the university could positively contribute to building a more just society with human dignity (Nussbaum, 2010) and wellbeing for all (Sen, 1999).

7.1.2 The importance of capability as part of a larger whole – the emerging practitioner

Through deep engagement with professional practice literature, my literature-based theoretical study illuminated the nature of professional practices, the capabilities underpinning those practices, and contextual and individual influences on the manner in which capabilities are developed in practice contexts. Professional practice was found to require more than a combination of practice knowledge and technical skills. Central to professional practice is the holistic development of a professional identity that coalesces a broad set of professional practice capabilities.

In Chapter 3, professional practices were portrayed as complex, dynamic and experiential, embedded in practice contexts, embodied in and transformed through human performance, and united by an ethical aim of doing good for others. Thus, central to enactment of professional practices are specific knowledge, skills and personal qualities. Professional practice requires professional knowledge, technical skills, critical and creative thinking skills (such as clinical reasoning and reflection) and communication skills (Barnett, 1997; Higgs, Hummel, & Roe-Shaw, 2009; Schön, 1987). Professional practice is also overlaid by specific personal attributes (such as integrity, empathy and ethical courage) that are essential to the enactment of ethical professional practice. Further, these capabilities underpinning professional practice can be considered to be fluid and evolving as they morph to meet the demands of current and future healthcare contexts.

This understanding of professional practice and the capabilities informing it extends beyond notions of competence and embraces the development of professional identity. It acknowledges that professional practice is a lived phenomenon and that professional practitioners may be required to challenge and change both themselves and their practice world for the
better. Thus, through the development of a broad range of professional practice capabilities (including knowledge, skills and qualities), novice practitioners are forming professional identities that will equip them to flourish in 21st century health contexts.

### 7.2 Understanding clinical learning space(s)

In this research I sought to understand the development of physiotherapy students’ professional practice capabilities in a clinical education context. In this section, I draw together the findings from the theoretical and experiential studies in relation to the character of clinical learning spaces formed at places of intersection between physiotherapy students’ abilities and qualities and clinical workplaces.

Through a fine-grained examination of clinical workplaces, this research has produced a nuanced understanding of the multidimensional nature of clinical workplaces as learning spaces. Clinical learning spaces were revealed to be composite, fluid, relational and uniquely experienced. To reflect the complexity of these learning spaces, particularly their multiple and variously dominant dimensions, I created a word cloud. While this complexity can be conveyed in text, I chose to employ a word cloud as a visual medium to further illuminate the composite nature of clinical workplaces viewed as learning spaces. In combination with the interpretations provided in preceding chapters, with this word cloud I present clinical education as a composite learning space where the professional practice capabilities (including qualities and abilities) that underpin physiotherapy professional practice can emerge and be powerfully shaped by the learner’s practice engagement and learning pursuit, and through the influence of teachers, peers, practice role models, patients and workplace colleagues. Learners’ professional development incorporates both their emerging capabilities and their professional identity.

This use of a visual medium to represent the research findings is consistent with the use of visual methods throughout this research to evoke understandings not accessible by other means. The strength of visual representations in research lies in their contextual richness and the amount of specific information they transmit (Flick, 2007) and their ability to provide a wellspring for development of new understandings of a phenomenon of interest (Davidson, 2004). As in the photo-elicitation part of this research, visualisation is used here to open up the complexity of clinical workplaces as learning spaces.
Word clouds are an innovative method of conveying large amounts of textual information in a visually appealing and accessible manner (McGee & McGee, 2011). In word clouds, careful thought is given to the layout and presentation so that the reader’s eyes see (at a glance) which words are emphasised in the image (Thiruvathukal, 2012). I utilised this potential of word clouds to simultaneously present complexity and simplicity to convey the composite nature of clinical workplaces that underpins the essence (that is the fluid, relational and uniquely experienced dimensions) of clinical learning spaces.

A word cloud is a special visualisation of text in which the more frequently used words are emphasised (McNaught & Lam, 2010). Word clouds used in this way are automatically generated representations of existing texts such as student feedback, library policies and song lyrics (Huisman, Miller, & Trinoskey, 2011) and have been demonstrated as useful tools to assist researchers engaged in text-based data analysis (Edyburn, 2010; McNaught & Lam, 2010). I did not automatically generate my word cloud from existing texts. Instead, I purposefully constructed it from my interpretation of both theoretical and experiential texts, which has been reported in the findings chapters of this thesis. Thus the act of constructing the word cloud became a means of further deepening my understanding of my research phenomenon: clinical learning spaces. Through construction of the word cloud I came to understand more deeply the complexity of clinical learning spaces through identification of inter-relationships between different dimensions within those spaces. I chose to emphasise key findings in relation to clinical learning spaces, that is, their fluid, relational and uniquely experienced nature, while also representing the inherent complexity of clinical workplaces as learning spaces. This word cloud representation of my understanding of clinical learning spaces is shown on page 255 as Figure 7.1.

In this word cloud the fluid, relational and uniquely experienced dimensions of clinical workplaces are represented by larger text in the primary colours blue, red and yellow respectively, and the composite dimension is represented by the multitude of smaller words surrounding the larger text.

This choice of primary colours allows visualisation of interactions and interdependencies between different dimensions of clinical learning spaces. For example, words such as random, crowded and fast paced are blue, as they represent predominantly fluid dimensions of clinical learning spaces. On
the other hand, words such as *acceptance, allied health room* and *lunch room* are red, as they represent predominantly relational dimensions. Similarly, words such as *accommodation, reflection* and *hospital size* are yellow, as they represent dimensions that were uniquely experienced by students. To represent interdependencies, words such as *inclusion, supervisor disposition* and *uncomfortable* are green, because they represent both fluid (blue) and uniquely experienced (yellow) dimensions. Words such as *surveillance, participation* and *medical records* are orange because, although they represent relational (red) dimensions, they are also strongly influenced by students’ dispositions and experiences and are thus uniquely experienced (yellow). Finally, words such as *student confidence, doctors* and *student status* are purple because, they are both fluid (blue) and relational (red).

I offer this word cloud as an instrument for those involved in clinical education (academics, clinical supervisors, students) to guide meaningful examination of the particular clinical workplace contexts in which they work and learn. Used in this way, the word cloud may prompt the development of new understandings of often taken-for-granted experiences of workplaces (see e.g. Harper, 2002). For example, as a clinical supervisor, I held a strong belief that a welcoming environment (provision of a student desk, coffee mug and invitation to share breaks) would facilitate student learning. However, I did not have a detailed understanding of the composite, fluid, relational and uniquely experienced nature of clinical learning spaces represented in the word cloud. A deeper understanding of the composite nature of clinical learning spaces can provide a strong foundation for constructing wise clinical education practices.

This detailed understanding of clinical workplaces as learning spaces (presented in the word cloud and the following sections) highlights a stark contrast between academic environments and clinical workplaces as learning contexts. Identification of this substantial difference between academic and workplace learning environments illustrates the futility of translating pedagogical principles designed for academic learning environments directly into workplace learning environments. The simultaneous complexity, fluidity and uniqueness of clinical learning spaces emphasise the need to develop pedagogy and curricula designed specifically to enhance students’ learning in these composite and often challenging contexts.
Figure 7.1 Clinical learning space word cloud
7.2.1 Fluid properties of clinical learning spaces

In this section I combine findings from the literature and experiential studies and present a multifaceted understanding of the fluid properties of clinical learning spaces. While the dynamic nature of workplaces has been identified (Billett, Smith, & Barker, 2005; Felstead et al., 2005; Unwin et al., 2007), prior to this research neither the fluid nature of the learning spaces that form within clinical workplace contexts, nor their influence on student learning, has been explored. This research revealed that workplace influences, such as the fast-paced and unpredictable nature of clinical environments as well as fluctuations in students’ dispositional qualities, such as students’ level of confidence, fatigue and wellbeing, contributed to the fluid nature of clinical learning spaces. Further, the dynamic and evolving nature of professional practice itself contributed to this fluidity.

This research revealed that the inherent dynamic characteristics of workplaces (both general and clinical workplaces in particular) shaped the fluid nature of clinical learning spaces. Contemporary workplaces operate in a milieu of substantial change (Boud, Rooney, & Solomon, 2009), with the dynamic dimension of workplaces often described in terms such as fast-paced and ever-changing, with heavy workloads and consequent time constraints on completion of workplace activities (Billett, 2010; Boud, Rooney, & Solomon, 2009; Healey, 2008). In clinical education contexts, time constraints result from heavy workloads, staff shortages and the fast pace of clinical environments themselves (Courtney-Pratt, Fitzgerald, Ford, Marsden, & Marlow, 2012; Healey, 2008; Sellars, 2004). Time constraints may, however, have positive outcomes by prompting people to adopt more intuitive approaches, developed through experience, in order to do things more quickly (Eraut, 2000).

This understanding of the influence of time constraints on workplace activities is relevant to clinical education because students do not necessarily have the requisite experience to adopt intuitive approaches that enable them to complete tasks more efficiently. This work pressure is compounded for students who typically perform activities more slowly than other workers. It could be argued that students’ learning is more susceptible to the time constraints evident in contemporary clinical workplaces. These time constraints can also lead to a decreased amount of student time with supervisors for learning and guidance (Courtney-Pratt et al., 2012) and to clinical supervision not being regarded as a priority (Sellars, 2004).
Through the experiential component of this research I came to understand more deeply the dynamic nature of clinical workplaces. The participants described clinical workplaces as fast-paced, random and haphazard contexts that strongly influenced students’ learning. This busyness and urgency of workplaces was evidenced by high staff workloads and the speed at which staff both completed tasks and moved around the workplace. In response to this perceived busyness the students described the need to rush workplace activities such as patient interventions and writing in patient medical records. This need to hurry was often predicated by a desire not to delay other clinical staff such as medical staff, nursing staff, other physiotherapists and clinical supervisors. When students felt rushed they were distracted from their clinical tasks and the quality of their performance and learning declined. In these circumstances, while development of technical professional practice skills may have been compromised, the students were nevertheless undertaking important learning about how to complete patient activities efficiently in busy clinical workplaces.

For the participants of this research, the unpredictability as well as the fast pace of clinical workplaces contributed to the dynamic nature of clinical learning spaces. In ward environments, students encountered unpredictable interruptions to their plans by daily activities such as patient showering and toileting, clinical tests such as x-rays, and the arrival of patients’ visitors, all of which interrupted their scheduling and completion of patient activities. For some students this unpredictability often meant that they were unable to follow their patients through their full treatment trajectory toward discharge. This is of concern because the educational benefits of following patients’ progress over time and identification of progress with treatment have been identified (Skøien, Vågstøl, & Raaheim, 2009).

Further shaping the fluid nature of clinical learning spaces is the dynamic and evolving nature of professional practice itself. Professional practices are dynamic and constantly evolving, as each unique situation encountered in professional practice calls for responsive, purposeful and flexible practitioner actions (Schwandt, 2005). Professional practitioners thus perform dynamic and evolving professional practices in service of their clients in response to rapidly changing and unpredictable professional practice environments. The inherent dynamic and uncertain nature of clinical workplaces and professional practices necessarily imbue clinical learning spaces with a fluid dimension.
Clinical learning spaces formed at intersections of clinical workplaces and individual students’ dispositions also have a crucial fluid dimension due to fluctuations in students’ levels of confidence, fatigue and wellbeing. Throughout this research, student confidence emerged as a critical factor that shaped the manner in which they engaged with clinical learning opportunities and consequently the learning that resulted from that engagement. Importantly, given the centrality of confidence to learning, student confidence was revealed as a fluid entity that can be enhanced or diminished by workplace experiences. Not only did different students commence placements with different levels of confidence, but those levels of confidence also fluctuated throughout clinical placements as a direct result of placement experiences. For example, student confidence was enhanced by their participation in independent patient activities, the presence of other students, provision of adequate time to complete patient interventions, encouragement and positive feedback received from clinical supervisors, and the degree of welcome and acceptance they encountered in the workplace. Conversely, being watched by clinical supervisors diminished student confidence. This susceptibility of student confidence to workplace experiences provides an apt example of the manner in which student interactions with workplaces contributed to the fluidity of clinical learning spaces. It is an important finding, given the practice of observing physiotherapy students on placement in order to ensure patient safety and to assess students’ performance to determine their competency for future independent practice. This finding is also congruent with Sen’s (2005) notion of capability being dependent on both individual and environmental factors.

In this section I have portrayed the fluid nature of clinical learning spaces, which was shown to be due to a confluence of three key factors. These factors were workplace influences (such as the dynamic and often haphazard nature of clinical environments), student dispositional qualities (such as confidence, fatigue and wellbeing) and clinical educators’ actions and intentions (such as the level of student surveillance). Student confidence was provided as an example of a dispositional quality that was susceptible to workplace influences (such as presence of other students and the degree of welcome experienced in the workplace) and clinical supervisors’ actions (such as the quality of feedback and level of surveillance). This is an important finding with significant implications for practice-based education pedagogy and, in particular, the manner in which
students are prepared for workplace learning experiences and clinical supervisors are educated to support student placements.

7.2.2 **The relational nature of clinical learning spaces**

The understanding of workplace learning as participation in authentic workplace activities (developed in Chapter 4) underscores the importance of explicating the relational nature of workplaces in order to develop a deeper understanding of clinical learning spaces. My literature-based hermeneutic study revealed the centrality of workplace relationships to workplace learning, with learning being facilitated or constrained by the character of relationships formed within work contexts (Eraut, 2004; Eraut, Alderton, Cole, & Senker, 2000). These findings were supported and extended by my experiential study findings. The experiential study revealed that, beyond facilitating or inhibiting student learning, workplace relationships also shaped the character of the learning that occurred.

Within clinical workplaces a range of people were demonstrated to influence physiotherapy students’ clinical learning significantly. This range of people included clinical supervisors, other physiotherapists, nursing staff, medical and allied health staff, patients and their families, administrative staff and other students. Consistent with contemporary workplace learning literature that describes the centrality of workplace networks to learning (Boud & Middleton, 2003; Edwards & Nicoll, 2006; Fuller, Hodkinson, Hodkinson, & Unwin 2005), this finding moves the focus in clinical education from the acts of teaching and emphasises the important contribution of social contexts and relationships to learning in clinical workplaces. This is an important finding because in physiotherapy clinical education the process of restricting the recognised role of guide to a select few (clinical supervisors) largely continues (see e.g. Dunfee, 2008; Vågstel & Skøein, 2011). This restriction may fail to harness potentially rich learning experiences provided by other people in clinical contexts.

The participants of this research identified that the relationships students formed with clinical supervisors, nursing staff, patients and other students in particular strongly influenced student learning. Therefore these key relationships and how they shaped student learning are now portrayed.

**Clinical supervisors**

Supervisory relationships developed between students and clinical supervisors were key to positive learning experiences and largely
determined the level of student involvement in authentic workplace activities. The effectiveness of these important relationships was underpinned by the level of trust developed, which was particularly shaped by an interdependent association between student confidence and clinical supervisors’ dispositions.

Trust was revealed as an important and fluid element of supervisory relationships. Trust played a central role in opening learning opportunities, particularly student participation in independent patient activities. The students recognised the centrality of “hands on” experiences or engagement in authentic practice activities to their clinical learning and consequently experienced a strong need to “prove themselves” and gain clinical supervisors’ trust. Trust was developed partly as a result of student ability and confidence and partly by clinical supervisors’ dispositions, in particular supervisors’ predisposition towards trusting students to treat patients as opposed to demonstrating treatments themselves.

Clinical supervisors’ level of clinical experience emerged as a particularly important characteristic that shaped supervisory relationships. Relationships formed with junior physiotherapists provided a supportive learning space where students were comfortable about asking questions and perceived that the junior physiotherapists were happy to assist them. The junior physiotherapists also provided appropriate role models for the students who could aspire to the practice standards of junior physiotherapists that represented the closest step to the students’ current practice. Ironically, although students appreciated the more senior physiotherapists for their wealth of knowledge, they felt intimidated by these therapists and consequently did not form strong relationships with them. Instead, students felt a strong need to impress these therapists and were reluctant to ask them questions and access their knowledge. Thus, the development of relationships with both junior and senior physiotherapists provided a holistic clinical education experience where students’ need for support and exposure to a broad range of assessment and treatment approaches was realised.

**Nursing staff**

Nursing staff emerged as particularly significant to physiotherapy students’ learning. Nursing staff contributed to student learning through sharing knowledge (in relation to patients’ conditions, status and whereabouts), assisting with physiotherapy patient tasks and setting aspirational standards for physiotherapy students to attain. This was an
interesting finding, as medical research had described nursing staff predominantly as gatekeepers to practice (Dornan, Boshuizen, King, & Scherpbier, 2007) and had not identified the significant manner in which they could shape student learning. This centrality of nursing staff to physiotherapy practice and student learning meant that relationships developed with nursing staff were viewed as critical to efficient and effective physiotherapy practice as well as student learning.

Reciprocity was identified as key in the development of positive relationships with nurses, with students often going to extraordinary lengths to establish and maintain these positive relationships. Maintaining positive relationships with nurses was not always easy and required “finding the balance” between time spent assisting nurses and completing physiotherapy work. The students often required assistance from their clinical supervisors to balance their relationships with nursing staff to ensure they were able to complete their own work as well as assist the nurses. Thus students gained valuable clinical information through their relationships with nurses as well as developing the tacit and interpersonal communication skills required to establish and maintain collaborative working relationships with nursing staff.

