On-the-job learning: The intern experience

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Certificate of Originality

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of the requirements for a degree.

I also certify that the thesis has been written by me. Any help that I have received in my research work and in the preparation of the thesis has been acknowledged. In addition, I certify that all information sources and literature used are identified in the thesis.

I certify that I received approval from the Monash University Human Research Ethics Committee prior to commencing the fieldwork component of this research.

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Abstract

Doctors in the first year of practice, (referred to as interns in Australia), identify the experience of caring for their patients and participating in the medical workplace as the most significant precipitator of learning. Curriculum frameworks provide detail about what is to be learned but do not define how the learning should take place. This study focuses on the 'how and the why' of intern learning on-the-job through phenomenographical research. Phenomenography allows us to hear the participants' perspective on their learning experience and, through exploring variation in their experiences, come to better understand the nature of the phenomenon.

Thirty-one interns were interviewed at three stages: pre internship, after their first rotation was completed and towards the end of the intern year, totalling 85 interviews (not all interns were available for all three interviews). Phenomenographic analysis indicated four qualitatively different approaches to intern learning on-the-job;

Variation A Learning through the intern environment

Variation B Learning through providing bedside patient care

Variation C Learning through participation in collaborative patient care

Variation D Learning through review and reflection on patient outcomes

The study found that variations in the approaches to learning on-the-job taken by the intern were influenced by the context presented by each rotation. Each rotation provided a unique learning environment with its own set of relationships and working conditions.

Four key elements that influenced the learning experience and promoted effective on-the-job learning were: the opportunities for bedside care; involvement in medical decision-making; the experience of responsibility for patient care; and the ability of the intern to reflect on their own performance, thereby assimilating the experience into their learning.

The degree to which these elements were present in a particular rotation influenced the approach of the intern to on-the-job learning. The immediate supervisor or registrar provided critical assistance in negotiating these contextual elements, in particular maximising intern learning through collegial discussions about patient care.

The intern-registrar discussions or 'collegial moments' are qualitatively different to 'teaching moments'. The teaching moment focuses on the transference of knowledge and the training of the individual; in contrast, the collegial moment focuses on learning through collaborative decision-making whilst providing patient care.

Chapter 1: Introduction and rationale for a study of intern on-the-job learning

1.1 Introduction to the chapter

This introductory chapter outlines the rationale for the study, the research questions and methods, followed by a description of the structure of the thesis.

The purpose of the modern Australian medical internship is to provide a structured experience to enable the intern to build on the clinical skills, theoretical knowledge and patient-centred attitudes gained in medical school and to apply their learning to the treatment of patients in a supervised environment. It is expected that the greatest source of the intern's learning will be through their care of patients in clinical settings and through the supervision they receive from more senior doctors. The nature of the on-the-job learning that occurs during the internship has received some attention from educational researchers, but is less studied than the educational experiences and contexts of pre-service medical students.

All novice workers, regardless of occupation, are expected to learn on the job. It is a little less clear as to precisely what on-the-job learning entails: the term is so ubiquitous it seems to require no explanation. The spirit of on-the-job learning is captured in the aphorism 'learning the ropes'. This nautical term, origin uncertain, means getting to know which rope belongs to which sail, which function and what are the methods, such as knotting, for attaching them. On early sailing ships these would be vital skills necessary for personal and collective survival. The knowledge and skill would be learnt on-the-job and from more experienced seamen. We have all experienced learning on the job, at the start of our careers or when we

commence a new job or take on new responsibilities. This type of learning is more recently referred to as ‘work-based’ learning.

In Australia, doctors who are in the first year of medical practice after graduating from medical school are referred to as ‘interns’. Until relatively recently, intern training has had little formal regulation and was dependent on the commitment and professionalism of the individual consultants and senior medical staff employed at each of the accredited hospitals who undertook the supervision of the interns. These consultants received little or no training in medical education but relied on tradition derived from their own experience and common sense. Tradition and the demands of public health provision, not educational theory or the scientific literature, have informed the arrangements for the internship. Only recently has the internship been regulated through legislation and structures developed specifically to improve the educational quality of the experience.

The site of intern on-the-job learning is most usually the wards and theatres of large modern acute hospitals. This is an arena where the competing demands of service provision, disciplinary boundaries, public funding and working conditions intersect: a turbulent and contested environment and difficult to recognise as an ideal context for learning. Patient care is always, and quite rightly so, the primary concern and focus. This arena provides perhaps the most significant phase of the medical education continuum. This study seeks to consider what is already known about junior doctor learning and to contribute additional insights into the learning processes.

The significance of on-the-job learning in the non-clinical setting, to the formation of professional knowledge skills and attitudes, has been well studied and theorised. My study looks at the clinical workplace and examines the learning

aspect of this phenomenon, rather than the broad sociocultural experience where the focus might be on the development of professional identity or on workplace processes. I investigated the nature of learning in the intern year from the intern's own perspective using a phenomenographic research approach. Phenomenography is an educational qualitative research method which focuses on the variations in the ways learners conceptualise their own learning. My interest was in the learning processes involved in on-the-job learning and to examine these processes from the dual perspectives of learner and educator. My own perspective of 'research-educator' influenced the choices I made in relation to the research methodology, the questions posed, and the approach to the data.

Workplace learning is central to the training and ongoing development of the medical workforce (Swanwick, 2005). Criticism has been levelled at the published research on medical education for its perceived failure to advance the science of medical education. A 2008 review of medical education research found that of 105 articles reviewed, 72% justified the intervention described, 16% described the intervention and only 12% addressed the how and why of the intervention (Cook, Bordage, & Schmidt, 2008). Cook and colleagues single out workplace learning as needing research based on a conceptual framework. This study focuses on the 'how and the why' of intern learning on the job.

There have been a number of qualitative studies of medical students and junior doctors in the clinical setting, including the following.