**Patients**

Surprisingly, given the contemporary focus on patient-centred models of clinical practice the influence of patients on student learning in clinical environments has been poorly investigated (Lofmark & Wikbold, 2001). This research revealed a powerful influence of patient interactions on student learning. Interaction with patients provided students with the opportunity to experience the real world of clinical practice and afforded an extra dimension to learning that could not be imparted through academic teaching, simulation, practising with other students, or textbooks. Patient interaction expanded students’ understanding of medical conditions through memory of real people students had seen and worked with. These learning benefits were further enhanced by continuity of patient contact.

Through patient encounters, students developed their understanding of the manner in which various conditions presented and responded to physiotherapeutic interventions. Consistent with research findings of Skøein et al. (2009) and Morris and Leonard (2007), interaction with patients provided the students in this research with opportunities to implement and refine a range of physiotherapy practice skills including
treatment techniques, problem solving and communication skills. While the participants shared the view that students learned something from every patient, the students found that difficult patients (that is, patients with complex health issues, patients who were not immediately compliant and those with communication disorders) particularly facilitated development of their communication skills and ability to be flexible and adaptable in their practice. Interestingly, given the contemporary focus on patient-centred models of healthcare, where establishment of equal partnerships between healthcare professionals and patients is paramount and is underpinned by acknowledgement of patients as experts in the knowledge of their conditions, only one participant identified patient knowledge as providing an important contribution to student learning.

This research also revealed a diverse range of strong emotions such as excitement, surprise and distress evoked by students’ encounters with patients in clinical workplaces. These strong emotions underscored the powerful learning students experienced when working with patients. For example, although students were often distressed when working with critically unwell patients they undertook powerful learning about the scope and potential limitations of physiotherapy practice. Through their encounters with patients, translation of propositional knowledge to professional practice formed a significant part of clinical learning for the students in this research, as did the expansion of their practice-based knowledge.

**Student peers**

My research revealed that relationships students formed with student peers during clinical placements significantly influenced student learning. The students gained professional and personal support through peer relationships. This finding is consistent with contemporary clinical education literature reporting that students appreciate being on placement with other students; they share mutual support and companionship, wider patient experiences, problems and joys, and act as an outlet for frustrations they may be experiencing (Skøein et al., 2009; Webster et al., 2010).

The students in this research found that having other students on placement with them was supporting and comforting. The students debriefed, reflected and compared experiences with peers both within the workplace and outside during social activities. The students identified opportunities to “trade stories” with other students while on placement as a valuable way to broaden their clinical knowledge.
Clinical learning spaces: Uniquely experienced

In this section, I combine findings from the theoretical and experiential studies and present the uniquely experienced dimensions of clinical learning spaces. The complementarity between individuals and their environments revealed in my literature study (Gibson, 1979; Saltmarsh, 2009; Schatzki, 2002) underpins the unique nature of clinical learning spaces. Thus a more detailed understanding of the manner in which individuals engage with workplace activities and construct learning as a result of their experiences is central to understanding more deeply the uniquely experienced nature of clinical learning spaces and the learning that occurs within them.

My research revealed that the unique nature of clinical learning spaces was shaped by students’ dispositions in three key ways:

1. The modes (and levels) of students engagement in workplace activities (both what was offered and how students elected to engage with what was offered)

2. The unique ways students constructed their learning as a result of their experiences and engagement in workplace activities

3. The ways that students purposefully created spaces to nurture their learning and wellbeing

This understanding of intrinsic and extrinsic influences on student engagement with workplace activities resonates with Sen’s (2005) broad understanding of capability as inclusive of individual attributes and skills as well as environmental factors to enhance a particular ability in relation to the job at hand.

Student engagement with workplace activities

My research revealed that an interdependent relationship between students and workplaces shaped student engagement with workplace activities. Student disposition determined not only how they elected to engage with workplace activities but also the activities that workplaces offered to them. For example, student confidence was found to be integral to determining both the quantity and quality of their practice performances, particularly patient interactions. Students who exhibited high levels of confidence were offered more patient experiences and demonstrated improved practice performances.
Workplace learning theorists have positioned individual learners at the centre of workplace learning (Billett, 2001a; Fennessy, Billett, & Ovens, 2006; Unwin & Fuller, 2003). Individuals themselves ultimately determine how they participate in and learn from what is afforded them, premised on their values, goals and experiences (Billett, 2006, 2010). Moreover, individuals’ dispositions, interests and brute facts of energy, strength, state of fatigue and emotion also shape the manner in which individuals engage with workplace practices (Billett, 2008a, 2009a). In the experiential study, students’ state of fatigue, motivation (in part determined by the level of welcome experienced in the workplace), energy and general state of wellbeing were also shown to be strong influences on the manner in which students engaged with clinical learning opportunities. For example, students in this research described decreased motivation to engage with workplace learning opportunities when they were tired or “down in the dumps”. Thus clinical learning spaces were uniquely formed by individual students’ interactions with clinical workplaces, with the character of these spaces largely dependent on student dispositional factors.

Further, exploring the complementarity between individuals and their environments, Eraut (2000) observed that individuals’ workplace experiences are differentiated as they are treated differently by workplaces according to their cognitive ability, personality, personal knowledge and experience. My experiential study supported this view and found that individual physiotherapy students were treated differently by clinical workplaces, largely due to students’ dispositional qualities. For example, students who displayed increased levels of confidence were afforded more opportunities to undertake challenging experiences, such as independent patient interactions, earlier in their placements. Students who demonstrated interest in supervisors’ areas of clinical practice were also offered more interesting and challenging experiences. As a consequence, students who appeared uninterested, demonstrated a lack of initiative, or explicitly expressed a lack of interest in a particular clinical area were exposed to a narrower range of learning experiences, that were less engaging and challenging. Interestingly, students seemed to be oblivious of the strong influence of their interest in specific practice areas on their supervisors’ motivation to provide interesting and engaging clinical learning opportunities.
The unique construction of learning as a result of engagement in workplace activities

In the literature study, individuals’ participation in workplace activities was identified as mediated by their personal knowledge, past experiences, values and ways of knowing (Billett, 2001a; Eraut, Alderton, Cole, & Senker, 2000; Hodkinson & Hodkinson, 2004). Because of their different dispositions, different learners may perceive the same opportunities differently, react towards them differently and consequently construct different learning as a result of these different experiences (Bourdieu, 1977). The experiential findings also highlighted the critical contribution of individual physiotherapy students to their construction of professional knowledge in clinical education contexts.

Great variation exists in the skills that students bring to clinical education in terms of prior life and work experience, learning styles, personal attributes, self-directed learning skills, and ability to reflect on and learn from experience and generalise this newly developed knowledge more broadly (McAllister, 2005). For the student participants in this research, prior experience (or lack thereof) with hospital environments significantly influenced the manner in which they engaged with learning experiences. For example, when students viewed gory or distressing situations for the first time they were distracted from learning about particular professional practice skills, instead focusing on feeling comfortable in uncomfortable situations. As a consequence, the learning that ensued was varied, and sometimes surprising and not always what clinical supervisors might have expected.

Students’ creation of learning spaces

The student participants in this research utilised existing spaces and actively constructed new learning spaces to meet their individual needs both within and beyond clinical workplaces. These spaces met a variety of student learning needs such as debriefing and sharing placement experiences, preparation and reflection.

These student-created spaces were often used to facilitate discussion with other students, to debrief and share experiences and in so doing broaden understanding of the scope of physiotherapy practice. The relevance and timeliness of this sharing of practice experiences contributed to the power of these learning spaces as students viewed exposure to a broad range of practice experiences as important preparation for the range of patient conditions they might encounter during placement. These opportunities to
share experiences presented during lunch breaks, car travel, shared accommodation and social activities.

The students in this research purposefully created spaces both within and beyond the workplace within which their wellbeing could be nurtured. These spaces were uniquely constructed to meet individual students’ needs. Within the workplace some students found that staff lunchrooms provided effective spaces to relax; other students created rituals such as walking to the cafeteria to purchase food or drink to maintain their wellbeing. Beyond the workplace students sought to nurture their wellbeing through physical activity, maintenance of normal routines, social activities with other students and contact with family and friends. A significant finding, given the centrality of student wellbeing to clinical learning, was the clinical supervisors’ lack of clarity or agreement about their responsibility for and ability to promote students’ wellbeing during clinical placements. For the clinical supervisors, responsibility for student wellbeing was considered to rest with students themselves. Interestingly, given that the clinical supervisors firmly believed students should be primarily responsible for their own wellbeing, they were mostly unaware of the actions students undertook to create individualised and unique spaces within which to nurture their wellbeing.

To highlight a wide continuum of student dispositions and experiences that underpin the unique nature of clinical learning spaces I provide the following composite student profiles (drawn from my experiential findings) of two physiotherapy students, Imogen and Ivy. Imogen and Ivy were second year physiotherapy students undertaking their first block clinical placements in the same acute care setting.

**Imogen** is very excited to be undertaking her first block placement in her home town, as she will be able to live at home for the duration of her placement. Imogen’s home is a 10-minute walk from the health service where she is undertaking her placement. Imogen is feeling confident about this placement as she has previously worked as an Allied Health Assistant with the health service and is therefore familiar with the hospital layout and the particular ward in which she is undertaking her placement. After work each day Imogen has established a routine of going for a bike ride, which gives her an opportunity to reflect on the activities of the day. Following her bike ride, Imogen joins her mother in meal preparations and enjoys her evening meal with her family. Imogen debriefs with her family during meal times. As Imogen’s father is a general practitioner, she finds his viewpoints particularly useful. Following the evening meal, Imogen uses the Internet to source
information required for the following day, including evidence-based treatment protocols. Being at home allows Imogen to organise social gatherings with other students staying at the hospital accommodation to discuss clinical experiences.

Ivy is undertaking her first placement away from home and has recently experienced the breakdown of a long-term relationship with her boyfriend. Ivy is anxious about this placement, as she has no previous experience of acute care hospital settings. Ivy is staying with friends who live 40 minutes from the hospital. Ivy is recovering from an ankle injury, which causes her considerable discomfort during the day and prevents her from undertaking any physical activity outside of work hours. After work Ivy stays up late into the evening socialising with her friends. She has no access to the Internet and has limited time to undertake preparation for her placement outside of work hours. As a consequence, Ivy is feeling stressed and fatigued and is starting to develop a sore throat.

In this section I have presented clinical learning spaces as uniquely experienced spaces forming at points of intersection between students and clinical workplaces. Clinical learning spaces were uniquely formed by a complex and interdependent relationship between individual students and clinical workplaces.

7.2.4 Clinical workplaces as composite learning spaces

My literature-based study emphasised the significant contribution of context to professional practice performance and the development of professional practice capabilities. In particular, Green’s (2009a) contention that practice contexts are integral to practice and should never be taken for granted highlighted an important need to examine specific practice contexts in order to better understand their influence on practice performance and development. In the physiotherapy clinical education literature, holistic examination of clinical workplaces as educational contexts has received little attention. To address this deficit, in this section I draw together findings from my literature and experiential studies and portray the composite nature of clinical workplaces as learning spaces.

My research revealed the complex nature of clinical learning spaces to be due in a large part to the situational complexity inherent within clinical workplaces as well as in spaces beyond clinical workplaces. These clinical learning spaces were found to be composite spaces incorporating many individual–relational, momentary–emerging and fluid–grounded spaces.
Exploration of clinical learning spaces in terms of these dichotomous continua facilitates explication of their inherent complexity.

**Individual–relational spaces**
Clinical learning spaces formed on a continuum of individual–relational dimensions within and beyond clinical workplaces. Although students always uniquely encountered clinical learning spaces, these spaces also exhibited varying degrees of individual and relational dimensions. For example, students’ reflection during physical activity demonstrated a highly individual learning space, whereas their reflection through discussion with other students and physiotherapy staff during lunch breaks represented a more strongly relational learning space.

Car travel provided another clear example of a clinical learning space that varied along an individual–relational continuum. When students travelled alone and the learning space was used for mental rehearsal of the day’s activities it was a highly individual learning space. When they travelled with other students or supervisors and the learning space was used to co-construct professional knowledge it was a more strongly relational learning space.

As a final example, provision of a designated workspace for students also varied along an individual–relational continuum. Such spaces provided an individual learning space for students to write notes, study, reflect and prepare for future patient interventions. They also had a significant relational dimension in increasing students’ sense of belonging in a workplace.

**Momentary–emerging spaces**
Clinical learning spaces also formed along a continuum of momentary–emerging dimensions within and beyond clinical workplaces. This was evidenced in the powerful learning of students in brief encounters with significant events as well as in repeated encounters with less significant events. Repeated encounters were exemplified both by following a single patient along a continuum of treatment (e.g. from pre-surgical admission through to discharge) and by interacting with a number of patients with the same or similar conditions.

Student interactions with patients with gory or terminal conditions were a noteworthy example of the potency of momentary encounters that powerfully shaped learning. Many of the students found working with patients receiving palliative care distressing as it required them to face the
realities of terminal illness, both personally as well as in relation to their limited professional experience. In these often brief encounters students engaged in powerful learning about the scope and limits of physiotherapy practice rather than the development of physiotherapy technical skills per se.

Through repeated encounters with patients with less significant conditions (e.g. patients following joint replacement surgery) students also engaged in powerful learning. In these encounters they developed technical professional practice skills such as performance of assessment and treatment techniques. In these learning spaces, students’ professional practice capabilities emerged through repeated practice and fine-tuning of their skills.

**Fluid–grounded spaces**

Clinical learning spaces also formed along a continuum of fluid–grounded dimensions within and beyond clinical workplaces. The significant influence of the physical properties of workplaces, such as the size of the hospital and the availability of resources, provides a relevant example of the grounded nature of clinical learning spaces. At the fluid end of this continuum, the brevity of student encounters with professional practice activities and the fast-paced nature of clinical workplaces exemplify the fluid dimension of these learning spaces.

Interestingly, even seemingly static workplace properties such as the hospital size and layout demonstrated a fluid contribution to the shaping of clinical learning spaces. For example, at the beginning of placements, large hospitals with complex layouts significantly influenced students’ clinical learning as they familiarised themselves with the layout. However, as placements progressed and students became more familiar with the environment the degree to which student learning was influenced declined.

Availability of resources provides another noteworthy example of this fluid–grounded continuum. Although resources such as clinical equipment seemingly represented a static or grounded property, the dynamic and often unpredictable nature of clinical workplaces imparted them with a fluid dimension. For example, unpredictable patient events, such as receiving visitors or being absent from the ward while undergoing tests, often meant that treatment sessions scheduled for the physiotherapy gymnasium where specific equipment was available were cancelled and treatments were undertaken at another time in patients’ rooms.
In this section, clinical education has been identified as a composite learning space containing many individual–relational, momentary–emerging and fluid–grounded learning spaces. These space components combine to shape clinical learning spaces as fluid, often volatile and influential, where concentrated forces interact to cause or influence change or development of physiotherapy students. The consequent unique and fluid nature of clinical learning spaces emphasises the need to develop pedagogy and curricula designed specifically to enhance students’ learning in these composite and often challenging contexts.

### 7.2.5 Learning in clinical workplaces

The fundamental influence of health contexts on the shaping of professional practice (Higgs & Titchen, 2001) draws attention to the importance of developing a holistic understanding of clinical workplaces as contexts for the development and enactment of health professional practices. Through my research, clinical workplaces have been revealed as multi-faceted, fluid, relational and uniquely experienced learning spaces. A key contribution of the experiential component of this research was the identification of the significance of spaces beyond the immediate workplace to physiotherapy students’ clinical learning. Thus clinical learning spaces extended to include spaces where students lived outside of normal work hours, spaces that have not previously been considered part of clinical learning spaces. In this section the powerful influence of this composite nature of spaces on student learning and hence development of professional practice capabilities is explored.

**Learning within clinical workplaces**

My research revealed that situational workplace dimensions have a strong, pervasive and often unarticulated influence on both the formation and enactment of professional practices themselves as well as on students’ development of professional practice capabilities. Strong agreement was evidenced between the literature-based and experiential findings in relation to the significant influence of situational dimensions of workplaces on the character of workplace learning.

The literature study highlighted the significant contribution of situational dimensions of workplaces in general to workplace learning. Situational contexts, including technologies, resources and architectural spaces, shape practices through their ability to enable or constrain particular practice actions (Fenwick, 2010; Schatzki, 2002) and therefore provide different pedagogical possibilities for learning (Edwards & Nicoll, 2006; Kemmis &
Grootenboer, 2008). The findings of the experiential study supported the significant contribution of situational dimensions of workplaces to shaping student learning. Hospital size and layout, level of resource provision and access to physical contextual guides were identified as particularly important situational factors that influenced student learning within clinical workplaces.

Resource provision, particularly clinical equipment and information technology, was identified as a situational factor that strongly shaped student learning while undertaking clinical placements. The availability of clinical equipment directly shaped students’ patient interventions and consequently what was learned from those interventions. When a large range of equipment was available, students identified that they could generate and instigate a broad range of patient treatments. In comparison, students were challenged to think creatively in order to achieve optimal outcomes with and for their patients in less well-resourced workplaces. Thus the level of clinical equipment available in clinical workplaces did not simply enable or constrain learning; instead, it shaped the learning that occurred.

Access to information technology also significantly influenced students’ learning in clinical workplaces. Access to computers and the Internet shaped students’ clinical reasoning and determination of the most appropriate patient interventions. Importantly, the clinical supervisor participants highlighted the finding that access to patient and practice information allowed students to demonstrate initiative and independence in their practice. Computer and Internet access, therefore, significantly shaped students’ clinical learning but also helped students to develop important professional practice qualities such as initiative and independence.