1961, *Boys in White*, Becker, Geer. et al. (undergraduate)

1970, *Interns: From Students to Physicians*, Mumford (postgraduate)

1997, *Making Doctors*, Sinclair (undergraduate)

2003, *Medical Education and Sociology of Medical Habitas: "It's not about the Stethoscope!".* Luke (postgraduate)

2007, Intern Case Study Report: Interns and supervisors, Australian Medical Education Study. M. Lawson, M. Bearman, et al.

Whilst these studies do not explain how interns approached learning they do provide valuable insights into the context of the medical profession and medical education more broadly. Studies of the intern experience have used qualitative methods and perspectives. These studies have included sociological perspectives (Atkinson, 1981; Becker, Geer, Hughes, & Straus, 1961; Luke, 2003; Mumford, 1970) and an anthropological perspective (Sinclair, 1997).

Recently, new ways of thinking about learning in the workplace have emerged, creating a deeper understanding of the processes involved in informal learning as part of the medical education continuum (Brennan et al., 2010; Swanwick, 2005). The most commonly applied theories of learning within the practice of medical education rely on an individualistic view of learning rather than the sociocultural view now emerging in the literature. The individualistic view fits comfortably with medicine's traditional view of the doctor as an autonomous agent but does not complement the more systems and team orientated workplace (Bleakley, 2006). Thus recent literature points to a trend towards interprofessional teamwork, systems based patient safety and organisational learning in health care where the work force is required to work in collaborative ways (Swanwick, McKimm, & Clarke, 2010). There is an increasing focus on the sociocultural perspective of junior doctor learning in the workplace (Bearman, Lawson, & Jones, 2011; Bleakley, 2002; Lawson, Bearman, & Jones, 2007; Sheehan, Wilkinson, & Billett, 2005; Teunissen, Scheele, et al., 2007). This thesis takes a different approach. It focuses on the learning

perspective, drawing from an educational tradition which foregrounds the learning experience whilst acknowledging the contextual influences of the workplace setting.

This thesis explored the processes involved in intern learning, based on the interns' own conceptions of their learning in the clinical workplace; that is their experience of on-the-job learning. The data contributes to the 'how and why' of on-the-job learning singled out by Cook, Bordage and colleagues (2008) as needing more research. Thus the study was designed to contribute to our understanding of the learning experiences of junior doctors during their first year practising as doctors.

My intention was to explore interns' conceptions of on-the-job learning and how they experienced learning whilst employed as junior doctors undertaking their internship in hospitals. The purpose of the study was to generate knowledge about how the interns approached learning 'on-the-job' with the intention to better understand the ways in which learners within the medical workplace experience the internship. Increased understanding of the phenomenon of intern on-the-job learning could then inform the educational structures provided for interns.

The Australian Curriculum Framework for Junior Doctors (Confederation of Postgraduate Medical Education Councils, 2006), like other equivalent documentation, was developed through wide consultation with medical education stakeholders. It locates the site of junior doctor learning in the clinical workplace. The framework provides much detail about what is to be learned but is silent on how it is to be learned. Better understanding of how learning can be supported and encouraged is increasingly important, as the intern workplace becomes an increasingly difficult arena. The number of junior doctors entering the profession is increasing faster than the numbers of experienced medical practitioners available

to act as supervisors, mentors and teachers. Demographic and technological changes have altered the traditional mode and location of health care services. The morbidity of patients receiving care as inpatients has become more acute, whilst the length of stay has shortened (Crotty & Brown, 2007; Dowton, Stokes, Rawstron, Pogson, & Brown, 2005; Leeder, 2007). These factors impact on the learning context of junior doctors, and interns in particular, as they make the transition from a closely supervised and protected role as medical students to that of competent, professional medical practitioners. It is important to understand what best facilitates learning in this turbulent environment; as the context changes traditional ways of learning may also need to respond and change. This change is best informed by empirical data. This study, by examining the process of on-the-job learning, can contribute to positive change by reframing the way supervision of junior doctors is conceptualised.

1.2 Research question

As an educator with a higher education background who became a medical educator, I noticed the lack of research on the learning processes of junior doctors in the workplace. This thesis seeks to address this gap. The focus of this study was on the learning processes of the interns as described by the interns themselves. The intention was to explore the phenomenon of on-the-job learning during the internship through the interns' descriptions of their experiences over the year. A phenomenographic approach to research has been successfully used in the higher education arena to study learning processes, so I selected that approach for this study.

In this thesis, two key research questions were initially posed.

- How do interns conceptualise on-the-job-learning?

- How do interns experience on-the-job learning?

In considering the data obtained in response to these questions, a further question emerged.

- How do interns perceive and benefit from the supervision they receive from their registrars?

These questions are pertinent to developing an understanding of how the interns approach their learning whilst caring for their patients and how their learning is enhanced or restricted by the context in which they work. The intern workplace is complex; can be stressful and contains multiple relationships that have to be negotiated. It is important to understand what best facilitates learning in this turbulent environment.

1.3 Research method

Previous research, where I asked my students about their learning experiences in a subject I taught, proved to be a powerful catalyst for change. I used a phenomenographic approach to consider the collective experience of my students. By analysing their experience of learning as they described it, I was able to reconceptualise my teaching and develop and reshape my practice. I have chosen phenomenography as the methodology for this study because the desired outcome is parallel to that of the earlier research. My intention then was to generate knowledge that would improve the learning experience of my students; my intention now is to enable clinical supervisors to improve the learning experiences of junior doctors.

Phenomenography has been an important contributor to qualitative educational research since the 1970s (Barnard, McCosker, & Gerber, 1999; Dall'Alba, 2007).

It was developed and subsequently used in research that resulted in our understanding of variation in students' approaches to learning and the factors that lead them to taking either a deep or surface approach to their study (Booth, 1997; Entwistle, 1997; Marton & Booth, 1997). Phenomenography fits within the interpretive paradigm in that it enables the researcher to explore meaning in, describe, theorise and illuminate, human experience (Higgs, 2001). The phenomenographic approach to analysis is to examine the variation between individual experiences: to see these as fragments that can be arranged to provide a holistic picture of the phenomenon being studied.