The important contribution to workplace learning of contextual guides such as models, clues and access to previously completed or partly completed jobs was identified in the theoretical component of this research (Billett, 2009b; Lave, 1990; Rogoff, 1990). In the experiential part of this research, two contextual guides were identified as particularly significant to physiotherapy students’ learning in clinical workplaces. These were patients’ medical notes and the ubiquitous presence of hand wash. These two examples are interesting because each exerted a significant influence on student learning but for different reasons.
Students were particularly reliant on patient medical notes as contextual guides when they lacked confidence and/or experience in writing patient notes. When required to complete such notes the students modelled their practice on previously completed notes. In another way, it was the ubiquitous presence of the hand wash (at the end of patients’ beds, in corridors, at wash basins, at nurses stations and so on) that significantly shaped students’ practice. This finding is important because it highlights the susceptibility of students’ developing professional practice to entrenched workplace practices seen in situational dimensions of clinical workplaces.

The fluid nature of clinical workplaces, evidenced in the fast-paced and often haphazard character (e.g. patient unavailability at scheduled treatment times) of clinical environments also significantly influenced students’ learning. These characteristics often led to time constraints that required students to demonstrate flexibility and the ability to formulate alternative treatment plans, often at short notice. Students were also required to negotiate alternative patient treatment options and times with other staff members such as nurses and other allied health staff who might be involved in patient care. Thus the fluid nature of clinical workplaces provided a catalyst for students’ development of professional practice capabilities such as adaptability, communication and negotiation skills. The clinical supervisors viewed this ability to be flexible in the face of unexpected activities as a particularly important professional practice capability because unpredictability was characteristic of physiotherapy practice in clinical workplaces. This is an important finding, with implications for the manner in which students are prepared for clinical placements and for practice-based education pedagogy and curricula.

The clinical learning spaces that formed when students encountered practice experiences were not always protracted and were constantly opening and closing within clinical workplaces. Consequently student learning in clinical workplaces was often unplanned, occurring spontaneously in reaction to patient activities as they arose. The spontaneous nature of these learning opportunities meant that students often entered those spaces with little or no preparation and sometimes received little or no debriefing following the encounters. As a result, student learning within these spaces was often not what might be expected. For example, students undertaking observation of patient interventions reported learning how to be comfortable in uncomfortable situations rather than learning particular practice capabilities such as technical and
communication skills. Further, students’ inward focus exhibited in uncomfortable albeit brief patient encounters provided limited opportunity for students to develop the capacity of narrative imagination. Narrative imagination, described by Nussbaum (2006), is the freedom to reach out in the imagination allowing another person’s experience into oneself; it could be argued to underpin development of empathic professional practice. This finding has important implications for the development of practice-based education curricula aimed at developing graduates capable of ethical and empathetic professional practice.

**Learning beyond clinical workplaces**

The experiential component of this research revealed the significant contribution of spaces beyond clinical workplaces to students’ clinical learning. Learning spaces beyond the workplace, such as cars, accommodation and participation in physical activity were particularly significant learning spaces for some students.

Student learning was significantly shaped by car travel with supervisors between workplace activities and from accommodation to the placement site, both with other students and independently. The informal nature of car travel between work activities significantly shaped the atmosphere of the learning space created. Both clinical supervisors and students noted that discussions with supervisors and other health professionals during car travel provided rich clinical learning opportunities. During car travel, students and supervisors were able to hypothesise together about client interventions, reflect on treatment interventions provided and collaboratively develop plans for future treatment interventions. Clinical supervisors were thus able to assist students to scaffold and extend their clinical reasoning capabilities. The less formal environment created during car travel also provided a space for casual conversations centred on both professional and social aspects of students’ and supervisors’ lives. Clinical supervisors shared their clinical experiences with students and students might raise personal or professional problems. This was important, as when clinical supervisors became aware of issues or problems encountered by individual students they could adjust placement parameters accordingly.

Apart from work-related car travel, the car also represented an important learning space for students who travelled by car from their accommodation to the placement site. When students travelled alone, the morning car trip provided an opportunity to undertake mental rehearsal of patient
interventions, such as patient assessments. When students travelled from their accommodation to the placement site with other students, some of the time spent in the car was used to debrief and share a variety of clinical experiences. The students found this a useful way of gaining broader understanding of the scope of physiotherapy practice.

For many students, accommodation formed a significant and positive clinical learning space. This was particularly evident when accommodation was shared with other students from either the same or different universities, as well as with family or friends. Student accommodation provided a space where students could debrief, reflect upon and discuss clinical experiences with other students or family and friends. Interactions with other students, away from the perceived pressure of performing on clinical placement, facilitated sharing of resources and knowledge and provided an opportunity to gain different perspectives to assist in the construction of students’ professional practice knowledge. The perceived quality of the student accommodation itself also had a significant influence on student learning. Students stated that if they were staying in what they considered to be substandard accommodation they were less likely to engage with clinical learning opportunities, as they would only be thinking about going home.

For the students in this research, undertaking physically active pursuits outside of the workplace provided a space for both reflection and relaxation. Physical activity facilitated students’ ability to relax and unwind after a stressful and busy day in clinical workplaces and positively contributed to students’ overall sense of wellbeing. Interestingly, only two of the clinical educator participants discussed the important contribution physical activity could make to students’ overall sense of wellbeing, and none of the clinical educators identified physical activity as a space that students might use for reflection. Significantly, the students in this research articulated how physical activity provided a space for reflection. For many of the students, physical activity provided a quiet space, removed from distractions, where they could think clearly. The students described how they used the time while exercising to review the day’s activities and identify how their performance could be improved; in short, to reflect. This finding that students were innately reflecting while undertaking physical activity is particularly salient given the acknowledged role of reflection in the construction of professional knowledge and the development of professional practice capabilities.
In this section I have presented a deep understanding of the influence of clinical workplaces on student learning. Importantly, clinical learning spaces were demonstrated to extend beyond immediate clinical workplaces to include spaces beyond. The manner in which clinical learning spaces (within and beyond clinical workplaces) shaped the development of professional practice capabilities (including skills and qualities) was examined.

7.2.6 Clinical supervisors’ actions and intentions influence learning

Clinical supervisors are widely acknowledged as having a key role in facilitating positive clinical placement experiences (Courtney-Pratt et al., 2012; Plack, 2008; Vågstøl & Skøeinn, 2011). The clinical supervisor and student participants in this research agreed that clinical supervisors had a major role in shaping student learning during clinical placement experiences. Demonstration of patient management by clinical supervisors, discussion of patient cases, feedback and formative assessment have been identified as effective clinical education strategies to enhance the development of clinical competence (Dunfee, 2008; Ernstzen, Blitzer, & Grimmer-Somers, 2010; Vågstøl & Skøein, 2011).

Consistent with these findings reported in the literature, the participants in my research also described core clinical supervisor activities, such as role modelling of appropriate clinical skills and behaviours, guided discussions aimed at enhancing students’ clinical reasoning and reflective thinking abilities, and provision of constructive feedback, as critical to positive learning experiences. Importantly, extending the literature-based findings, the participants of the empirical study also identified clinical supervisors as key in determining the level to which students participated in authentic workplace activities, with students’ ability to independently assess and treat patients providing an example. Thus, relationships that students formed with clinical supervisors underpinned student access to clinical learning opportunities.

For clinical supervisors, assessment of students’ abilities prior to allowing them to treat patients independently was central to ensuring patient safety and wellbeing. The clinical supervisors acknowledged that this process of assessing student abilities involved a large amount of surveillance as well as a staged progression towards student independence. To ensure patient safety and wellbeing, clinical supervisors allowed students a higher level of independence with patient conditions or treatment interventions only
when they thought students would be safe. As an example, many of the clinical supervisors in this research demonstrated a particular reluctance to allow students to independently mobilise patients who were unwell or had neurological impairments. Thus, as might be expected, the clinical supervisors prioritised patient safety and wellbeing above provision of student learning experiences, and in so doing significantly shaped students’ learning experiences.

While the importance of limiting students’ level of engagement with authentic patient activities to ensure patient safety and wellbeing cannot be denied, student engagement was not determined solely by the level of students’ practice skills and abilities. The students identified that their participation in patient activities was also largely determined by clinical supervisors’ dispositions. Through their experience with different supervisors, students experienced different approaches to permission to pursue independent patient activities. The students often described experiencing different levels of independence along this continuum from one day to the next, and concluded that this had less to do with their abilities and more to do with the willingness of individual supervisors to trust them to be safe with patients. My interviews with the clinical supervisor participants also revealed differences amongst supervisors in relation to their willingness to trust students to be safe in independent patient activities. This highlighted an important contribution of clinical supervisors’ beliefs and dispositions to their ability to trust students with patient safety and consequently to provide students with independent access to patient activities.

Clinical supervisor and student participants agreed that student immersion in workplace activities was a strong factor that shaped student learning. However, while the students privileged active involvement in patient activities, the clinical supervisors emphasised immersion of students in a broad range of clinical activities, which included observation sessions. This is a significant finding because the clinical supervisors were largely unaware of the degree to which students’ active involvement in patient activities positively shaped student learning.

In this section the significant way that clinical supervisors influenced student learning was portrayed. As might be expected, the participants in this research described supervisor actions such as providing feedback, prompts for reflection and role modelling good practice as facilitating student learning. Importantly, clinical supervisors were also identified as
key in determining the level of student participation in authentic workplace activities, with patient interaction a salient example. An important tension for clinical supervisors between the provision of optimal patient care and the creation of optimal student learning experiences was revealed.

### 7.2.7 Student disposition powerfully influences learning

My research revealed student disposition as a critical factor in determining the way in which physiotherapy students engaged with and accessed learning opportunities in clinical workplaces. Individual learners’ dispositions translate to different amounts of capital with which to “play the game” or engage in workplace activities, which in turn directly influences the nature of learning achieved through participation in workplace activities (Bourdieu, 1977). This view of individual dispositions as capital resonates with Sen’s (2005) notion of capability as individuals’ possession of the means and instruments to achieve meaningful outcomes. Congruent with this notion of student disposition influencing learning outcomes, personal knowledge, past experiences, confidence and individual agency were demonstrated to shape the way students construed learning from workplace experiences.

Educational and workplace learning theorists have long considered the manner in which individuals elect to engage with learning opportunities (see e.g. Dewey, 1916). In regard to workplace learning more specifically, Billett (2001b) and Ehrich and Billett (2004) identified that engagement in authentic workplace activities that are meaningful to individuals is central to effective work and learning practices. Students’ learning styles, frames of reference on learning professional practices and interest in clinical settings in which they are placed are regarded as critical to the effectiveness of clinical education (Cloutier, Shandro, & Hycak, 2004; Dunfee, 2008; Higgs & Titchen, 2001; Midgely, 2006). Using educational and workplace learning theories as a firm foundation, through the experiential component of this research I developed a rich understanding of how individual students’ dispositions (including brute facts such as emotion and fatigue) shaped the manner in which they elected to engage with clinical learning opportunities.

Individuals are meaning-makers who ultimately decide what they learn and what they value (Billett, 2001a; Billett & Pavlova, 2005; Wenger, 1998). Personal knowledge, past experiences, and what people bring to practical
situations ground learning through enablement of thought and performance (Eraut et al., 2000; Hodkinson, & Hodkinson, 2004). Past experiences are important because it is these experiences that shape individuals’ conceptions and subjectivities (gaze) and consequently how they construct meaning for use in future experience (Billett, Smith, & Barker, 2005). In my experiential study, students’ past experiences were identified as a strong influence on the way in which they constructed learning from workplace experiences. For example, students with limited previous experience of hospital environments experienced many patient encounters, particularly those where patients were acutely unwell, incontinent or had terminal or gory conditions, as uncomfortable spaces. Given the many confronting and uncomfortable situations students encountered in clinical workplaces, learning how to be comfortable in uncomfortable situations or learning to toughen up was revealed as an important part of clinical learning for the student participants. This is a significant finding when viewed with a professional practice capability lens. Instead of developing the capability for narrative freedom (Nussbaum, 2006) and empathy, students were developing coping strategies based on insulating themselves from other individuals’ (patients’) experiences.

In the experiential study, students’ wellbeing also emerged as a significant factor that influenced their ability to engage in and maximise the learning potential of practice experiences offered by workplaces. For example, students’ overall sense of wellbeing strongly influenced their levels of assertiveness and motivation to access and participate in clinical learning opportunities. Personal contextual factors such as physical and mental health, family and relationship stresses, bereavement, accommodation, financial concerns and social engagements significantly affected student wellbeing. These personal factors potentially increased students’ stress and fatigue levels, providing a distraction from clinical learning. The wide range of factors capable of influencing students’ wellbeing highlighted student vulnerability to physical and mental ill health during clinical placements. Interestingly, while student participants identified a strong influence of physical (such as injury or illness) and emotional (such as bereavement) health concerns on their ability to engage with placement experiences, they nonetheless expressed a strong desire to complete placements “no matter what”. That is, students prioritised completion of placement experiences over the quality of the learning that occurred throughout the experience. From the students’ perspective, passing the
subject meant progressing in the course and not having to repeat the placement, an important consideration given that it would have meant another 4- or 5-week placement and not meeting the pre-requisites to progress to the next placement. In some cases this could mean adding an extra session or year to the length of their course. Despite these considerations, the students’ willingness to compromise the quality of clinical learning experiences is particularly concerning, given their vulnerability to physical and mental ill health while completing clinical placements.

The relationship between clinical learning and students’ confidence or self-efficacy in workplace tasks is important in the development of a holistic understanding of clinical education. Self-efficacy can be viewed as a link between knowledge, skill and performance, and represents how capable or confident a person feels to carry out a task or perform in a specific situation (Jones & Sheppard, 2011b). Currently there is a small body of literature exploring the influence of self-efficacy on physiotherapy students’ clinical learning; even less research has explored workplace influences on students’ self-efficacy during clinical placement. The issue of student confidence during clinical placements has been found to pervade all year levels (Bartlett, Lucy, Bishee, & Conti-Becker, 2009). The experiential findings of this research revealed that students’ confidence levels affected both the quantity and the quality of the workplace experiences they were offered. Workplace relationships have been found to have a significant influence on student confidence; when students are valued by the professional community their confidence is increased and they take initiative and seek out further opportunities for learning (Courtney-Pratt et al., 2012; Skøien et al., 2009). For the students in my research, positive relationships with other physiotherapists gave them confidence to approach those physiotherapists to ask questions and seek further learning opportunities.

When students participated in workplace activities their confidence levels also influenced performance quality. Activities such as patient interventions, note writing and reporting in team meetings were performed to a higher standard when students felt confident. Thus students’ learning from these activities was directly shaped by their level of confidence. For example, student confidence was particularly critical to the establishment of patient rapport and trust, which in turn promoted patient compliance and positive therapy outcomes.
7.2.8 Learning through engagement in professional practices

The combined findings from my literature-based and experiential studies revealed that workplaces in general and clinical workplaces in particular were contested spaces. In this section, using Sen’s (1999) notion of capability, I examine the contested nature of clinical learning spaces to discern the extent to which students are able to participate in workplace activities and whether they have the means to influence the extent of their participation. The influence of students’ freedom to participate in authentic workplace activities on their learning is also explored.

Foucault’s (1977, 1980) examination of the productive capability of power is particularly pertinent to understanding the influence of contested aspects of clinical learning spaces on physiotherapy students’ learning. Foucault’s writings illuminated the diffuse and entrenched effects of power perpetually operating in all social situations, and highlighted the important contribution of both tradition and individuals’ positions within social webs to the enactment of current practices and shaping of future practices. Foucault’s view of the productive capability of power is congruent with contemporary workplace-learning theorists who have emphasised the manner in which workplaces regulate learners’ access to and participation in authentic workplace activities (Billett, 1993; Boud & Hager, 2012; Fuller et al., 2007).

The experiential component of this research revealed entrenched hierarchical structures within clinical workplaces that strongly influenced student learning. The students in particular demonstrated a high degree of sensitivity to workplace hierarchies through detailed descriptions of existing hierarchies and a perceived need to comply with existing workplace practices. Hierarchies were evident in both the status afforded to particular professional groups and in a range of workplace activities such as physiotherapists’ preferred assessment and treatment practices. For students in clinical workplaces there is an added layer of complexity, since the health sector has a primary responsibility to patients and healthcare and students are primarily in this space to learn. Thus students occupy a disempowered space. As a consequence students had little power to relocate barriers to participation in practice activities. The power to set and relocate boundaries to student participation rested largely with doctors and clinical supervisors.
The hierarchical structures within clinical workplaces were found to influence student learning in three key ways:

1. Regulation of student participation in practice activities

2. Students’ perceived need to comply with existing workplace practices

3. Students’ motivation to participate in workplace practices

**Regulation of student participation in practice activities**

In my literature study the centrality of participation in authentic workplace activities to the quality and quantity of workplace learning achieved was highlighted (Billett, 1993; Boud & Hager, 2012; Fuller, Hodkinson, Hodkinson, & Unwin, 2005). This understanding emphasised the need to examine the influence of the contested nature of workplaces on student learning. In particular, it is important to understand how participation is invited through the quality of experiences afforded by workplaces (Billett, 2004a) and how the position of individuals within hierarchical workplace structures affects the type of learning they engage in (Fuller et al., 2007). Identification of boundaries to participation and those with the power to relocate them opens possibilities for the development of workplace learning pedagogies specifically tailored to enhancing the quality and quantity of workplace learning achieved through participation in authentic workplace activities.