Phenomenography has been widely used to study the phenomenon of learning in different settings, including research about the learning experiences of health professionals. Phenomenography identifies the variations to be found in the conceptions held by a group of people who share the experience. The variations, considered as a set, reveal a picture of the whole. The roots of phenomenographic research methods are found in studies of learning; making it especially relevant as a methodology for this study. As we identify our students' current understandings and ways of seeing we can determine where they can be developed. *"Having knowledge about current and desired understanding is likely to make teaching and educational development more focused and effective*" (Dall'Alba, 2000. P.98). Phenomenography has made an extensive contribution to the development of educational theory and its use is increasing within the health sciences both in the spheres of professional education and in understanding the perspective of the consumer of health services (Barnard, et al., 1999). The following are examples of this research: Emergency Department nursing staff experiences of discharge planning (Han, Barnard, & Chapman, 2009), general practitioners' experience of asthma management (Lundborg, Wahlström, & Dall'Alba, 1999) and graduate nurses' understanding of competence (Ramritu &

Barnard, 2001). It has also been used to study the experiences of patients: how ageing Australians experience health literacy (Yates, Partridge, & Bruce, 2009) and elderly peoples' response to resistance training (Rydeskog, Fråndin, & Scherman, 2005).

The focus of this phenomenographical study was to explore the process of on-the-job learning through the interns' own descriptions of their experiences. To this end, the 2008 cohort of Victorian interns was asked to participate in a study that explored how they conceptualised their role as learners, exploring what precipitated and facilitated learning. This allowed the interns' perceptions and understanding of their experience to be described, and categorised and reported as categories of learning.

1.4 Chapter outlines

The thesis comprises eleven chapters including this one. Each chapter seeks to contribute to a more complete understanding of the circumstances and processes involved in learning on-the-job during internship. The research explored the historical context of the Australian internship, the theoretical underpinnings of workplace learning and studies of junior doctor learning. The investigation explored the experiences of a cohort of interns as they met the objectives set for their internship — learning through the care of their patients.

Chapter 2 describes the epistemological stance of the author and the assumptions that underpin the choices made in both the methodology used and the learning theories examined and discussed. The literature on learning theory is extensive and theorists were selected who discussed a constructivist view of learning, and who considered the experiential nature of learning in the workplace.

Chapter 3 explains the Australian internship from an historical perspective and describes the contemporary arrangements, including the regulation and governance experienced by the interns of 2008.

Chapter 4 examines the research context of the study as represented in the published literature, introducing the discipline of medical education as a broad field covering pre-service education in university medical schools, postgraduate education in both specialist medical colleges and universities, and ongoing professional education and development. Educational theories relevant to an examination of on-the-job learning are discussed, situating the investigation in the context of educational theory.

Chapter 5 presents key findings of selected qualitative research on junior doctor learning in the workplace. It identifies four significant areas of research interest in the experiences of junior doctors in their first years of medical practice: transition, preparedness, learning through patient care, supervision and reflection on practice.

Chapter 6 provides an explanation of phenomenography as a research approach: it notes the methods used for data collection and analysis, in particular, the contribution phenomenography has made to the development of learning theory over the past four decades and its increasing use in the study of health professionals' education.

Chapter 7 outlines the study design and the processes followed to investigate the phenomena. The recruitment of participants, ethical considerations and the stages of the phenomenographic analysis are charted.

Chapter 8 presents the results of the study in three sections.

- Variation in the graduates' conceptions of the internship
- Variations in interns' conceptualisation of learning on-the-job
- Variations in how the interns' conceptualised their interactions with their registrars

Chapter 9 presents two short vignettes that illustrate the learning of two individual interns as they experience learning on-the-job.

Chapter 10 draws together the different strands of the study, expanding on the findings in the context of the literature and the experiences of the interns; to present a discussion on intern learning in the workplace. The limitations of the study and areas needing further investigation are identified.

Chapter 11 contains the author's final thoughts on the thesis findings and considers the key implications for medical education practice.

The appendices contain:

- Documentation required to establish the research
- Items that elaborate aspects of the thesis
- Abstracts of conference presentations about the study

1.5 Summary of the chapter

This chapter has provided an overview of the thesis and outlined the general approach, overall aims and research questions. It also includes a brief overview of each chapter in the thesis. The following chapter will discuss the author's philosophical stance and the appropriate research methodology for this study.

Chapter 2: Research approach

2.1 Chapter outline

This chapter reveals the philosophical stance of the author and the assumptions and perspectives that informed the research questions and the choice of methods used to explore those questions.

2.2 Philosophical stance

2.2.1 Introduction to the chapter

The following sections explain the assumptions that underpin my ideas about learning and teaching and therefore the assumptions that underpin this study. A series of decisions were required to establish the research plan. These decisions included selection of the research upon which to build, the design of the learning task that will enlarge understanding of the subject matter, and the design of an assessment that will enable others to know when and to what extent the objectives have been met. Each of these decisions was necessary to the design and implementation of this study and each was influenced by my experiences as a student, teacher and researcher.

2.2.2 Development of an epistemological position

Ontology, or 'the nature of the world' is the knowledge store; it is "*what exists, what is reality, what is the nature of the world*" (Higgs, 2001. P. 49). Epistemology deals with how what exists may be known. The central issues in epistemology are the nature, derivation and scope of knowledge (D'Cruz, 2001; Usher, 1996a). The constructivist perspective sees the knowers as conscious subjects separate from a world of objects, subjects who use knowledge and who have theories about their

practice (Guba & Lincoln, 2005). My experiences as a learner and as an educator have shaped my view of the world, my understanding of how I learn and the assumptions that underpin my evaluation of what I learn. Constructivists view knowledge as an internal construction or a personal attempt to impose meaning and significance on events and ideas, resulting in an idiosyncratic explanatory system of reality (Higgs, 2001).

There have been a number of significant developments to the patterns of my thinking and practising as a teacher/researcher that colour my perspective on learning, knowledge and action. My understanding of learning began with my study of learning as a student teacher where I was first introduced to the work of Maria Montessori (1912) and John Dewey (1938) and a lesser known educator, Sylvia Aston-Warner[1], (1963). Montessori (1912) taught her teachers to observe their students closely in order to capture the moment they were ready for the introduction of a new tool or process and thus to increase the children's competence and desire for progress seamlessly. Dewey (1938) identified the need for lessons to be set in the context of the real world and to teach skills that were related to the real world and, if necessary, to simulate the real world in the classroom. Aston-Warner (1963) reinforced the idea that learning should reflect the children's own experiences, to use the words of their everyday lives as the vocabulary with which to learn reading. Equally important she underlined the joy of learning and the need for teachers to create spaces where the processes of learning created competence, autonomy and empowerment. These three educators had much in common: they were unequivocal in their belief in the connection between experience and learning.

[1] Encountered first through the novel *Spinster*, S. A. W. was an educational innovator working predominately with Maori children in New Zealand. She enabled Maori children to unlock the literacy barrier through their own language and experience. (Hood, 1988)

My own experience as an infant teacher reinforced and illuminated the power of 'learning through doing'. After graduation, my understanding of learning developed and evolved in the classrooms where I introduced five-year-olds to formal learning, taught them to read and had the privilege of sharing their excitement as their success at reading prompted their learning curve to soar up and off the page, their success enthusing them to explore all aspects of their curriculum. That was the beginning of my fascination with the process of learning and its outcome — competence and empowerment. It has subsequently been enlarged and enhanced by the different learning environments I have encountered since leaving school teaching.

This perspective was enlarged and challenged through a Graduate Diploma of University Teaching and Learning that required me to reflect on the act and process of my own teaching at university level and to consider knowledge as a product of the learning that resulted from reflection on practice. I came to see the relationship between learner, content and teacher in a different light. In particular, I realised that teachers' conceptions of learning and knowledge shaped how they designed the learning experience for their students and how these learning experiences directly influenced the way the students approached their learning. I learned, through theory and practice, that appropriate teaching design could encourage the learner to take a deeper approach to learning, resulting in them making their own sense, or knowledge, of the phenomenon.

The relationship between the teacher's actions and the teaching environment to the way students approached the learning task was an important adjustment to my understanding of learning and how it can best be facilitated, and thus to my practice as a teacher. This enabled me to better understand and integrate the

earlier influences of Montessori and Dewey into my practice of teaching in higher education. Re-learning about teaching, and learning through the study of my own practice and that of fellow tertiary teachers, reinforced the notion that learning at tertiary level, as at early childhood level, needed to be relevant and authentic and teaching needed to be learner focused and empowering. The experience of this course of study demonstrated to me the transformative value of reflection on my practice as a teacher, reconsidered in the light of theory, and enabled me to see how I could use this process to improve the learning experience of my students. The work of David Boud (eg Boud & Garrick, 1999) and David Kolb (eg Kolb, 1984) and Donald Schön (eg Schön, 1983) on experiential learning explained the potency of the integration of theory, practice and reflection not only for me but, importantly, for my students.

I came to the view that there are universal ways in which humans learn regardless of the setting or the age of the learner. The work of Donald Schön, Chris Argyris and others who wrote about organisational learning supported this notion (Argyris & Schön, 1974; Schön, 1983; Senge, 1992). Schön's description of learning as arising from reflection-on-action and reflection-in-action is an example of the way that I understood — and understand — learning to occur. This is relevant to this study, because it is also about practice; Schön argues that we improve our understanding of practice through thinking about practice and that this increased understanding is, in fact, the road to professionalism and mastery (Schön, 1983). These writers were considering learning in the context of organisations, how individuals learn within the organisation and how the organisation is able to support and engender learning so that it, too, is a learning entity.

This wider view of learning was a useful basis upon which to base an evaluation of the hospital as a learning environment for junior doctors, a research task I

undertook as part of a career change from higher education into medical education. This led, in turn, to policy and research work about junior doctor training (Benjamin, 2002; Benjamin & Balla, 2001; Dent et al., 2006; Postgraduate Medical Council of Victoria, 2003).

As human beings we naturally try to make sense of our environment and to become competent actors within it. My own learning journey has led to the conclusion that we learn through exploring, acting and reflecting on our experiences; effective learning results in mastery and conceptual change. Although I encountered the term constructivism later in my career (M. Crotty, 1998), it seems the best fit to describe how I see learning and teaching and knowledge generation. My conception of learning flows from Montessori and Dewey through to Schön and Kolb and it encompasses what I have learnt through practice. In my view, it is the teacher's role — both in the classroom and in clinical education — to provide opportunities and resources for learners that are designed to assist them develop understandings about their world and mastery over their environment.

2.3 Research paradigm

Education, as a field of research, is not firmly rooted in any single disciplinary matrix but draws on a range of disciplines that best suit the purpose at hand. This is in contrast to some disciplinary communities that exercise a strong influence over the type of paradigm deemed to be appropriate to research within that discipline. One medical doctor, encountering the educational literature, reported,

> As a late arrival at the social sciences party, I have only recently become aware of the crucial significance of alternative world-views, and how

> awareness of them is key to making sense of any literature (Kneebone, 2002 p.514).

Kneebone (2002) explains how the strength of the scientific paradigm within which he had previously operated was a hurdle he had to surmount before being able to explore the multifaceted world of education theory. My own journey was in the reverse direction, migrating from a social science background to the scientific orientation of the medical world, albeit the medical education world where quantitative methods are the norm and qualitative approaches are subject to much greater scrutiny than their quantitative relations.