For the participants of this research, established workplace hierarchies significantly influenced students’ ability to engage in authentic professional practices. The participants particularly noted the manner in which the elevated status enjoyed by doctors in clinical workplaces influenced students’ access to practice activities. Doctors represented a boundary to students’ ability to engage in and learn from professional encounters with patients (including access to medical records). For example, doctors’ need to access patients took precedence over that of other staff including physiotherapy students and physiotherapists. Interruptions to patient treatments distracted students from clinical learning and they were often left feeling frustrated by such interruptions. Access to medical records was another dimension of students’ practice that was strongly influenced by workplace hierarchies. The students described doctors’ preferential access to medical records and the routine practice of “giving up” patient notes to doctors when required. Although the students seemed somewhat surprised and frustrated by hierarchies within workplaces, at no time did they mention overtly challenging these hierarchies. Instead, they altered their
practice to accommodate existing hierarchies, Stacey’s report that she learned to “steal” patient medical files being a salient example. While it might not be surprising that students’ failed to challenge these hierarchies it is of concern that physiotherapists within workplaces seemed to accept the hierarchies as a normal, albeit frustrating, part of their practice. This highlights the importance of developing professional practice qualities such as ethical courage in novice professionals in order to develop individuals capable of changing entrenched workplace practices when necessary.

The invitational qualities of clinical workplaces, or those features that welcomed students to join workplace activities, also significantly shaped students’ learning. These invitational qualities were largely determined by both physical and socio-cultural factors. The participants identified physical factors such as provision of desks for students as important, as such spaces gave students a recognised place to work, for instance, to reflect on past patient interventions and prepare for future interventions. Socio-cultural dimensions of workplaces also emerged as especially significant to shaping student responses to the workplace, and thereby their learning. In particular, a welcoming workplace culture was found to facilitate students’ ability to access learning opportunities through interaction with a broad range of clinical staff and active involvement in patient assessment and treatment activities. Overall, a welcoming culture reduced the strength of influence of hierarchical workplace structures on student learning.

**Perceived need to comply with established workplace practices**

An integral capability underpinning professional practice is the ability to discern when to act according to practice traditions and when alternative actions (to produce optimal outcomes for particular individuals in particular circumstances) are required. Entering practice communities that embody certain beliefs, behaviours and capabilities to be developed is acknowledged as an important part of learning professional practices (Candy & Matthews, 1998; Evans & Rainbird, 2002; Fish & Coles, 1998). During clinical placements, however, students may encounter tensions between established workplace practices and discerned best actions in a given situation. In these situations students’ actions will be determined in part by their moral stance (Fish & Coles, 1998) and in part by other personal qualities including courage and empathy. These tensions between implementing perceived best practice and established workplace practices highlights an important need to explore the manner in which the
hierarchical nature of clinical workplaces shapes physiotherapy students’ practice during clinical placements.

Billett (1999, 2000) argued that students in workplaces feel the need to comply with the dominant values of those workplaces. Consistent with this view, all the participants of my research described that customary workplace practices, or “how things were done” in particular health services, strongly influenced students’ clinical learning. The students described a strong pressure to conform to workplace practices such as physiotherapists’ preferred documentation and treatment strategies, which significantly shaped their practice and consequently their learning. The difficulty students experienced in determining to what extent they should challenge local physiotherapy practices and argue their ideas in relation to patient assessment and treatment interventions compounded the pressure to conform to established workplace practices. This difficulty, in combination with the acknowledgement that supervisors were marking their performances, often meant that students refrained from challenging current physiotherapy practices. Instead, they often stated that they would not undertake specific practices in the future. This identified inability of physiotherapy students to challenge other physiotherapists in order to achieve optimal outcomes for their patients highlights the importance of ethical courage as a core capability underpinning contemporary physiotherapy practice. Significantly, students’ ability to question workplace practices was not actively developed. The importance of clinical supervisors creating learning spaces that encourage students to question rather than hiding their concerns is thus highlighted.

This strong need to comply with existing workplace practices also extended to the practices of clinical staff other than physiotherapists. Students strongly considered that it “wasn’t their place” to disagree with members of staff and would generally follow instructions from other members of staff such as nurses, even when they disagreed with those instructions. Thus, students’ perception of their low status within clinical workplace hierarchies could significantly affect their capability to undertake patient treatments they wanted to implement. In these instances students did not have the means or permissions to pursue what they wanted to do.

**Student motivation to participate in workplace activities**

My research revealed that physiotherapy students had low status in clinical workplaces. This perceived low student status often resulted in students
feeling that they were “in the way,” “useless” and a “burden”. Many of the student participants perceived that they were a burden for their clinical supervisors and other staff because they were slowing them down. This caused students considerable anxiety as they were well aware of clinicians’ high workloads and that the supervisors had “a lot of patients to get through”. This sense of being a burden or feeling useless further affected students’ ability to engage with clinical learning opportunities, as when they thought they were in the way they felt “put off” and “wanted to give up”. Therefore, feeling as though they were a burden negatively influenced students’ motivation to engage with clinical learning opportunities. Perhaps not surprisingly, given students’ strong sense of being useless and being in the way led to a strong desire to “contribute” to the team and to “help out”. This is significant because it emphasises that students undertake what could be perceived as non-clinical tasks in an effort to compensate for feelings of being useless, which could further distract them from their clinical learning.

As a routine part of their student status, the student participants also experienced prolonged periods of following and waiting for their clinical supervisors. Although they understood that following and waiting were unavoidable aspects of being a student, they identified both as tedious and disempowering. The students described following their supervisors as “not a nice role”, a role that emphasised that students were not making worthwhile contributions to the achievement of patient outcomes.

In this section I have examined the contested nature of clinical learning spaces and have discerned the influence of workplace hierarchies on students’ ability to participate in authentic workplace activities. Students occupy a disempowered space in clinical workplaces and have little power to disrupt barriers to participation in practice activities. A strong tendency to comply with existing workplace practices was identified.

### 7.3 A crucible model for developing professional practice capabilities in a clinical education context

In this section I draw the findings of this chapter together in a model that represents both the character of clinical learning spaces and the professional practice capabilities that are developed within those spaces.
7.3.1 Introducing clinical learning spaces as crucibles for professional capability development

The power of clinical learning spaces and the nature of the transformations experienced and exhibited by novice professionals has led to my recognition and labelling of these spaces collectively as a professional development crucible.

A crucible is a space – a means – for creating, shaping and “firing” change. The “raw materials” placed in this space-vessel are “fired” to promote change, a process often catalysed by reagents (here we think of peers, role models and clients) and made individual by the precise and unique mixtures (of people, places and circumstances). Thus, the novices encounter catalytic and transformative situations and experiences. I chose the metaphor of a crucible because of its ability to represent the complexity of clinical learning spaces and the powerful, uniquely experienced student learning that results from various combinations of the elements within those spaces. Just as chemicals do not remain unchanged in the melting pot of alchemy, so too the learners (plus supervisors and patients) are transformed through the interactions of the clinical practice-education engagement space.

The professional development crucible of clinical education/practice, with its human active, reagent and specific situation elements, has strong and unique characteristics as a transformation environment. As described above this crucible contains individual–relational, momentary–emerging and fluid–grounded transformative spaces that promote the interaction of students, teachers and their environment. This interaction critically shapes and challenges the development of students’ professional practice capabilities.

7.3.2 Learning in the crucible

Clinical learning has been examined throughout this chapter in light of the capabilities required for ethical professional practice. Capability, understood broadly as abilities, personal qualities (such as integrity, empathy and ethical courage), judgement and potential to act beyond competence, is essential to the development of professional practitioners ready to act ethically in uncertain, unfamiliar and dynamic contexts.

The metaphor of a crucible represents clinical learning spaces where concentrated forces interact to influence the development of people (in this case physiotherapy students). Therefore the professional development
**crucible model** (Figure 7.2) depicts unique learning spaces for learners; these spaces are represented as a crucible formed by the confluence of workplace influences, clinical supervisors’ intentions and actions, physiotherapy students’ dispositions and experiences and engagement in professional practice.

In the model, no single force is privileged (which is reflected in the round shape of the crucible – like a round table where equal players sit), as in this research none was demonstrated to be of greater significance than another. It is the fluid and interdependent way in which these forces interact that forms clinical learning spaces. These spaces are not rigid or fixed; they are in fact constantly forming and re-forming as individual students engage with composite clinical workplaces.

My research identified that professional practice capabilities encompass a broad range of abilities and qualities. The range of abilities and qualities identified as being developed in clinical education contexts (the crucible reaction products) are represented in Figure 7.2 (a representation of elements in the crucible viewed from above) by the ovals within the crucible. Professional practice abilities including technical and cognitive skills are represented by green ovals; qualities are represented by purple ovals. In the centre of the model is professional practice identity, which is formed through a coalescence of these abilities and qualities. Thus the degree to which each practice ability and quality is developed within clinical learning spaces and the manner in which they coalesce will determine the holistic development of professional practitioner identity.

In Figure 7.3 the **professional development crucible model** is viewed in cross-section to examine more closely the fluid and interdependent nature of the crucible space and how it influences the development of professional capabilities. The four separate colours (arcs) in the crucible rim (half circle) reflect the four key dimensions of the crucible (learning space) environment. Within the crucible, the professional development dimensions or emerging capabilities are the ovals whose multicolours reflect the interdependent relationship between the crucible dimensions (with each dimension shaded a different colour) and professional capability.

In the mixed elements the colours are merged. For example, clinical reasoning is shaded magenta, red and orange because its development is significantly shaped by students’ engagement in professional practice (active responsibility for patient interventions), student dispositions and
experiences (cognitive skills) and clinical supervisors’ intentions and actions (feedback).

This cross-sectional view also allows consideration of the forces (see arrows in Figure 7.3) that shape the crucible space and the manner in which these forces interact to influence the development of professional capabilities. In this model, the fluidity of the professional development crucible is emphasised by the multiple forces that converge to form the crucible. The manner in which these forces influence crucible formation varies along a dynamic continuum. These forces may vary from having minimal or no influence to having a significant influence on crucible formation from individual to individual and from moment to moment. For example, students’ confidence level can be strongly influenced by their innate confidence level, prolonged periods of surveillance, active engagement with workplace activities and the quality of prior patient interactions, and it is therefore a dynamic construct.

The professional development crucible viewed in cross-section opens up pedagogical possibilities that harness powerful contextual clinical workplace influences and capacities/opportunities to shape the holistic development of future physiotherapy graduates. The forces that mould the crucible provide the key to the creation of meaningful clinical learning spaces for physiotherapy students undertaking clinical placements.

As an example, a clinical supervisor may choose to construct an educational environment focused on development of ethical courage for a particular student. From the model it can be seen that the development of ethical courage is affected by workplace influences and student dispositions. Thus, the clinical supervisor may choose to examine the hierarchies and fast-paced nature of the clinical workplace in order to use these dimensions to construct a positive learning environment that nurtures a student’s ability to develop ethical courage. Hence the professional development crucible model underpins the construction of student-centred, innovative clinical learning spaces designed to assist a particular student develop a particular capability in a particular workplace at a particular moment in time. It also provides insights and building blocks for clinical educators to draw together in designing their learning strategies. For instance, an educator could consider which ovals (capabilities) are most shaded orange and create a discussion-based activity or reverse role play to engage students in consideration of the way their behaviour in the professional practice space is influenced by their level of
trust in their educators and role models, or their trust and confidence in their own abilities.

This understanding of the possibilities and practices of clinical education in terms of a professional development crucible has added new knowledge in the field of clinical education, particularly in the context of physiotherapy education. The professional development crucible allows simultaneous consideration of the complexity of clinical education contexts, the capabilities that underpin professional practice and the manner in which these capabilities are developed and shaped by clinical contexts.

Understanding how professional practice capabilities are developed within contemporary clinical education contexts is critical to the future development of professional and practice-based education pedagogy and curricula. For example, the understanding that clinical learning is shaped by the context or crucible within which it occurs moves the pedagogical focus from acts of teaching within workplaces to student engagement with and participation in workplace activities. The professional development crucible model provides a firm platform upon which to construct wise clinical education practices in order to develop healthcare professionals capable of responding ethically to 21st century healthcare challenges.

7.4 Conclusion

Through my research, clinical education has been interpreted as a learning space where workplace influences, engagement in professional practices, clinical educators’ intentions and actions and students’ dispositions and experiences interact (to form and be fired in a crucible) to critically shape and challenge the development of students’ professional practice capabilities. These learning spaces have been revealed as multidimensional, fluid, contested and uniquely experienced spaces that powerfully shape students’ clinical learning and development of professional practice capabilities.

My research has further revealed the unique character of the learning that occurs in these clinical learning spaces. Clinical workplaces have been shown to shape student learning to such an extent and in ways so different from academic environments that the development of specific workplace learning pedagogy and curricula is warranted. This research contributes to
such pedagogy by portraying clinical education not as a set of techniques but as a relational, fluid composite learning space wherein learning and therapeutic interactions occur and capabilities are catalysed. Examination of this fluid composite learning space (containing many individual learning and experience spaces) in light of the professional practice capabilities that underpin ethical professional practice has revealed how clinical workplaces can be harnessed and shaped in the development of holistic and student-centred pedagogies. Chapter 8 discusses the implications of these findings for the development of professional and practice-based education pedagogy and curricula capable of developing graduates who can flourish in 21st century healthcare contexts.
Figure 7.2 Professional development crucible model
Figure 7.3 Professional development crucible model viewed in cross section
Chapter 8 Conclusion and implications for practice, education and research

In Chapter 1 I acknowledged the integral contribution of context to all human endeavours and the pivotal influence of context on meaning making. Building on this argument, the aim of this research was to deepen understanding of the manner in which physiotherapy students' professional practice capabilities are developed in a clinical education context.

My overarching research question was: How do physiotherapy students develop (and how are they helped to develop) professional practice capabilities in clinical education contexts?

Five sub-questions were devised to guide the research process.

1. What are professional practice capabilities (in general and specifically in the context of physiotherapy graduates)?
2. What is the context of professional practice and clinical education within which professional practice capabilities evolve?
3. How does learning through professional practice during clinical education promote the development of professional practice capabilities?
4. What factors in clinical education influence physiotherapy students' learning and their development of professional practice capabilities?
5. How could clinical educators and students build on these research findings to enhance their workplace learning and teaching?

The enhanced understanding of clinical education in terms of professional practice capabilities and the manner in which these capabilities are developed in clinical workplaces provided by my research makes a valuable contribution to the practice of clinical education. This is particularly important in the current climate where workplace pressures and increasing student numbers are generating increased demand for effective and sustainable clinical education models.

The research presented in this thesis has added to the understanding of physiotherapy professional practice and clinical education by illuminating key capabilities underpinning professional practice and illustrating how a broad range of workplace factors shape the development of those
capabilities. In this way, this research has revealed possibilities for re-imagining clinical education in ways that more deeply harness the power of workplace experiences and influences to shape the holistic development of students’ professional practice capabilities.

This research pursued an understanding of physiotherapy students’ learning in a clinical education context to allow conclusions to be drawn that would be directly applicable to clinical education practice. The key findings of this research have been established in the preceding chapters, culminating in the presentation of the professional development crucible model. This provides a means for reinterpreting clinical education and constructing context-specific clinical education pedagogies.

The thesis I have developed is that clinical education is a learning space where workplace influences, engagement in professional practices and practice relationships, the intentions and actions of clinical educators, as well as the dispositions and experiences of students, interact (to form a fired crucible) and thereby critically shape the development of students’ professional practice capabilities. Underpinning physiotherapy professional practice is a wide range of professional practice capabilities (including qualities and abilities) that extend beyond notions of competence and embrace the development of professional identity. This broad understanding of professional practice capabilities encompassing abilities and qualities is central to the development of individuals ready to act in ethically uncertain and dynamic human contexts such as health care.

In this final chapter I draw the thesis to a close by critically evaluating the contribution of this research to physiotherapy professional and clinical education practice and to practice-based education more generally. In the preceding chapters I discussed individual and detailed aspects of my research findings and critiqued them against relevant literature. In so doing I have answered research sub-questions 1-4. Given this previous coverage, in this chapter I restrict the discussion to the broader contributions of the research and its potential implications including how clinical educators and students could build on these research findings to enhance their workplace learning and teaching. For completeness I have included a summary of key research findings cross referenced with their appearance in relevant chapters. See Table 8.1 Summary of key research findings pp 297-299. I also present suggestions for future research.


8.1 Summary and critique of this research

8.1.1 Summary of the contribution of the research

This research has added new knowledge in the field of physiotherapy clinical education and has the potential to be more broadly applicable to the practice of workplace learning in a number of medical and allied health professions.

This research identifies professional practice capabilities along with the development of professional identity as the core goal of clinical education, instead of focusing on more traditional, atomistic and limited concepts such as practice competencies or knowledge, skills and attitudes. This process has revealed a wider range of abilities and qualities underpinning physiotherapy professional practice than has previously been considered. This understanding of capability extends beyond notions of competence and acknowledges that professional practitioners are required to be ready and able to challenge current practices, to act ethically in uncertain and dynamic contexts and to have the courage to change both themselves and the world for the better. On the basis of this research I have identified a broad range of capabilities, including individual qualities such as ethical conviction, as requisite to physiotherapy practice but missing from the current Australian Standards for Physiotherapy and from widely used clinical assessment tools such as the Assessment of Physiotherapy Practice instrument.

Prior to this research, the development of physiotherapy students’ professional practice capabilities in clinical workplaces had been explored to a limited extent. Previous research focused primarily on student-clinical supervisor relationships, with few studies investigating broader contextual influences on physiotherapy students’ learning. The understanding developed through my research that clinical learning is shaped by the context or crucible within which it occurs moves the pedagogical focus from acts of teaching (for students) within workplaces to student engagement with and participation in workplace activities. My research has added a broader understanding of clinical workplaces as practice-learning contexts, particularly as they relate to the development of a wide range of professional practice capabilities.