Medical research is traditionally located within biomedical research disciplines where algorithmic procedure and positivist methods are the norm. In contrast medical education has embraced the qualitative social and educational research focused more on social practices. Its basic assumption is that all human action is meaningful and hence has to be interpreted and understood within the context of social practices. Usher (1996b) writes:

> To explain the social world we need to understand it, to make sense of it, and hence we need to understand the meanings that construct and are constructed by interactive human behaviour. Human action is given meaning by interpretive schemes or frameworks. It follows from this that as researchers (engaged in the human action and social practice of research) we too seek to make sense of what we are researching and we too do so through interpretive schemes or frameworks. In other words, unlike the situation in the natural sciences, in social research both the subject (the researcher) and object (other people) of research have the same characteristic of being interpreters or sense makers. (Usher, 1996b. p. 18).

2.4 Research approach

This study arose from my curiosity about how interns learn 'on-the-job'. The purpose of the study was to generate knowledge about how the interns approached on-the-job learning with the intention to better understand the ways in which learning occurs during internship and, ultimately, to better support this learning. As stated, my perspective is that of teacher with a strong commitment to experiential learning.

How do we gain knowledge about the world? Two phenomenographers claim this is the epistemological form of the question 'What does it take to learn?' (Marton & Booth, 1997). The knowledge I wished to obtain was about how a group of interns gained the knowledge, skills and attitudes they needed to carry out their work, to learn, and to progress on to work as independent hospital medical officers. Phenomenography is a research methodology that examines the variations between individual learning — or constructions of the world — as a way of developing a picture of the whole. It is a research method that explores the qualitatively different ways that people perceive, understand, experience and conceptualise a phenomenon (Marton and Booth, 1997). A phenomenographic research approach had much to commend it me as an educator: it provided a means of listening to, and looking from, others' points of view, most particularly the views of learners. Even more critically, it focuses on the learning processes, rather than the learning outcomes. Chapter 6 outlines phenomenography as a methodology in further detail.

2.5 Role of the researcher in the study

I believe the perspective of the researcher has a place in the process of inquiry and analysis; therefore, the research approach must be one where this is deemed to be appropriate and the tools or methods used to inquire allow for interpretive awareness. In my view, the researcher's perspective necessarily and inevitably informs the research. Indeed, it can be argued that the interplay between one's interpretive framework and the elements of the phenomenon that one is trying to understand is how knowledge is developed and how pre-existing assumptions can be challenged and transformed. Higgs (2001) writes:

> In the interpretive paradigm, knowledge:
>
> - comprises constructions arising from the minds and bodies of knowing, conscious and feeling beings
> - is generated through a search for meaning, beliefs and values, and through looking for wholes and relationship with other wholes (Higgs, 2001 p. 49).

2.6 Summary of the chapter

This chapter has established my philosophical position underlying this research project and it has located the research question within an appropriate research paradigm. The following chapter establishes the context of junior doctor learning in Victoria.

Chapter 3: Historical perspectives: internship in Victoria

3.1 Introduction to the chapter

This chapter provides the historical context to the Victorian internship and the current context of regulation and governance experienced by interns in 2008, the year in which the participants in this study were interviewed about their experiences as interns.

3.2 Governance of the internship

Prior to 2010, the regulation and education of the Australian medical profession was a state matter. Each jurisdiction had its own governance arrangements. The legal relationship between the internship and registration as a medical practitioner varied between each of the State jurisdictions; by the end of the 1930s each state medical board required that a twelve month internship (consisting of six months in medicine and its branch specialties and six months in surgery and its branches) be completed in an approved hospital before full registration as a medical practitioner was granted by the state medical board (Rotem, Craig, Cox, & Ewan, 1981).

Responsibilities for each of the phases of medical education in 1981 are set out in Table 3.1 and remain substantially the same today. Slight changes were made to the internship following the Health Insurance Act 1996 Amendment 9 (No 2) as discussed in Section 3.2.1.

Legislation passed by the Victorian Parliament in 1973 *The Medical Practitioners (Amendment) Act, 1973,* contained the first legislative specification of the Medical Practitioners Board of Victoria's (MPBV) statutory responsibility for the internship.

Table 3.1 Phases of Medical Education

	Undergraduate	**Internship**	**Specialisation**	**Continuing Education**
Purpose	Basic medical education	Practice	Specialisation or advanced academic training	Updating and maintaining competence
Responsibility for training	Medical School	Teaching hospital	Teaching hospital with Colleges or Universities	Informal (universities, Colleges, Insurance providers, pharmaceutical companies)
Responsibility for funding	Federal Government	State Government via Health Commission from Health budget	State Government via Health Commission, from health budget or Education budget	Pharmaceutical companies, Federal and State Governments, individual organisations, medical profession
Responsibility for certifying	Medical School	State Medical Registration Board	Colleges or Universities	*(Currently a requirement of continuing registration and supervised by the relevant specialist college)*

Source: Rotem, Craig et al. (1981, p. 178)

The legislation identified the internship as a requirement for registration as a medical practitioner in Victoria. The amended Act contained a description of the Board's regulatory powers but did not specify the purpose or objective of the internship. The Act provided for the Provisional registration of a person, whilst completing a period of twelve months post-graduate internship in an approved institution but didn't provide any particular requirements of what type of experience or training would be provided during that twelve month period (Rotem, Craig et al, 1981).

The Act described the approved institution where the internship may be carried out as any hospital or other institution in Victoria approved by the Board as suitable for postgraduate internship. The Act also stipulated that there would be a committee of the MPBV known as the Hospitals Accreditation Committee who would advise the board concerning the duration and extent of hospital residency training, the supervision thereof, and the facilities to be provided for such training in approved institutions. The Act specified the membership of the Hospital Accreditation Committee, its purposes and its powers to visit and review hospitals and those responsible for the training and supervision of the interns. The membership of this committee was approved by the Governor in Council and comprised representatives from the two Melbourne medical schools, the College of General Practitioners; the other five members of the committee were representative of the interests of the approved training hospitals (Rotem, Craig et al, 1981).

Interns were employed by an approved teaching hospital and expected to follow the rules and regulations of the hospital and were accountable to the hospital's executive officer. There were no criteria specified for the training and assessment arrangements for internship; it was seen as part of an on-the-job apprenticeship style training process and a rite of passage following university education before

commencing practice as a doctor (Parry, 1981; Rotem, Craig et al., 1981). Doctors were granted full registration to practice as general practitioners after completing their internship and were only required to engage in further formal education programs if they wished to become Fellows of one the Specialist Colleges.

In 1986–87 The Medical Board of Victoria conducted a review of intern training, which included consultation with stakeholders, and published a set of guidelines (Intern Training Review Committee, 1986). The introduction to the Guidelines acknowledged the neglect of this aspect of medical education whilst highlighting its value and importance. The guidelines noted that the internship or pre-registration hospital appointments should have a recognised educational role as the completion of basic medical education before the intern enters vocational training. This role is sometimes forgotten or underplayed, both by interns and the hospital, and the responsibility for achieving this balance between service and education is not always well defined (Intern Training Review Committee, 1986).

3.2.1 Development of the contemporary internship (Post the Health Insurance Amendment Act (No2) 1996)

Federal legislation introduced during the 1990s in relation to health insurance and the public funding of health services and commonly referred to as the 'provider number legislation' had a profound impact on postgraduate medical education. This legislation defined the classes of medical practitioners whose services attracted Medicare payments. It was determined that medical services attracting benefits from the universal Medicare Scheme could only be provided to all newly graduated doctors who had completed, or were undertaking, a recognised vocational training program at one of the specialty medical colleges (Prideaux 2001). A 'grandfather

clause' granted exemption to doctors practising as General Practitioners prior to that date.

Under the new Act it was a requirement for all new medical practitioners to complete a recognised postgraduate training program before gaining full registration (Medical Training Review Panel, 1997). Admission to specialist colleges required that all recent graduates spend not only their intern year, but also at least one further year in public hospital based training positions as pre-vocational trainees called Hospital Medical Officers (HMOs). This increased the number of junior doctors in pre-vocational positions (PGY1–3) and the length of time they spent as HMOs. This significant change to the employment and career development of the medical workforce focused attention on the nature and quality of the pre-vocational part of the medical education continuum.

The period between university graduation and entrance into vocational training had been of concern to medical educators for some time. Similarly, in the UK, research undertaken into the training experiences of senior house officers (the equivalent to PGY2–3 in Australia), was critical of the arrangements and described the cohort as a 'lost tribe' (Davies, Tan, & Jenkins, 2000). This phase of the medical education continuum was experienced as a sequence of jobs with little or no structure, poorly planned training, heavy workloads, inadequate supervision, minimal assessment and a lack of career advice (Davies, et al., 2000). Although this description applied to the situation in the UK; it was equally applicable to the Australian pre-vocational experience (Dent, et al., 2006) and no different to that noted by the Intern Training Review Panel in 1986, previously mentioned. In addition, excessive workloads with an imbalance towards service rather than education and inadequate supervision by senior clinicians resulted in poor educational outcomes. Education and training was seen to be the responsibility of

the employing hospital rather than education providers such as colleges and universities (Prideaux, 2001).

In 1997, the Commonwealth Department of Health and Family Services established the Medical Training Review Panel (MTRP) to advise the Department on medical workforce issues. Membership of this Panel comprised key stakeholders in medical workforce training and planning. The Panel's Terms of Reference included oversight of the training arrangements for Hospital Medical Officers. Following the first report of the MTRP in 1997 the Commonwealth provided the states and territories with initial funding to oversee the establishment of training arrangements for the pre-vocational years. Subsequently named Postgraduate Years 1–3 (PGY1, PGY2, PGY3). Consequently, each state established a postgraduate medical council. In Victoria, this was the Postgraduate Medical Council of Victoria (PMCV), which was formed in 1998 and established as an incorporated association in August 1999. Council members included the Deans of the two Victorian medical schools, and representatives from the specialist medical colleges, the Victorian Department of Human Services, hospitals, the Health Services Commissioner and junior doctors. The Victorian Department of Human Services was the main source of funding for the Council in 2008. The membership of the Council is similar to that described for the Hospital Accreditation Committee in the 1973 legislation.

3.2.2 Recent regulation of internship in Victoria

Until recently, the medical internship was under the jurisdiction of the Medical Practitioners Board of Victoria (the Board), as part of its statutory responsibilities to protect the community by ensuring doctors maintain professional standards and practise ethically and competently. Since July 2010, this function is now the responsibility of the Victorian Board of the Medical Board of Australia (Australian

Health Practitioner Regulation Agency, 2014). The Board's primary responsibility was – and is - to protect the community by ensuring maintenance of professional standards. The primary means for ensuring standards is through the registration of medical practitioners and the regulation of the education and training they undertake, hence the responsibility for the pre-vocational years, which are not covered by university or college. The Board granted provisional registration to those who had successfully completed an undergraduate medical degree at an Australian University. This enabled graduates to undertake a period of internship at an accredited hospital in posts accredited by the Board's Accreditation Subcommittee This role was delegated by the Board to the Postgraduate Medical Council of Victoria's (PMCV) in 1999. (Medical Practitioners Board of Victoria, 2007).

The newly formed PMCV developed and published a Framework for the Accreditation of Intern Positions. During 2003–2004, the framework for accreditation was revised. The framework now comprises seven elements, each with a specified standard and assessment criteria. All posts are assessed for accreditation on a three–year cycle (Postgraduate Medical Council Victoria 2007).

The framework served the dual purpose of providing a transparent governance mechanism for the conduct of the internship and guidance for the development of an appropriate set of training arrangements. The PMCV continues to coordinate a range of services and receives grant funds to support its activities (Postgraduate Medical Council of Victoria, 2014)

The PMCV was initially funded by the MTRP. These funds were allocated for two years with the expectation that each state would assume responsibility for ongoing funding. In Victoria, these funds were used to employ hospital based Medical

Education Officers (MEOs). The MEOs were appointed to develop and administer the pre-vocational training program under the direction of a designated Senior Medical Officer such as the Chief Medical Officer, The Supervisor of Intern Training or similar, in each hospital. The focus of the MEO was the enhancement of the educational environment for pre-vocational Hospital Medical Officers.