An important contribution of this research has been to place physiotherapy professional practice in the wider context of contemporary professional practice literature, illuminating a broader perspective than might have been
gained by considering physiotherapy professional practice in isolation. Through reflective engagement with professional practice literature I came to understand more deeply the complex, embedded and embodied nature of professional practice along with the many and varied capabilities underpinning that practice.

In the physiotherapy clinical education literature, holistic exploration of clinical workplaces as educational contexts has received little attention. Through a fine-grained examination of clinical workplaces as education contexts, this research has contributed a rich and deep understanding of a multiplicity of fluid and complex learning spaces, both within and beyond clinical workplaces. This nuanced understanding of clinical learning spaces offers a rich platform on which wise clinical education practices can be constructed. Clinical learning spaces formed at the confluences of individual dimensions of clinical workplaces and individual students’ dispositions were found to be complex, fluid, relational and uniquely experienced spaces that sparked powerful and meaningful learning for students. These clinical learning spaces were constantly forming and re-forming through students’ repeated encounters with clinical workplaces. From this complexity, clinical education has been identified as a composite learning space containing many individual-relational, momentary-emerging and fluid-grounded learning spaces. The character of learning that occurred in these spaces was unique and at times unexpected. This enhanced understanding of clinical education in terms of unique and fluid clinical learning spaces emphasises the need to develop pedagogies and curricula designed specifically to enhance students’ learning in these composite and often challenging contexts.

My research has demonstrated a high degree of resonance between situated (Lave & Wenger, 1991) and workplace learning theories (Billett, 2004, 2008a; Boud & Middleton, 2003; Eraut, 2004) and contemporary physiotherapy clinical education practice. Situated and workplace learning theories highlight participation and interaction as key features contributing to successful development of practice capabilities in workplaces. Therefore, the manner in which learners are enabled and elect to engage with workplace learning opportunities becomes key to understanding workplace learning.

In my research I found that practice experiences, including student participation and interaction with a wide range of healthcare professionals and the students’ reflection on those experiences, were central to clinical
Table 8.1 Summary of key research findings.

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<tr>
<th>Research Finding</th>
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<tr>
<td><strong>Professional practice</strong></td>
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| Professional practice has been identified as a dynamic, complex and experiential phenomenon that is embedded in practice contexts, embodied in and transformed through individual performances, and grounded around the ethical aim of doing good for others. | 3.2.2 Practices formed and enacted within traditions pp74-77.  
3.2.3 The dynamic and transformative nature of practice pp77-78.  
3.3.2 Professional practice knowledge and the tacit and embodied nature of professional practice pp81-84.  
3.3.3 Moral dimensions of professional practice pp84-86.  
3.3.5 Professional practice as socially constituted practice pp89-91.  
3.3.6 Professional practices framed by context pp90-92.  
3.3.7 The transformative character of professional practice pp92-93.  
4.4.1 Physical conditions shape learning pp125-127.  
4.2.1 Making the invisible visible: Learning tacit dimensions of professional practice pp107-110.  
4.4.2 Relationships, acceptance and guidance influence learning pp127-130.  
4.4.3 Dynamic and fluid nature of workplace contexts pp130-131.  
4.4.4 Workplaces as contested and negotiated terrains pp131-133. |
| **Professional practice capabilities** | |
| Central to professional practice is the holistic development of a professional identity that coalesces a broad set of professional practice capabilities. Thus central to enactment of professional practice are individual practitioner abilities (such as technical, cognitive and critical self-appraisal skills) individual practitioner qualities (such as integrity, empathy, respect and work ethic) along with contextual influences (such as resourcing, organizational development and practice epistemology). A competency focus within the current Australian Standards for Physiotherapy and the Assessment of Physiotherapy Practice Instrument (APP) has been identified. The Standards and APP would both benefit from the inclusion of a broader range of capabilities to better prepare physiotherapists to meet the demands of 21st century society. | 3.3.3 Moral dimensions of professional practice pp84-86.  
3.3.4 Reflective and critical dimensions of professional practice pp86-88.  
3.3.6 Professional practice framed by context p91.  
3.3.8 Illuminating professional practice capabilities pp93-96.  
4.2.2 Developing professional knowledge through reflection pp110-112.  
7.1.1 Capability as an important concept pp244-250.  
7.1.2 The importance of capability as a larger whole – the emerging practitioner pp250-251.  
3.4.2 Graduate competencies viewed with a professional practice capability lens pp99-101.  
3.4.3 Contemporary clinical education practice pp101-103. |
<table>
<thead>
<tr>
<th>Research Finding</th>
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<tr>
<td><strong>Clinical learning spaces</strong></td>
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| Clinical learning spaces, formed at the intersections of dimensions of clinical workplaces and individual students’ dispositions and experiences, were found to be fluid, relational and uniquely experienced spaces that powerfully shaped student learning. | 6.1.1 Patient encounters represent new realities pp192-195.  
6.1.2 Student involvement shapes clinical learning spaces pp195-197.  
6.1.3 Student status within the workplace shaped clinical learning spaces pp 197-199.  
6.1.4 Students’ unique experience of clinical learning spaces pp199-203.  
6.2.1 Student confidence shapes clinical learning pp204-207.  
6.2.2 Wellbeing shapes engagement with clinical learning opportunities pp207-210.  
6.2.3 Accommodation shapes student wellbeing  
6.2.4 Spaces to nurture wellbeing pp 216-220.  
6.3.1 Trust is integral to student engagement in professional practices pp 221-223.  
6.3.2 Supervisory relationships shaped by supervisor characteristics pp223-226.  
6.3.3 Student disposition shapes supervisory relationships pp226-229.  |
| Clinical learning spaces are composite spaces incorporating many individual-relational, momentary-emerging and fluid-grounded spaces. | 7.2 Understanding clinical learning space(s) pp251-255.  
7.2.1 Fluid properties of clinical learning spaces pp257-260.  
7.2.2 The relational nature of clinical learning spaces pp260-263.  
7.2.3 Clinical learning spaces: uniquely experienced pp264-268.  
7.2.7 Student disposition powerfully influences learning pp278-280.  |
| Clinical learning spaces form and can be actively created beyond clinical workplaces and include less typical spaces such as cars, cafes and student accommodation. | 5.3.1 Situational dimensions pp151 – 157.  
5.3.2 Direct relationship dimensions pp157-166.  
5.3.3 Workplace culture dimension pp166-170.  
7.2.4 Clinical workplaces as composite spaces pp268-271.  
5.3.4 Dynamic and unpredictable nature of clinical workplaces pp174-177.  |
| **Clinical Education** |  |
| Student participation in practice activities is critical to successful development of practice capabilities in workplaces. Therefore the manner in which learners are enabled and elect to engage with workplace learning opportunities becomes key to understanding clinical education. | 3.3.2 Professional practice knowledge and the tacit and embodied nature of professional practice pp81-84.  
3.3.5 Professional practice as a socially constituted practice pp89-90.  
4.2.2 Developing professional knowledge through reflection pp110-112. |
As an example the relational nature of clinical learning spaces highlights the importance of the development of relationships with both junior and senior physiotherapists in the provision of holistic clinical education experiences.

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<th>Research Finding</th>
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| Clinical education is a learning space where workplace influences, engagement in professional practices and practice relationships, the intentions and actions of clinical educators, as well as the dispositions and experiences of students, interact (to form a fired crucible) and thereby critically shape the development of students' professional practice capabilities. | 7.3.1 Introducing clinical learning spaces as crucibles for professional capability development pp286.  
7.3.2 Learning in the crucible pp286-289. |

These findings emphasise the value of developing models of clinical education that utilise the contribution of a broader range of people within clinical workplaces (e.g. other health professionals, ancillary staff, patients and other students) to student learning. The contemporary physiotherapy clinical education literature remains largely silent on the manner in which interdependent relationships between students’ and clinical workplaces shape students’ clinical learning. This relative silence on a key aspect of workplace learning highlights the significant contribution of my research to contemporary understanding of clinical education and the formation of new student-centred clinical education models with multiple workplace relationships.

My research also highlighted photo-elicitation as a powerful research strategy that enhanced the richness of my exploration of professional practice and development of professional practice capabilities. Photo-elicitation was an effective medium through which to engage participants in collaborative, empowering and enjoyable research. The use of photo-elicitation strategies expanded and enriched text construction by providing...
student participants with the opportunity to represent factors important to them, that they felt influenced their clinical learning. The students embraced this opportunity, providing many photographs that represented factors both within and beyond the workplace, such as photographs of horses, piers, and cars. This range of photographs demonstrated how photo-elicitation strategies could provide participants with freedom from temporal and physical constraints, allowing them to represent and discuss matters meaningful to them. The use of photographs in this research also improved participants’ memories of their lived experiences and stimulated rich dialogue throughout the photo-elicitation interviews. Visual research strategies have thus been identified as an effective means to develop deep and meaningful understandings of professional practice and development of professional practice capabilities in practice contexts, as well as providing an enjoyable and rewarding experience for research participants.

The photo-elicitation interviews provided a rich opportunity for the student participants to reflect on their placement experiences and to develop new understandings of the learning they had undertaken. Students’ heightened memories of their experiences, combined with an opportunity to discuss these experiences, enhanced their reflective abilities and led to the construction of new understandings of their experiences and learning. Importantly, given the widespread acknowledgement of the centrality of reflection in the construction of professional knowledge, the students in this research enjoyed the opportunity to reflect which the photo-elicitation interviews provided. At the conclusion of each photo-elicitation interview all participants thanked me for the opportunity to reflect on their learning while undertaking clinical placements. Each student had developed a more explicit understanding of contextual influences on their learning as well as strategies to facilitate their learning on future clinical placements. This finding has important implications for the use of visual media in the future development of professional and practice-based education curricula designed to nurture students’ reflective thinking capabilities. For example, clinical educators could be encouraged to increase the number of opportunities for reflection as well as to use visual media to facilitate students’ reflection during clinical placements.

8.1.2 Critique of the research approach
In conducting this research I chose to use an interpretive research approach, with philosophical hermeneutics guiding all phases of the research. As discussed in Chapter 2, I made this choice because my research aim was to deepen my understanding of the phenomenon based
on interpretations and perceptions. The approach proved to be potent and very suitable to the goals and tasks of the study and a powerful means of expanding my knowledge through a fusion of my horizons with those of my literature and empirical text authors.

This choice of approach has implications for assessing the contribution of these findings to the broader understanding of the development of professional practice capabilities in workplaces.

An emphasis in qualitative research is to present the findings in such a way as to enable readers to gauge the transferability of the findings to their situation; to do so they need to be able to understand the context of the research, judge its quality, and make decisions about the relevance and usefulness of the research in application to their situations. In Chapter 2 I provided a rich description of the enactment of the research, allowing readers to see how the research was carried out and how my understandings were developed. The findings in this thesis represent my interpretation of clinical education informed by my engagements with the clinical supervisor and physiotherapy student participants in this study. In the discussion that follows I consider factors influencing the potential for transferability of the findings and develop the argument that this research has meaning beyond the situation and participants of this study.

The research was conducted in Australia with students attached to one university, Charles Sturt University. The texts constructed in this research were derived from the experiences of 12 physiotherapy clinical supervisors working across three sites of a large metropolitan health service and 24 physiotherapy students in their 2nd, 3rd and 4th years of study. Although the observation part of the research was undertaken at one large metropolitan health service, the participant interviews were informed by a broader range of clinical education experiences. The clinical supervisors discussed past supervisory experiences associated with a range of universities and in a range of health settings, including small rural and regional health services, large metropolitan acute health services and international settings (mainly in the United Kingdom). Similarly, many of the student participants discussed clinical education experiences at a range of healthcare settings including remote, rural, regional and metropolitan settings. Within this range of geographical and institutional contexts, the participants had also experienced clinical education across a wide range of physiotherapy specialist areas including orthopaedics (inpatients and outpatients), neurological rehabilitation, emergency department, medical and surgical
wards, acute cardiopulmonary, intensive care and palliative care. Thus my reflection on the texts that were constructed and interpreted was that these texts provided examples of clinical education practice that was typical of the broader practice of clinical education in Australia, and could be seen by others as transferable to other clinical education practitioners and settings. I made this assessment based on a number of factors. First, the wide range of practice settings and experiences of the research participants represented broad clinical education practice in Australia. Second, the highly regulated nature of physiotherapy professional practice and physiotherapy education through Australian practice and education accreditation and standards systems (described in Chapter 1) means that these findings are relevant to the broad practice of clinical education both within Australia and in a broader global context. Third, the participants’ practice in this study was comparable with my own experience of clinical education in other settings, including my practice as a clinical supervisor and more recently my experience facilitating inter-professional clinical supervision workshops as part of my current academic workload.

**Credibility of the findings**

This research offers a credible contribution to the knowledge of clinical education, substantiated by the detailed description in Chapter 2 of the strategies (in particular the congruence between research paradigm, aims, questions and design, the exploration of the various perspectives of the key participants in clinical education, the use of several text construction strategies, and debriefing and critique by my peers and supervisors) used to ensure the rigour of the research. A key aspect of ensuring research credibility was the adoption of philosophical hermeneutics as a guiding, reflexive strategy. I have described how I used a reflexive approach to the construction and interpretation of texts in order to ensure that the findings credibly portrayed the participants’ views. This aspect of the credibility of the research was further established in Chapters 5-7 with extensive use of quotes, photographs and examples to ground the findings in the participants’ experiences and to illustrate the texts from which my interpretations were made.

The use of philosophical hermeneutics in this research facilitated development of a broad vision and deep understanding of how physiotherapy students’ professional practice capabilities are developed in clinical education contexts. This understanding was achieved through a *Verschmelzung*, a fusion or melting of horizons between my horizons and those of people who had experienced clinical education, including theorists.
and the clinical supervisor and physiotherapy student research participants. Throughout the research process my horizon of understanding was further extended through peer debriefing and critique. In particular, presentation of my research findings at several international conferences and publication of a peer-reviewed journal article provided valuable feedback that confirmed my findings and challenged me to reach deeper levels of interpretation. In this way, the credibility of my research was strengthened as discussion with research participants and external critique moved me beyond my entry understanding (developed from my personal and professional experiences) to a broader and deeper understanding of clinical education.

8.2 Implications of this research

My research makes a significant contribution to the understanding of professional practice, the capabilities underpinning professional practice and the manner in which those capabilities are developed in a clinical education context. The potential implications for practice, education and research are extensive, varying from smaller ideas that individuals may reflect upon and implement, through to more comprehensive recommendations for the physiotherapy profession and professional education as a whole. In this chapter I have chosen to focus on key recommendations for physiotherapy practice and education, for practice leaders, practitioners and academics responsible for development and implementation of professional and practice-based education and curricula, for clinicians involved in clinical supervision of students in workplaces and for students themselves.

8.2.1 Implications of a deeper understanding of physiotherapy capabilities for physiotherapy practice and education

This research has contributed significantly to the understanding of professional practice capabilities and the development of those capabilities in clinical education contexts. A broad range of capabilities, including abilities (such as technical and clinical reasoning skills) and qualities (such as empathy and integrity), has been identified as underpinning professional practice. The way that this broad range of practice capabilities are developed and coalesce to inform professional identity and produce professional practitioners capable of flourishing in 21st century contexts has profound implications for professional and practice-based education pedagogy and curricula.
The term *capability* highlights the importance of the creation of individuals ready to act, and, in the case of professional practices, ready to act for the good of others in situations where uncertainty is ever present and humanity is central. Professional practice capabilities extend beyond the skills and adequacy notions of competence and reflect that professional practitioners must be ready and able to challenge current practices, to have the courage and insights to change both themselves and their practice world for the better. Thus a broad range of professional practice capabilities underpins contemporary professional practices (such as physiotherapy). Those capabilities include technical, cognitive and critical self-appraisal abilities alongside dispositions such as embracing the sharing of power, as well as individual qualities such as integrity, respect, courage, self-efficacy, and empathy.

The complexity and richness of professional practice revealed by this research has significant implications for the physiotherapy profession. Professional practice has been identified as a dynamic, complex and experiential phenomenon that is embedded in practice contexts, embodied in and transformed through individual performances and grounded around an ethical aim of doing good for others. A high level of congruence between practice theories in general and physiotherapy practice in particular revealed practice theory as a useful lens through which to view the complexity of physiotherapy as a professional practice and the capabilities that underpin physiotherapy practice in contemporary settings. The viewing of physiotherapy practice with a practice theory lens opens opportunities to move beyond technical rationalist approaches to physiotherapy practice and to embrace the inherent humanness of practice in order to enrich and revise physiotherapy practice for the increasing demands of 21st century healthcare, with its many empowered stakeholders, major resourcing challenges and changing end-user profiles and expectations.

Physiotherapy in Australia has been described as a dynamic and rapidly evolving profession that has progressed from the implementation of a limited range of techniques and modalities under medical supervision to fully autonomous practice in a range of specialist areas (Baxter & Nall, 2009). However, this evolution has occurred mainly within a biomedical model-driven evidence-based arena. The findings of my research support the argument that these historical frameworks have limited the richness of physiotherapy practice through their reliance on evidence-based practice (largely informed by biomedical research evidence) and consequent
emphasis on the development of technical and cognitive skills and knowledge (see e.g. Higgs, Titchen, & Neville 2001; Kinsella & Pitman, 2012; Schön, 1983).