3.2.3 Internship at the time of the study

At the time of the study, Victorian interns completed their internship in a teaching hospital. They formed an integral part of the public health system workforce, as employees of a particular health service caring for patients in both acute and outpatient settings. There is an expectation that a substantial part of intern learning takes place 'on-the-job' caring for patients under the supervision of more senior doctors (registrars and consultants). Care of their patients provided an opportunity for junior medical staff to practise and refine the various medical procedures they had learned in their clinical undergraduate years and to synthesise knowledge and skills gained at university with the results of patient investigations in order to form diagnoses and develop treatment plans. "Your role in caring for your patients will be the greatest source of learning." (Medical Practitioners Board of Victoria, 2007 p. 4) This learning was facilitated through the guidance of those responsible for the supervision of interns.

The Victorian internship in 2008 comprised three core rotations, medical, surgical and emergency medicine, plus two additional rotations. Core rotations, stipulated by the Medical Board, through the PMCV Accreditation sub-committee, are mandatory in order to gain general registration. Other rotations may have been in specialist medical or surgical units and, since 2008, in general practice. All

rotations were accredited by the PMCV as providing appropriate experiences and learning.

Interns may have requested that their particular interest in medicine, surgery or emergency medicine be recognised with an additional rotation in that specialty.
Each intern was appointed to a 'parent' teaching hospital; which was responsible for arranging a series of rotations, including rotations across a range of smaller Victorian hospitals. The 31 interns in this study rotated through 150 rotations and a range of hospitals. Interns allocated to metropolitan hospitals were required to complete at least one rotation in a regional hospital.

Table 3.2: Victorian Intern Match 2007/2008

Victorian Medical School Graduates*	382
Interstate Medical School Graduates	56
New Zealand Medical Graduates	8
Other categories	15
Total	461

*Includes temporary resident medical graduates of a Victorian medical school
(Internal document. PMCV)

Learning objectives for the internship

The 2007 Guide for Interns in Victoria, provided to all interns commencing in 2008, advises:

> Your intern year combines service and learning roles. You will contribute to patient care as a member of your hospital's professional staff. You will also be required to be actively involved in training and professional development. You will undertake rotations in which you have responsibility for patient

> management, but which are also aimed at providing you with a broad experience as a basis for further career development. Your role in caring for your patients will be your greatest source of learning. (Medical Practitioners Board of Victoria, 2007 p.4).

In a study of 470 Australian pre-vocational doctors conducted in 2004, the authors reported significant shortcomings to the training and supervision of junior medical staff and recommended a number of measures that would improve the experience. Included in the recommendation was the development of learning objectives for the pre-vocational training experience (Dent et al., 2006).

In 2007, the Confederation of Postgraduate Medical Education Councils (CPMEC) launched a national curriculum framework The Australian Curriculum Framework for Junior Doctors (ACF). The ACF was adopted by the states and territories and is reflected in the learning objectives outlined in the Board's Guide for Interns. The ACF outlined the knowledge, skills and behaviours required of pre-vocational doctors. It covered the internship as well as the additional years spent as a junior doctor prior to commencing a vocational training program. The Framework is built around three learning areas: Clinical Management, Communication, and Professionalism. These areas are divided into categories, each of which is further subdivided into learning topics (Confederation of Postgraduate Medical Education Councils, 2006). The Framework details the content areas a junior doctor is expected to master during their pre-vocational training (Confederation of Postgraduate Medical Education Councils, 2006). Both these documents are revised on an annual basis and continue to be useful resources for junior doctors and their supervisors.

Feedback and assessment during internship

The Accreditation Framework by which intern positions are assessed required that the designated intern supervisor provide continual and constructive feedback during the course of each rotation. The assessment of intern performance was based on the achievement of objectives, expectations and standards, as outlined in the ACF. A formal assessment by the term supervisor was discussed with the intern at the conclusion of each rotation.

At the completion of the intern year, the Medical Director (or equivalent) of the parent hospital was required to certify that the intern had completed their internship satisfactorily, including details of the rotations undertaken. The certification, which specified the rotations undertaken by the intern, was forwarded to the MPBV and the intern was then eligible for general registration as a medical practitioner.

Supervision of interns

Supervision of interns has not changed significantly since 2008 and this outline describes both the experiences of the 2008 cohort and current interns. Supervision involves a more experienced doctor (usually at registrar or consultant level) sharing knowledge, demonstrating procedures, correcting misconceptions and providing feedback on tasks and decision-making. The supervisory process also involves discussion between supervisor and trainee about patients, consideration of necessary investigations, interpretation of results, planning management and monitoring progress. These elements are usually coordinated through ward rounds and various clinical meetings. In addition, the teaching hospital arranges educational programs for specific cohorts of trainees, such as the weekly Intern Meeting, tutorials for specialist trainees, and continuing education programs for all medical staff; all of which interns are encouraged to attend.

In 2008 the National Guidelines for the supervision of junior medical staff stipulated the following:

- During the first week of the junior doctor's attachment, the clinical teacher/mentor will discuss with the junior doctor their role and responsibilities in the Unit(s) or facility, and highlight the responsibility of the junior doctor to be pro-active in their learning;
- Hospitals should provide direct supervision of interns by a registrar or other suitably experienced medical practitioner at all times;
- Supervision of junior doctors should allow for increasing opportunities for independent decision-making; and
- The adequacy and effectiveness of junior doctor supervision is evaluated.

(Confederation of Postgraduate Medical Education Councils, 2003 p. 22).