In keeping with the dominance of biomedical evidence and technical abilities, the current Australian Standards for Physiotherapy focus largely on competency. Although the importance of developing safe, efficient and effective entry-level physiotherapists cannot be denied, this focus on technical competence comes at the risk of restricting or ignoring the development of deeper client-focused and reflexive practice qualities, such as integrity, self-efficacy and courage, which facilitate practitioners’ ability to question taken-for-granted traditions in the field and to undertake ethical actions. Failure to acknowledge the critical contribution of practitioner qualities to professional practice performance gives short shrift to the complexity and inherent humanness of professional practices. Silencing of the importance of practitioner qualities also poses a risk to the future evolution of the physiotherapy profession, which may produce practitioners without the ability to contribute to the ongoing growth of the profession through questioning and adapting taken-for-granted practices for contemporary contexts.

Personal qualities such as moral, ethical and critical agency shape the formation and evolution of professional practice and renew and rejuvenate practice for changing times and circumstances (Kemmis & Trede, 2010). To ensure the continued evolution of the physiotherapy profession as a rich and complex profession, therefore, the next iteration of professional standards would benefit from inclusion of a broader range of capabilities (including personal qualities as well as technical and cognitive abilities), to better reflect contemporary understandings of professional practice and to produce physiotherapists capable of meeting societal demands in the 21st century.

Professional practices, understood as complex, dynamic and transformative, are necessarily underpinned by a broad range of capabilities. This range of capabilities encompasses abilities (e.g. cognitive and technical skills) and personal qualities (e.g. ethical courage and integrity). My expansive approach to understanding those capabilities underpinning professional practice has the potential to inform curriculum development in a way that transcends traditional curricula and meets the complex and fluid demands of 21st century professional practice. In order to meet these demands, expansion of the contemporary competence-
focused and skills-focused physiotherapy curricula is required. Academics responsible for professional curriculum development are challenged to rejuvenate contemporary curricula to encompass, besides technical and cognitive skills and abilities, student qualities such as ethical courage, adaptability, confidence, integrity and empathy, to facilitate the development of graduates capable of changing both themselves and the world for the better.

8.2.2 Implications of the crucible model for professional and practice-based education pedagogy and curricula

Clinical workplaces shape student learning to such an extent and in such different ways from academic environments that development of specific practice-based education pedagogy is warranted. Re-imagining of professional and practice-based education pedagogy and curricula is required. These re-imagined pedagogies, underpinned by situated and workplace-learning theories and by the findings from this research, would move the focus away from acts of teaching in order to privilege student engagement with and participation in authentic workplace activities and relationships. These pedagogies would also acknowledge the significant influence of contextual factors on student learning, in particular the manner in which learning is shaped by complex and interdependent interactions between students and workplaces (including people and situations). My professional development crucible model opens up pedagogical possibilities that can harness the richness of authentic contextual workplace influences to best shape the development of authentic and appropriate student capabilities for 21st century healthcare needs.

The nuanced understanding of clinical learning spaces and the learning occurring within these spaces derived from my research has the potential to shape workplace learning in actual workplaces, in spaces both clinical and non-clinical (e.g. schools, industry, commercial spaces), and to inform the construction of authentic and meaningful simulated learning scenarios. Simulated scenarios could be used in professional education programs to supplement authentic clinical placement experiences both as pre-placement preparation and as a means of expanding the range of professional experiences for students. Through exposure to more authentic simulated experiences, students may be better prepared for the reality of clinical placements and therefore be better placed to maximise their learning
throughout placement experiences. The use of well-designed and well-informed simulated workplace learning experiences can provide rich learning opportunities and a means of dealing with practical educational difficulties (such as lack of sufficient workplace placements for increased student numbers, difficulties (e.g. cost, distance) that restrict access to workplaces, and the expanding range of potential workplaces that makes access to this range a practical impossibility for all students inside curriculum hours).

The *professional development crucible model* allows consideration of forces that shape the crucible/learning space and the manner in which these forces interact to influence the development of professional practice capabilities. Thus the model opens up pedagogical possibilities that harness powerful contextual clinical workplace influences and opportunities to shape holistic development of future physiotherapy graduates. Consideration of forces that shape the crucible space and how these forces influence the development of practice capability can underpin the construction of student-centred, innovative clinical learning spaces designed to assist individual students to develop particular capabilities in particular workplaces at particular times.

### 8.2.3 Implications for clinical supervisors

The complex, unique, fluid and relational nature of clinical learning spaces, revealed by this research, has significant implications for clinical supervisors. To enhance workplace learning experiences, clinical supervisors are encouraged to adopt a reflexive stance to both their professional practice (as healthcare professionals) and their education practice as clinical supervisors. Through adoption of a reflexive stance, clinical supervisors will be better able to look beyond competencies to explore a broader range of capabilities that underpin professional practice as well as the manner in which a broad range of contextual factors influence the development of those capabilities. The *professional development crucible model* will guide clinical supervisors on this reflexive journey and facilitate their ability to create innovative, student-centred clinical learning spaces.

The broad range of capabilities underpinning professional practice revealed by this research requires clinical supervisors to look beyond competencies (practice knowledge and technical skills) and seek to develop a wider range of student qualities and abilities that will enable graduates to be effective in an ever-changing world. A reflexive approach to their own
professional practice will allow clinical supervisors to identify qualities and skills that underpin ethical professional practice. Further, the professional development crucible model can be used to identify qualities and abilities that underpin professional practice as well as the manner in which these capabilities are shaped by clinical education contexts. It is useful for supervisors to build in opportunities for students to learn to reflect on and refine their own dispositions and capabilities.

Due to the complex and unique nature of clinical workplaces, clinical supervisors are encouraged in the first instance to examine their workplaces to better understand the influence of these settings on student learning. In Chapter 7 I offered a word cloud as an instrument to guide meaningful examination of work contexts as learning spaces. For example, identification of the invitational qualities of workplaces (how students are included or excluded from workplace activities) provides a firm platform on which to construct wise education practices. Clinical supervisors are encouraged to identify ways to provide access and to ease student pathways to authentic practice activities. For example, supervisors might consider how they assist students to balance relationships formed with other professionals, such as nursing staff, within clinical workplaces. Moreover, just as students undertaking workplace learning are encouraged to facilitate their learning through critical reflection on their emerging practice, clinical supervisors can cultivate exemplary workplace learning environments through critical reflection of their supervisory practice. For example, clinical supervisors can increase their understanding through reflexive consideration of their supervision from the perspective of their students.

In acknowledgement of the significant influence of clinical supervisory relationships on student learning, supervisors are encouraged to examine their own dispositions and the effect they have on student learning. For example, supervisors are encouraged to interrogate their willingness to allow students to undertake independent patient activities. This is particularly salient in clinical education models where student participation in workplace activities is kept at the forefront. Further, as student confidence was demonstrated to be critical to practice performance and this confidence could become fragile and fluid if negatively influenced by prolonged periods of monitoring, clinical supervisors’ disposition towards needing to observe students is particularly important.
Finally, as students uniquely experience clinical learning spaces and the resultant learning is sometimes surprising and unexpected, clinical supervisors are encouraged to provide time to debrief with students following patient encounters. In this way, supervisors can help students to develop reflective practice skills, construct professional practice knowledge and understand more deeply the learning achieved (via the lived curriculum) through these encounters.

Academics responsible for provision of clinical supervision training programs could use the *professional development crucible model* to frame their education sessions. Use of the model in this way would help clinical supervisors to move the pedagogical focus during clinical placements from acts of teaching to student engagement with and participation in workplace activities. In so doing, clinical supervisors would be assisted in the construction of efficient, effective and student-centred clinical learning experiences.

**8.2.4 Implications for students**

A key finding from my research, that clinical learning spaces formed at the intersections of clinical workplaces and students’ dispositions powerfully shape student learning, has significant implications for student preparation for clinical placements. The critical contribution of student disposition to the shaping and re-shaping of clinical learning spaces highlights the central position of students in driving – not just receiving – clinical learning. Student awareness of their central position in clinical education can encourage them to powerfully enhance their clinical learning through the co-construction of truly student-centred learning spaces. Students can use the *professional development crucible model* to explore how what they bring with them to placement and the manner in which they choose to engage in workplace activities influence their clinical learning and consequent professional development. Students could be helped to make the most of clinical learning opportunities through clinical preparation sessions, books and pamphlets using the *professional development crucible model* as a platform on which to construct wise clinical education practice.

Students should be helped to understand the significant influence of their dispositions on the provision of clinical learning experiences such as conducting independent patient activities. Student confidence and level of interest shown in particular clinical areas were two aspects of student disposition that were found to be critical to the determination of student access to clinical learning opportunities. Thus students should be
encouraged to consider that how they are perceived by others influences the richness of the clinical placement experiences they are offered. This research revealed that active participation in authentic workplace activities was key to clinical learning. The professional development crucible model can be used by academics in university clinical preparation sessions (prior to students undertaking clinical placements) to help students understand the important contribution of their dispositions and actions to the construction of positive clinical learning spaces.

This research also revealed an important contribution of relationships to the development of effective clinical learning spaces. Relationships formed with a wide range of people within and beyond clinical workplaces were found to significantly influence students’ clinical learning. Within clinical workplaces this wide range of people included clinical supervisors, other physiotherapists, nursing staff, doctors, allied health professionals and ancillary staff. Beyond clinical workplaces, relationships with other students, friends and relations also contributed significantly to student learning. Given this central contribution of relationships to students’ clinical learning, discussion of the relational dimensions of clinical placements during clinical preparation sessions can facilitate the development of effective clinical education experiences.

An important finding of this research was the significant way that students’ wellbeing influenced their participation in authentic workplace activities. Given the challenging nature of clinical placements on the one hand, and students’ vulnerability to poor physical and mental health during placement experiences on the other, students are encouraged to prioritise their health and wellbeing during clinical placements. Maintaining normal routines, making time for social activities, and engaging in physically active pursuits beyond the workplace are three ways in which students may enhance their wellbeing. Further, students who are experiencing poor physical or mental health should be actively discouraged from continuing their placement regardless of the impact of this ill health.

In order to harness the full potential of clinical placements, students should be made aware of and prepared for the significantly different mode of learning undertaken during clinical placements. Students should be encouraged to explore their innate learning practices during clinical placements, such as where and when they spontaneously reflect, and to purposefully nurture positive learning experiences and in so doing create effective, student-centred, clinical learning spaces. The professional
Development crucible model can be used by university academics during clinical education preparation sessions to help students understand their central role in the construction of effective clinical learning spaces throughout placement experiences.

8.3 Directions for future research

It was my intention in this research to explore strategies for the development of physiotherapy students’ professional practice capabilities in a clinical education context. The scope of the research was limited to clinical education experiences of undergraduate physiotherapy students from one regional university, mainly in hospital settings; a focus for further research therefore would be to conduct comparative studies of clinical education experiences of students from different universities, including graduate entry programs and across a broader range of practice settings including paediatric and community health settings. In my postdoctoral research I aim to explore the relevance and credibility of my professional development crucible model for other users, curricula and practice settings.

Within clinical education a number of research areas could be pursued for deeper understanding. Some examples include:

• Understanding in greater depth the formation of workplace relationships between a broad range of individuals within clinical workplaces and students.

• Exploring the level of new graduates’ ability to challenge and influence (as appropriate, with respect and constructive insight) taken-for-granted traditions in the field.

• Seeking a deeper understanding of how photo-elicitation techniques enhance students’ (and practitioners’) reflective practice capabilities.

• Understanding in greater depth areas of dissonance and harmony between generational qualities of current physiotherapy students and qualities required for ethical professional practice.

• Exploring contemporary practice-based education curricula for evidence of development of individual qualities that underpin contemporary physiotherapy practice.

• Examining options and strategies based on the research findings and model for enriching the rest of the curriculum (e.g. preparation for placements, debriefing after placements, simulated workplace learning).
Regardless of the direction of future research, a clear implication arising from this study concerns the centrality of context to clinical education. Attempting to remove context from research design would result in an impoverished understanding of the real nature of clinical education. The findings of this research also strongly suggest that attempts to understand clinical education require a perspective where different models of clinical education are possible, rather than the pursuit of a single, universal, gold-standard model of clinical education.

8.4 Conclusion and final reflection

As I commenced this research I did not question my understanding of physiotherapy as a professional practice. After all, I had worked as a physiotherapist for 25 years and had embarked on an academic career grounded in the education of physiotherapy and allied health students. As a result of these experiences I believed that I had an authentic and well-formed understanding of physiotherapy practice. I had a well-developed professional identity as a physiotherapist and physiotherapy academic.

My research journey led me to develop a deeper understanding of professional practice (including physiotherapy) and the capabilities underpinning professional practice. This new understanding of the scope of physiotherapy professional practice and practice capabilities was both a surprise and a delight. I am excited by the possibilities this new understanding has created to enrich and rejuvenate contemporary physiotherapy practice.

I also began this research with what I regarded as well-formed views about the influence of contextual factors within clinical workplaces on physiotherapy students’ clinical learning while undertaking clinical placements, while recognising the need to remain open to new insights arising from this research. I believed that clinical environments could enhance student learning, and that a welcoming environment (including seemingly little things like the provision of a student desk, coffee cup and an invitation to join allied health staff for morning tea and lunch breaks, and the larger matter of actually being valued) was critical to the creation of positive learning experiences. These views had been formed by my experiences as a clinical supervisor and academic clinical co-ordinator and through provision of clinical supervisor workshops. At the conclusion of this research, these views seem simplistic, as they did not acknowledge the multiplicity of complex and fluid learning spaces that form within and beyond workplaces or the manner in which these spaces shape student
learning. Through my research I practised the challenging of (my) taken-for-granted horizons that is inherent to philosophical hermeneutics and to the type of professional practice that I am advocating here as a goal for clinical education.

At many times in the writing of this thesis my understanding of clinical education seemed so complex, fluid and inter-dependent that it seemed resistant to being captured in print. Having now completed this thesis I appreciate the coherent and natural representation of clinical education that has emerged. Given the complex, fluid and inter-dependent nature of clinical education identified, I remain in awe of the capacity and resilience of physiotherapy students and physiotherapy clinical supervisors who successfully navigate these challenging and demanding spaces.

I end this thesis with a quote from educational theorist John Dewey. I do this for four reasons. Firstly, many contemporary theories of workplace learning and consequently clinical education are underpinned by Dewey’s writings, many of which are as relevant today as when they were written in the early 20th century. Secondly, Dewey’s reminder of broader aspirations of education (the holistic development of individuals) resonates harmoniously with the vision and mission of contemporary universities. Thirdly, the need to sustain both professional communities and society more generally through the holistic development of novice practitioners is pertinent to practice-based education. Finally, I find this quote inspirational in that it highlights the significance of the combined efforts of clinical supervisors, academics and students involved in practice-based education.

A community or social group sustains itself through continuous self-renewal, and this renewal takes place by means of the educational growth of the immature members of the group. By various agencies, unintentional and designed, a society transforms uninitiated and seemingly alien beings into robust trustees of its own resources and ideals. Education is thus a fostering, a nurturing, a cultivating process.

John Dewey (1916,p. 12)
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Appendices

Appendix 2.1 Reflective journey through personal and professional experiences

my understanding / experience of professional socialization.

I decided in year 9 that I wanted to be a physiotherapist (1995) because I wanted to ‘help people’. I experienced voluntary work at St Margaret’s Women’s Hospital Sydney. Working in children’s ward, feeding children, changing nappies and playing with children. I saw physiotherapists working with the children and decided this is what I wanted to do. I knew I wanted a medical career and felt my academic ability suited physio. I felt nurses would be impossible to achieve and nursing was too easy and physio was “just right”. The medical degree would take 6 years to complete and I felt this would interfere with my plans to marry and have a family. A three year undergraduate degree (completed at age 25) gave me time to work and then start a family.
class Catholic family in the south western suburbs of Sydney. I attended Catholic schools from Kindergarten to Year 10 during an era of clerical domination. Most of my schooling during this time was delivered by nuns (St Joseph's) with a prevailing culture of social responsibility, helping less fortunate people and vocations. Therefore, the physiotherapy profession offered a viable vocational pathway that sat well with my Catholic charism.

During my schooling I had a natural affinity for science subjects and greatly enjoyed the humanities. I read my books with joy and to be working with people, my parents were extremely proud when I achieved a place at college. I would be the first person in our family to attend university. Therefore I entered the physio course 'Harmonious Road to' (Becker & Gro 1981).
First experience the joy of making patients’ patients’ patients’ return. It was returning to P. CE responded by asking for ‘What had they done to their p?’ and the patient had cleared out unneeded. Enjoyed this first placement. Emphasis on treatment, evaluation & progression. I enjoyed the interaction with people and received many small tokens of gratitude e.g. flowers, soaps, chocolates. Feedback from CE indicated that I clearly lacked life experience and confidence which would improve with time.

Environment at this time was very structured with all Acute Medical winging a uniform of culottes with each discipline wearing a different colour. Large physiotherapy department, however as six students the students tended to keep to themselves.

2nd Concord Repatriation hospital orthopaedic ward.
Placed to several students (can’t clearly recall the number).
Structures as he was setting. During this placement I learned more about physiotherapy acute orthopaedic care and the medical hierarchy within the hospital.

Cardiopulmonary at Concord. Returned to Concord to a degree of familiarity. CE ran organised tutorials usually prior to lunch when we went over topics of her discretion. We were usually informed of tutorial topic prior to whole preparation as CE grilled students and highly valued a social aspect of background knowledge in the students. Again took responsibility for a patient load of predominantly chronic COPD and emphysema and bronchitis. The patients presented almost as case book cases. Again I was impressed by their obvious attitude and latent disregard to the rules. Most of them had smoked 20-100 cigs/day for up to 60 years and had 30% intention.
of grieving. Even when waiting surgery there were breaks
to the bathroom or outside to
have a beared cigarette or two.
One man during my placement
was caught by the vascular
surgeon who promptly discharged
him refusing to operate.
The same surgeon roughly told
a cigarette next to a patient’s
leg and demanded they make
a choice. Throly displaying
zero empathy or understanding
of the addictive nature of
smoking.
On this placement I also experienced
four of six. We rotated
experiences in the intensive care
unit each morning. I was the
fetal rotation and watched
with increasing frustration
Confidently knew a return
return from ICU during for
lunch and hearing stories of
or treatment by the ICU
physiotherapist.
When my turn arrived I entered
ICU—a very daunting environment
prepared for the worst—waiting.
socialisation occurred while on placement and I was influenced by different physiotherapist role models. Some I aspired to emulate and some I swore I would never be like!

1982 Intern Year: St Vincent's Darlinghurst
Large staff = 30 physio, 11 interns.
Large communal staff room.
Chief physio - strict, practice - office = not approachable.
We all wore white uniforms and addressed the chief as Mr/Is.

Rotated through all wards.
Orthopaedic Ward: Grand Rounds
2 am & Orthopaedic specialists.
Bastard disregard for patients as people. Spoke about them not to them. Gave instructions for the next stage of care.
A lot of RA was very prescriptive following protocols.
Our patient senior physio was efficient and had good manual skills. Unit was dismissive and often rude to patients.
1983-4 Private physiotherapy practice. 


1992 Established my own Private Physiotherapy Practice. 

Valued relationships with patients and with local general practitioners. Also valued ongoing professional development. 

Member of the APA since graduation and regularly attend professional development activities. I had internalisation from my undergraduate socialisation a high value on solid theoretical understandings from OCS and the need to change in knowledge and therefore the need for lifelong learning.
1983-4 Private physiotherapy practice.
A strong desire for autonomy.
Orthopaedic surgeons rarely prescribed treatment.
Possibly dismissive of thoughts of physiotherapists.
Very unsympathetic. Principles of the practice: unprofessional -
Keep no records, often left patients.
Plant and alternate healing therapies.

1982 established my own Private Physiotherapy Practice.
Valued relationships with patients and local general practitioners.
Also valued ongoing professional development during the APA years. Graduation and
regularly attended professional development activities. I had
internalised from my undergraduate specialization a high value of
solid theoretical underpinnings,
from CSE and the rapid rate
of change in knowledge and
therefore the need for lifelong learning.
The changed focus with the move to accommodate my children changed schools to attend schools with a very strong history, vesture underpinned by many values, one of which was social justice.

This is bundled in my a sense of vocation, hence I felt it was important to continue working on People Health to provide quality physiotherapy care to people in those socioeconomic groups and although this often meant encountering very challenging behaviours it reinforced my sense of vocation in the physiotherapy profession. The social justice lens also facilitated my acceptance of health promotion as it is underpinned by principles of social justice, equity and access for all.
Appendix 2.2 Excerpt of research journal
experiences in the field

First observation session

Went up to the hospital,
reminding myself to be a
camera and allow student to be
the teacher.

Beautiful sunny day.
Went into the front entrance
of the hospital and noticed
triage on the wall.

First turn,
'Coming Hospital on the Bay'.
Pictures of the bay, seahorse,
surfing, etc. theatre
at noon, looking out over the
bay. Nurse i used hair

Very interesting views of high
technology medicine and lifestyle.
mixed through random donors,
glass doors and was occurring
vendor machines in surroundings.
when a medical person asked
if I required any assistance!
Rather than offer a detailed explanation, I assumed it was one of those perplexing events towards my Mesothelioma department. It was a difficult decision, but looking back, it was one of the most interesting. I went down to the physical therapy department to find some students in a placement and asked if they could offer assistance. I introduced myself and took me to the tea room and offered tea or coffee while I waited for. So I sat down and started drawing a map of the tea room. A few minutes after, we discussed what is involved in the research and set out to the lab straight up to the wards.
I quickly wrote on all of my printed pages. Attended a team meeting. Needed introduction or explanation — I left this to the team supervisor or mentor. I should have discussed this aspect with... and encouraged her to encourage me or I would have understood myself. Interesting I feel most worthwhile occurring in the physiotherapy gymnasium. Revise it with patients. Team meeting. I feel restricted in the nursing station. I feel confused and in the way. When the nurse asked me who I was and what I was doing I realized I had given and really should have explained my presence. Supervisor apologized.
and explained. I introduced myself by name and explained my research.

I will always ensure this happens in future.

I felt responsible for the error compounded by the fact staff were concerned they were being monitored as had experienced many times recently.

This was my responsibility and I should have had this case covered. Part of the reason this happened is my personality "go with the flow". Lack of confidence in this environment told me back in taking the lead in providing introductions.

But this is my responsibility and I will do it right next time.

Back downstairs at lunchtime and...
needs to start moving - so I
deide to take advantage of the
opportunity to have a break
escape the hospital
environment. Into the fresh air
I decided to walk back to
the motel for a quick coffee
when I walked into my motel
room it felt like a memory
this feeling highlights how
irrational I was feeling compared
to the situation.

Some of the stress is my drive
to want to do a good research
job in a certain environment
I feel I don't know what
some disappointment with
myself for not introducing
myself.

After a quick coffee (and a
wet and a wetter look for my
hand) I returned to start
meeting with, count 3x.
and interview with.
The afternoon seemed to go well.

we went straight from observation to interview which didn't give me enough time to prepare and get my thoughts out. I knew was something and was on a limited time frame.

Case the original course + working + change -
consider she will be able to use the camera.

offered to encourage other student towards a
asked about friends - told me she remembered friends.
After I left I went into town and bought assorted groceries.
Sometimes through
somewhere - fast moving
water (stream in general)
river system / streams
contact by questioning by
on the ground / river
providing a less rapid to
navigate the rapids

Transmit a quickly standing
water - Question of the Year

Cherry Water Candle Smoke
- 2 writing pads in booklet
Remedies / Medicinal Compress
Hanging Garden

[Handwritten text partially obscured]
Students also admire teams.

Storms are unimpressive.

Warmer teams often win treatments. A research team. A group of ten.

Working more closely. The team raising.

Discuss it.

Stay left from unresearch. (Friday 4 pm)

Interesting to see how your students feel that they would take on one more thing while they can or should. A university. A forum.

This is interesting to include in your presentation or seminar.
Appendix 2.3 Observation field notes

Participant 3
Monday 14th December
Student Observation

8:40 Woke up to word (3 flights of stairs)
Not supervisor waking up again this morning.
5 To 6 Waiting for Supervisor.
Discussed reference to supervisor.

Nursing Station
Selected notes

Setting, quantity, reading rates, very quiet room.
2 other people in room at same time.
Attention spans, our rig being.

Christmas decorations around the ward.
Baubles, tinsel, Christmas tree.
8:55. One person with cane
walks - filling notes.
Called, who wheeled
his chair near to where
sitting to clarify what
was written in the notes.

8:56. "Wheeler back to
his position at the end of
the table and continues to
write notes.

This room very quiet - 9
people - no conversation.

8:58. "Returns notes to
nurses station and return to
room.

2 people in nurses station.

Return to N.S. joined
by supervisor.

9:00. 4 & 5 return, to start
room and log cards for
checking off results.

Looking at chest x-rays
Room empty.

9:03. Another person returns.

Discusses a vag.? 

9:04. First patient: Headed
direction to room. S flushed
up equipment from previous
unintroduced. On scale.
Pt on hospital PJs.

Neighbouring Pt very
rattly cough/breathing.
At 6:30am, 8 staffed in for a morning. I'm resting on my stool.

Ray Beach wing. Cleaning today.

View from window. Room turks.
9:15am: Returned to room.
8 staffed. Seat in chair the way. Can now get up with nurses.
5. Prompt, what to do now. Check sets.
Nurse making bed. Wasted hands outside ward. Discussed findings.
6. Supervisor looking to notes.
8.15am: Nurse at nurses station.
9:15am: Nurse in ward next door.

5. Writing notes.

5. People in room.

Ray, proving sexy.

Someone came in to talk to

3. Friendly conversation.

"She know something. You know what woman opposite?"

Sitting up (forward in bed) looked at wound on right.
Nothing on her top. White towelling over her chest.

5. Wasted hands.

5. Wasted hands. Someone checked it.

5. Writing notes. He heard.
9:22 I walked down corridor to speak to S.  
Short conversation in corridor.

S: Doesn’t C Nurses Station waiting on and not of staff.  
9:22 saw S, has a very light conversation.  
Constant buzz of conversation coming from Nurses Station.  
Continues to write notes.

locked her on the wall.

Dear blue light/ light blue your good nickname.

or speaking to nurse in nurse station.

This room has 2 wall lights above the desk and light above the desk is clearly converted.

9:30
S sat at desk. She was checking if she was going to use computer. She says when seeing fit x.

Now can I come & you/ 1 would love you to look at notes together.

9:32 checked notes?  
Returned notes to N.S.
Appendix 2.4 Interview critique

Based on who the person you are dealing with is.

Interactions to other staff members - learn from discussions with other staff members.

- How they work? Think.

Who:
- Doctors
- Nurses
- OT
- Social worker
- Care co-ordinator

Team meetings.

Individual experience and competence will affect how they approach stats.

Provision of support and facilities.

Structure:
- Environments / different wards
- Exposed to different patients / equipment / processes
Importance of knowing what is going on - team play.

Explained ways of avoiding and avoiding:
- stages
- communicating

Opportunity to discuss thoughts without someone watching.

Occasionally puts the student on the spot.

* The role of the Day
  - ability to be flexible, eg. family illnesses impacts
  - important skill to be able to be flexible.

Discussed unpredictability of clinical environment.

Reflective of what happens in practice.

Dynamics of what happens or were
- structure of hospital play (lunches)

A very long worded question is directed to myself.

Good going back to actually asked for guidance.
Weather kept learning.

fronting better...

required from...

[Handwritten text]

[Further handwritten text]

was I then pleased...
Some important extracts:

- Case feedback admitted.
- What students thought students thought was:
  - too long.
  - I should have:
  - Case feedback admitted.

- Important extracts:

- Early-setting activities to:
  - remove any early-settling students:
  - Instruct, unsupervised:
  - Students:
    - active, observe teacher:
    - Higher motivation:
    - Severer administrators:
  - Teacher knowledge:
    -impediment to:
    - Students' learning:
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Appendix 2.5 Research journal post interview reactions and themes

Interpersonal complexities

Revised 5/25 PM

What is the classroom learning environment?
Different things to different people
Different things for different times

I feel like I was sort of reeling away looking through a kaleidoscope, with one classical experience leading to a different sense of the classroom learning environment which also changed depending on the questions I asked.

Different kinds paths emerge from these patterns.
Trevor is the usual learning environment a shifting and changing entity?

Do students need to be prepared to function in the current learning environment?

Do the experiences or does the same thing occur when they have an unusual environment?

Dependent on mood.

- Different temperatures

- Gender specific.

The ces today were very thoughtful. Best 2 involved the participants seemed least comfortable interesting given they were the first to volunteer.
New things today:

- temperance
- gender
- can one people to

Some of the things the student is learning / struggling with are:

- balancing the need to keep the nurses on side with need to get physiotherapy etc.

"As a professional, I think we need to be more existent."

This is an interesting thought on learning together.
Interview 1: Summary of Themes

* Practical Resources / Faculty
  - Welcoming
* Supportive Staff
  - Students feel as staff members
  - Communicate via email, "for the team."
  - Orientation - provision day
  - Mentoring program
  - Computer access
* Corporation
  - Changing characteristics of students - timely feedback
  - Computer access
* Student attitude
  - Hoping to like, working to learn
* Quality of supervision
* When students learn - with formative
  - Classes, discussions, supervision
  - Reaching,<br>effectiveness, planning
* Clear expectations
* Word of staff
* Mental Health Issues
  - Structured approach / process driven
Interview 3: Summary of Themes

* Wide range of learning environments, e.g. labs, wards, etc.

* Exposure to patients

* Relationships - Staff
  - Nurses
  - Students

* Surveillance

* Routine of the day (imperfect quality of the clinical environment)

* Teaching

* Gender - workforce dominated

* Student motivation

* Resources
  Broader view of environment/ship.
Appendix 2.6 Participant cognitive maps created in NVivo

Tess: Observation cognitive map
Shelly: Photo-elicitation cognitive map
Charles: Interview cognitive map
Appendix 2.7 Ethics approvals

28 November 2007

Ms Narelle Patton
School of Community Health
Mudge
ALBURY CAMPUS

Dear Ms Patton,

Thank you for the additional information forwarded in response to a request from the Ethics in Human Research Committee.

The Committee has now approved your proposal entitled “Situated learning in physiotherapy clinical education”. The protocol number issued with respect to the project is 2007/300. Please be sure to quote this number when responding to any request made by the Committee.

You must notify the Committee immediately should your research differ in any way from that proposed.

You are also required to complete a Progress Report form, which can be downloaded from www.csu.edu.au/research/forms/ehrc_annrep.doc, and return it on completion of your research or by 28/11/2008 if your research has not been completed by that date.

Please don’t hesitate to contact the Executive Officer telephone (02) 6318 4628 or email ethics@csu.edu.au if you have any enquiries about this matter.

Yours sincerely,

Julie Hicks
Executive Officer
Ethics in Human Research Committee

Cc Prof Joy Higgs Dr Megan Smith
9 April 2008

Ms Narelle Patton
School of Community Health
Mudgee
ALBURY CAMPUS

Dear Ms Patton,

The Ethics in Human Research Committee has reviewed your report advising of a significant variation to your research project "Situated learning in physiotherapy clinical education", protocol number 2007/300, and is pleased to approve this variation.

You are required to complete a Progress Report form, which can be downloaded from www.csu.edu.au/research/forms/eihrc_annrep.doc, and return it on completion of your research or by 9/04/2009 if your research has not been completed by that date.

Please don't hesitate to contact the Executive Officer: telephone (02) 6338 4628 or email ethics@csu.edu.au if you have any enquiries about this matter.

Yours sincerely,

Julie Hicks
Executive Officer
Ethics in Human Research Committee

Cc: Prof Jay Higginbotham

www.csu.edu.au
16 January 2009

Ms Narelle Patton
School of Community Health
Charles Sturt University
PO Box 789
ALBURY, 2640

Dear Narelle,

Thank you for the additional information forwarded in response to a request from the School of Community Health Ethics in Human Research Committee.

The Committee has now approved your proposal entitled “Situated learning in physiotherapy clinical education: Clinical educators’ perspective” for a twelve month period beginning 12 January 2009. The protocol number issued with respect to the project is 405/2008/14. Please be sure to quote this number when responding to any request made by the Committee.

You must notify the Committee immediately should your research differ in any way from that proposed.

You are also required to complete a Progress Report form, which can be downloaded from www.csu.edu.au/research/forms/ehr_anarep.doc, and return it on completion of your research or by 12 January 2010 if your research has not been completed by that date.

Please don’t hesitate to contact Ms Caroline Robinson on telephone 0260 516 972 or email corobinson@csu.edu.au if you have any enquiries about this matter.

Yours sincerely,

Ms Andrée Pender
Secretary
School of Community Health Ethics in Human Research Committee
Direct Telephone: 0260 516 820
Email: apender@csu.edu.au
**ETHICS COMMITTEE APPROVAL STATEMENT: low risk**

<table>
<thead>
<tr>
<th>Project Number</th>
<th>09/44</th>
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</thead>
<tbody>
<tr>
<td>Site</td>
<td>Barwon Health</td>
</tr>
<tr>
<td>Title</td>
<td>Situated learning in physiotherapy clinical education: Physiotherapy students’ perspective</td>
</tr>
<tr>
<td>Principal Investigator</td>
<td>Ms Narelle Patton</td>
</tr>
<tr>
<td>Co-investigators</td>
<td>Professor Joy Higgs, Dr Megan Smith, Ms Melanie Taylor</td>
</tr>
<tr>
<td>Students</td>
<td></td>
</tr>
</tbody>
</table>

Thankyou for submitting the above project for ethical consideration.

Full approval was granted on **18/06/2009** for three years or until the anticipated completion date, **1/10/2009**, whichever is the closer.

In addition any items approved in support of this project are listed below:

<table>
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<tr>
<th>Date Approved</th>
<th>Item</th>
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<tr>
<td>18/06/2009</td>
<td>Protocol</td>
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- Project proposal: situated learning in physiotherapy clinical education: Physiotherapy students’ perspective, version 1

<table>
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<tr>
<td>18/06/2009</td>
<td>Participant Information and Consent Form</td>
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- version 1

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<th>Item</th>
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<tr>
<td>18/06/2009</td>
<td>Taking and use of photographs providing that no person is identified without permission</td>
</tr>
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</table>

Approval is granted on the basis that this is a low risk project, is not perceived to involve ethical considerations and for has been considered by an Human Research Ethics Committee conforming to NHMRC specifications.

Your obligations under this approval include notifying the Committee of intent to deviate from the approved protocol and of the occurrence of any untoward events. If your project is continuing beyond 3 years, please tick the “extension required” box on the report proforma and attach the current participant information and consent form.
ETHICS COMMITTEE APPROVAL STATEMENT: low risk

Please note that your final report is due on completion and, in the interim, progress reports are due on an annual basis.

Should you require any further information concerning the Committee's approval of your research or have any concerns regarding the reporting requirements please contact the HREC secretary, on 62267878.

In all future correspondence regarding your study please quote your project number and full title of your research project.

Yours sincerely,

Research Review Committee

Dr. T. Casedly
FRANZGP, MRCGP, MB, FACHM, BSc, PhD, MPH, Ed
Chair, Review Committee
Good afternoon

My database lists as approved:

09/60 Situated learning in physiotherapy clinical education: Clinical educators perspective Ms Narelle Patton 19/06/2009
09/44 Situated learning in physiotherapy clinical education: Physiotherapy students' perspective Ms Narelle Patton 18/06/2009

Kind Regards

Bernice Davies 3rd Floor, Administration Building
Secretary to the Human Research Ethics Committee
Secretary to the Research Review Committee

T 03 5226 7575 / 03 5226 7520
# 03 5233 3023
# 0400 516 081
A Barwon Health, P.O. Box 281 or Emergency Building Level 2, The Geelong Hospital, Geelong, Victoria 3200
E info@barwonhealth.org.au
W www.barwonhealth.org.au

The Barwon Health Human Research Ethics Committee (HREC) operates in accordance with guidelines established by the National Health and Medical Research Council
Appendix 3.1 Australian Standards for Physiotherapy

In this appendix the full list of nine standards and their elements is included to provide an indication of the scope of the Standards. Examples of evidence are provided for Standard 1 Demonstrate professional behaviour, as an indication of the level of detail provided throughout the Standards document.

As the Australian Standards for Physiotherapy is a lengthy document the following link is provided to the full document.


5.3 List of the Standards and their Elements

STANDARD ELEMENTS

Standard 1
Demonstrate professional behavior appropriate to physiotherapy
1.1 Demonstrate practice that is ethical and in accordance with relevant legal and regulatory requirements
1.2 Demonstrate strategies to maintain and extend professional competence
1.3 Operate within individual and professional strengths and limitations

Standard 2
Communicate effectively
2.1 Communicate effectively with the client
2.2 Adapt communication style recognising cultural safety, and cultural and linguistic diversity
2.3 Communicate effectively with other service providers
2.4 Prepare and deliver presentations to groups
2.5 Prepare and provide documentation according to legal requirements and accepted procedures and standards

Standard 3
Access, interpret and apply information to continuously improve practice
3.1 Demonstrate a working knowledge and understanding of theoretical concepts and principles relevant to physiotherapy practice
3.2 Apply contemporary forms of information management to relevant areas of practice
3.3 Apply an evidence-based approach to own practice
3.4 Acquire and apply new knowledge to continuously improve own practice

Standard 4
Assess the client
4.1 Collect client information
4.2 Form a preliminary hypothesis
4.3 Design and conduct an assessment
4.4 Conduct assessment safely

Standard 5
Interpret and analyse the assessment findings
5.1 Compare findings with ‘normal’
5.2 Compare findings with what is expected for the condition, and include or exclude alternative diagnoses
5.3 Prioritise client needs
5.4 Re-evaluate as required, to develop a justifiable and sustainable hypothesis
5.5 Identify areas that are outside skills and expertise and refer client appropriately

Standard 6
Develop a physiotherapy intervention plan
6.1 Develop rationale for physiotherapy intervention
6.2 Set realistic short and long term goals with the client
6.3 Select appropriate intervention
6.4 Plan for possible contingencies that may affect intervention plan
6.5 Prioritise intervention plan in collaboration with the client
6.6 Determine plan of evaluation that uses valid and reliable outcome measures
Standard 7
Implement safe and effective physiotherapy intervention(s)
7.1 Obtain informed consent for the intervention
7.2 Prepare equipment and treatment area appropriate to the intervention
7.3 Implement intervention safely and effectively
7.4 Manage adverse events
7.5 Provide strategies for client self management
7.6 Implement health promotion activities

Standard 8
Evaluate the effectiveness and efficiency of physiotherapy intervention(s)
8.1 Monitor the outcomes of the intervention
8.2 Evaluate the outcomes of the intervention
8.3 Determine modifications to intervention

Standard 9
Operate effectively across a range of settings
9.1 Use a model of service delivery relevant to the practice setting
9.2 Work effectively within a team
9.3 Manage own work schedule to maximise safety, efficiency and effectiveness
9.4 Operate within own role and according to responsibilities
9.5 Participate in quality improvement processes

Standard 1
Demonstrate professional behaviour appropriate to physiotherapy

This Standard requires a physiotherapist to:
- understand relevant codes of conduct
- comply with external regulation of physiotherapy practice, including relevant State, Territory & Commonwealth legislative and common law requirements, relevant Codes of Conduct and standards, the requirements of the relevant State/Territory Registration Board and obligations to third party insurers
- embed and follow principles of client rights within all areas of practice
- adapt to new approaches
- undertake reflective practices and self analysis of professional abilities.

Key issues for the physiotherapist include:
- operating at all times in accordance with external and internal requirements and codes of conduct relevant to physiotherapy practice
- making a judgement on his or her own capacity to provide specific services based on self assessment, and taking appropriate action.

Examples of Evidence Standard 1
The following are examples of knowledge, understanding, behaviours and abilities that would assist in demonstrating achievement of the Standard. These examples are provided as a guide only and are not intended to be an inclusive or exclusive checklist.

Element 1: Demonstrate practice that is ethical and in accordance with relevant legal and regulatory requirements

Applied knowledge and understanding of:
- Physiotherapy Act for jurisdiction
- State, Territory and Commonwealth legislative and common law requirements relevant to physiotherapy practice
- principles of client rights
- principles of open disclosure
- standards of physiotherapy practice and relevant Codes of Conduct including the APA and Registration Boards Codes of Conduct
- role and requirements of the relevant State/Territory Registration Board
- workers’ legal rights
- obligations related to third-party insurers
- standards for health professionals relevant to the jurisdiction.

Element 2: Demonstrate strategies to maintain and extend professional competence

Strategies may include:
- accessing support for practice including supervisors, mentors, other health care providers
- evaluation of own performance
- undertaking continuing professional development, reflective practice, self directed learning tasks, and self and peer evaluation of performance.

Element 3: Operate within individual and professional strengths and limitations
Knowledge of:
– legal and organisational restrictions on practice
– others to whom the client can be referred, including colleagues within and outside the organisation, specialist physiotherapy services, other health care providers, other services that may provide benefit to the client
– issues to be considered when undertaking a self assessment to make a decision about own capacity to provide a service
– requirements regarding disclosure if own limitations may compromise safe and effective practice.
Appendix 3.2 Assessment of Physiotherapy

Practice Instrument

The APP is the first version of a standardised assessment form with known validity and reliability developed for use in Australian and New Zealand entry-level physiotherapy programs. In total more than 1000 clinical educators across Australia and New Zealand were involved in the development and testing of the APP. The primary advantage of a national form is that clinical educators/supervisors who have students from more than one physiotherapy program, or who change employers, will not have to deal with multiple assessment forms.

Components of the APP
• Domains or aspects of practice
  There are 7 domains. These are not graded. Only the items assembled within each domain are graded.
• Items
  There are 20 items. Each is graded.
• Global Rating Scale (GRS)

Items
Scoring options for items
Each item is scored on a scale from 0 to 4, where a higher number indicates greater apparent competence.

Score of 0
We very rarely see educators award a zero but it occasionally happens that a student cannot demonstrate any desirable behaviours. If this occurs it is more likely to be at the mid unit formative feedback time, rather than at end of unit summative assessment. At any time, a score of zero would be a matter of immediate importance and warrant the development of a comprehensively articulated path to achieving item competence.

Score of 1
A score of 1 indicates that competence in performance assessed by that item is not yet adequate. If a score of 1 is awarded for an item, feedback on specific behaviours that require development must be provided to the student, along with strategies to achieve this.

Score of 2- passing standard
A score of 2 for an item indicates that the student has achieved a level of competency that would be expected of an Entry level/Beginning physiotherapist on their first day of practice for that item. A score of 2 indicates that for this item, the student has met this standard regardless of their experience, place in the course or length of the placement. As few of us are good at everything that might be assessed under any one item, we have settled on a broad definition that a 2 would be awarded if the student demonstrates
most performance indicators as outlined on the APP and if relevant, by the educator, to an adequate standard.

- **Scores of 3 & 4**
  Scores of 3 and 4 reflect that the student is demonstrating performance above a passing level. A score of 3, demonstrates most performance indicators to a good standard, reflects that the student is comfortable. A score of 4, demonstrates most performance indicators to an excellent standard, reflects that the student is exhibiting a level of excellence or sophistication with respect to a given item.

**Scoring rules**
All items must be scored. Circle only one option for each item. Not assessed ‘n/a’ is only used when a student has not had an opportunity to demonstrate any skills that are assessed under a particular item. In most situations the student will have opportunities to demonstrate competency on all 20 items. If an item is not assessed it is not scored and the total APP score is adjusted for the missed item. If a score falls between numbers on the scale the higher number will be used to calculate the total. Scoring items requires your professional opinion. Educators may feel uncertainty in some cases regarding whether they are making the right decision. Students who are performing inadequately are typically identified by more than one educator. University assessors, in making decisions regarding progress, will take into account a student’s history when considering actions that should be taken in the event of a poor item score or total grade. We therefore recommend that clinical educators do not tally APP item scores, or give students advice regarding their likely progression through the program.

**Global rating scale (GRS)** The GRS provides a second approach to assessment. It is only completed for summative assessments. Rather than considering each of the items separately, clinicians are asked to rate the student’s overall performance. This allows the educator to consider all aspects of the clinical placement and then to rate the overall performance of the student. In researching the APP we have used the global rating scale to compare typical total scores for items to typical views regarding overall competence (a standard setting exercise). Universities might consider both item and GRS scores when deciding whether a student would benefit from additional clinical practice prior to completing a unit of study. Although it is difficult not to let an overall sense of a student’s ability affect item scoring, we think that it is important that clinical educators reflect carefully on student performance item by item, and not let poor performance on one item detract from acknowledging adequate, good or excellent performance on another. We therefore recommend that the GRS is completed after individual items have been graded.

**Global rating of Inadequate**
This rating would be used when the in the educator’s opinion the student’s performance overall was not adequate ie, was not at the expected minimum entry level / beginning physiotherapist standard

**Global rating of Adequate (minimum entry level standard)** When reflecting on the student’s performance overall in the unit, an adequate student may be good at some things and not so good at others. However typically they would be able to: manage a variety of patients with relatively uncomplicated needs, such that the patient/client’s major problems are identified, major goals
established and treatment is completed safely and effectively within a reasonable time frame. While achieving this, the student is aware of their limitations and where to seek assistance.

**Global ratings of Good and Excellent** These ratings provide the clinical educator with 2 categories indicating the student’s performance is above minimum entry level/beginning physiotherapist standard (either good or excellent).

**Global rating of Excellent** When reflecting on the student’s performance overall in the unit, an excellent student typically would be able to: manage a variety of patients, including complex patients, meeting the minimum level standard, but at a superior level.

**The excellent student can be characterized by:**
- an ability to work relatively independently, thoroughly and sensitively.
- fluid, efficient and sensitive handling skills
- an ability to be flexible and adaptable
- easily and consistently linking theory and practice
- a high level of self reflection and insight
- an ability to present cogent and concise arguments or rationale for clinical decisions.

**Performance Indicators**
Examples of desirable performance are provided for each of the 20 items. These are not meant to be prescriptive or exhaustive and they are not meant to be graded. They serve several purposes, the most important of which is to provide examples of the language that educators might use in helping students to shape performance targets. We have tried to avoid specifying behaviours that could not reasonably be assessed through observation. We have tried to avoid elusive concepts such ‘develops rapport’, ‘is logical’ and have attempted to describe measurable events e.g ‘responds in a positive manner to questions, suggestions &/or constructive feedback’, ‘greets others appropriately’. We are not attesting that the examples that are provided are without fault, but we hope that our efforts to articulate desirable behaviours using targets that students can readily conceptualise assists educators to adopt, and improve on, this approach. Student, especially early in clinical placements, are not used to being constantly monitored and assessed. Like all of us, they find this process emotionally challenging and are justifiably anxious. Attention to accurate analysis of learning needs using performance indicators serves to direct their focus away from their anxieties and onto desirable performance targets. Performance indicators provide concrete stepping stones that can help the educator articulate their desire for student success and diffuse the distraction of fear of failure.

**Assessment of Physiotherapy Practice (APP)**
0 = Infrequently/rarely demonstrates performance indicators
1 = Demonstrates few performance indicators to an adequate standard
2 = Demonstrates most performance indicators to an adequate standard 3 = Demonstrates most performance indicators to a good standard
4 = Demonstrates most performance indicators to an excellent standard n/a = (not assessed)
*Note.* a rating of 0 or 1 indicates that minimum acceptable competency has not been achieved

<table>
<thead>
<tr>
<th>Professional Behaviour</th>
<th>Circle one number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Demonstrates an understanding of patient/client rights and consent</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>2. Demonstrates commitment to learning</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>3. Demonstrates ethical, legal &amp; culturally sensitive practice</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>4. Demonstrates teamwork</td>
<td>0 1 2 3 4 n/a</td>
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<table>
<thead>
<tr>
<th>Communication</th>
<th>Circle one number</th>
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<tbody>
<tr>
<td>5. Communicates effectively and appropriately - Verbal/non-verbal</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>6. Demonstrates clear and accurate documentation</td>
<td>0 1 2 3 4 n/a</td>
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<thead>
<tr>
<th>Assessment</th>
<th>Circle one number</th>
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<tbody>
<tr>
<td>7. Conducts an appropriate patient/client interview</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>8. Selects and measures relevant health indicators and outcomes</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>9. Performs appropriate physical assessment procedures</td>
<td>0 1 2 3 4 n/a</td>
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<tr>
<th>Analysis &amp; Planning</th>
<th>Circle one number</th>
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<tbody>
<tr>
<td>10. Appropriately interprets assessment findings</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>11. Identifies and prioritises patient’s/client’s problems</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>12. Sets realistic short and long term goals with the patient/client</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>13. Selects appropriate intervention in collaboration with patient/client</td>
<td>0 1 2 3 4 n/a</td>
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<thead>
<tr>
<th>Intervention</th>
<th>Circle one number</th>
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<tbody>
<tr>
<td>14. Performs interventions appropriately</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>15. Is an effective educator</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>16. Monitors the effect of intervention</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>17. Progresses intervention appropriately</td>
<td>0 1 2 3 4 n/a</td>
</tr>
<tr>
<td>18. Undertakes discharge planning</td>
<td>0 1 2 3 4 n/a</td>
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<table>
<thead>
<tr>
<th>Evidence based practice</th>
<th>Circle one number</th>
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</thead>
<tbody>
<tr>
<td>19. Applies evidence based practice in patient care</td>
<td>0 1 2 3 4 n/a</td>
</tr>
</tbody>
</table>
Risk Management
20. Identifies adverse events/near misses and minimises risk associated with assessment and interventions

In your opinion as a clinical educator, the overall performance of this student in the clinical unit was:
Not adequate ☐ Adequate ☐ Good ☐ Excellent ☐

Scoring rules:
✓ Circle n/a (not assessed) only if the student has not had an opportunity to demonstrate the behaviour
✓ If an item is not assessed it is not scored and the total APP score is adjusted for the missed item.
✓ Circle only one number for each item
✓ If a score falls between numbers on the scale the higher number will be used to calculate a total.
✓ Evaluate the student’s performance against the minimum competency level expected for a beginning/entry level physiotherapist.

Professional Behaviour

1. Demonstrates an understanding of patient/client rights and consent
   • Informed consent is obtained and recorded according to protocol
   • Understands and respects patients'/clients’ rights
   • Allows sufficient time to discuss the risks and benefits of the proposed treatment with patients/clients and carers
   • Refers patients/clients to a more senior staff member for consent when appropriate
   • Advises supervisor or other appropriate person if a patient/client might be at risk
   • Respects patients'/clients’ privacy and dignity
   • Maintains patient/client confidentiality
   • Applies ethical principles to the collection, maintenance, use and dissemination of data and information

2. Demonstrates commitment to learning
   • Responds in a positive manner to questions, suggestions &/or constructive feedback
   • Reviews and prepares appropriate material before and during the placement
   • Develops and implements a plan of action in response to feedback
   • Seeks information/assistance as required
   • Demonstrates self-evaluation, reflects on progress and implements appropriate changes based on reflection
   • Takes responsibility for learning and seeks opportunities to meet learning needs
   • Uses clinic time responsibly

3. Demonstrates ethical, legal & culturally sensitive practice
   • Follows policies & procedures of the facility
   • Advises appropriate staff of circumstances that may affect adequate work performance
   • Observes infection control, and workplace health and safety policies
   • Arrives fit to work
• _arrives punctually and leaves at agreed time
• _calls appropriate personnel to report intended absence
• _wears an identification badge and identifies self
• _obeys dress code
• _completes projects/tasks within designated time frame
• _maintains appropriate professional boundaries with patients/clients and carers
• _demonstrates appropriate self-care strategies (eg stress management)
• _acts ethically and applies ethical reasoning in all health care activities
• _Practises sensitively in the cultural context
• _acts within bounds of personal competence, recognizing personal and professional strengths and limitations

4. Demonstrates teamwork
• _demonstrates understanding of team processes
• _contributes appropriately in team meetings
• _acknowledges expertise and role of other health care professionals and refers/liaises as appropriate to access relevant services
• _advocates for the patient/client when dealing with other services
• _collaborates with the health care team and patient/client and to achieve optimal outcomes
• _cooperates with other people who are treating and caring for patients/clients
• _works collaboratively and respectfully with support staff

Reference