Each hospital unit interacts with the rest of the hospital system in providing care for patients, but takes primary responsibility for its patients and for the work practices of its trainees. In the large metropolitan and regional hospitals, a senior consultant heads the unit, and depending on the size of the hospital there may be several consultants and a registrar (usually a trainee in a speciality or sub-specialty area of medicine or surgery). In small country hospitals, the unit may be run by a Nurse Unit Manager with a registrar responsible for one or more of the units; the registrar and the junior medical officer will have access to a Visiting Medical Officer (VMO) and to more senior medical staff in the hospital's Emergency Department. The VMO, usually a local General Practitioner, is always contactable by phone. These doctors each have a supervisory and teaching relationship with the intern. Responsibility for intern supervision and training resides within the unit. A 'term

supervisor' is responsible for managing the intern's work experience and progress throughout the rotation. Each hospital will have a senior medical staff member designated as Supervisor of Intern Training (SIT) whose role is described in *A Guide for Interns in Victoria:*

> You can expect the SIT to be a teacher, a confidant, a diplomat, a counsellor, and a point of liaison with other groups of doctors, both within and outside the hospital. (Medical Practitioners Board of Victoria, 2007 p. 29).

The particular role of the SIT is to ensure that the intern is provided with, and takes advantage of, available learning experiences. Typically, the SIT is a senior doctor who relates well to interns and has an interest in their training. The SIT has oversight of intern progress and the coordination of their formal feedback at the mid-point and conclusion of each rotation. *A Guide for Interns in Victoria* also identifies the role of the unit registrar:

> The unit registrar will usually be your day-to-day supervisor and the primary source of teaching on the job. The registrar is expected to ensure that you have a clear understanding of his/her expectations and receive appropriate experience and opportunities for learning. He/she is expected to guide you and provide feedback to you on your performance, during and at the end of the rotation. P. 29.

3.3 Summary of the chapter

This chapter has covered the contemporaneous context for the interns in this study and provided an historical overview of the Victorian internship. Chapter 4 will consider medical education as a discipline and the educational theories relevant to this study.

Chapter 4: Context and theory: Summary of the relevant literature

4.1 Introduction to the chapter

This chapter introduces the broad discipline of medical education and explores aspects of learning theories relevant to the study of intern on-the-job learning. Firstly, medical education as a discipline is briefly outlined, touching on topics of clinical learning, clinical supervision and curricular frameworks. Next, a selection from relevant learning theories is presented. In particular, adult and experiential learning and workplace-based learning are discussed as these have informed much of the research on learning in the medical workplace.

4.2 Medical education as a discipline

4.2.1 Introduction

In medical education research, as in all research, inquiry into previous research as well as an understanding of theoretical frameworks is an important first step. Medical education research and medical education as practice are more often the result of tradition, ritual, culture and history than of any easily expressed educational theory or conceptual framework (Hodges & Kuper, 2012). Educating one's junior colleagues is part of the medical profession's tradition and all medical doctors are expected to contribute to the teaching process. This is illustrated by the existence of *The Doctor as Teacher*, a formal publication of the United Kingdom's General Medical Council, which sets out the educational roles and responsibilities of medical practioners (General Medical Council, 1999). The guide applies to those who supervise both medical students and/or junior colleagues.

This publication influenced the development of *Good Medical Practice: A Code of Conduct for Doctors in Australia* (Australian Medical Council, 2009).

The primary objective of medical teachers is to supply society with highly skilled medical professionals who undertake to maintain and develop their expertise throughout their working lives. Doctors are themselves expected to be lifelong learners, to maintain their clinical expertise and professional acumen in a rapidly changing technical and social context. Medical education can be considered as a continuum spanning undergraduate education, pre-vocational and vocational training and continuing professional development. The discipline of medical education combines knowledge from both the social sciences and the biomedical sciences to inform and develop the institutions and practitioners who comprise the medical professions (Mann, Dornan, & Teunissen, 2011; Schön, 1983; Slotnick, 2001; Swanwick & Buckley, 2010). This has produced a literature informed by diverse fields. It contributes to, and takes from, research in related professions as well as incorporating fields of educational study. It is a sizeable discipline within its own right. Two of the most often referenced areas of educational research, relevant to the study of intern on-the-job learning, are adult and experiential education and workplace-based learning. These two fields are well represented in the research discussion on junior doctor learning which is explored more fully in Chapter 5.

4.2.2 The importance of clinical learning

Medical education has tended to make a distinction between formal learning (in medical school) and informal learning in the clinical work environment (Morris & Blaney, 2010). Each of the Victorian medical schools utilises the facilities of hospitals through university departments that are sited in a range of local hospitals. In medical education, formal learning is shaped by curriculum and informal

learning is shaped by the clinical context and opportunity. However, these distinctions become blurred as the medical school seeks to provide authentic clinical learning experiences for students, and the regulators of postgraduate medical education develop curriculum for junior doctors and specialist medical colleges provide curriculum for vocational trainees. How junior doctors learn in the clinical setting has emerged as a research topic particularly in relation to the sociocultural aspects of medical workplace learning, relatively recently (Sheehan, 2010; Sheehan, Wilkinson, & Bowie, 2012; Swanwick & Morris, 2010; Teunissen, 2009; Teunissen, Scheele, et al., 2007).

The clinical setting at both undergraduate and postgraduate levels is central to junior doctor learning. The tradition of learning about doctoring through the observation and treatment of patients, as is the case in on-the-job learning, was enunciated as early as the seventeenth century.

> My method, hitherto unknown here, and possibly anywhere else, is to lead my students by the hand to the practice of medicine, taking them everyday to see patients in the public hospital that they may hear the patients' symptoms and see their physical findings. Then I question the students as to what they have noted in the patients and about their thoughts and perceptions regarding the causes of the illnesses and the principles of treatment. (Sylvius 1679 p. 1679), quoted in (Jolly, 1998 p. 171).

This is clearly analogous with what takes place in clinical supervision today. Flexner, in his 1910 seminal work Medical Education in the United States and Canada: A Report to the Carnegie Foundation for the Advancement of Teaching, went further, insisting that on-the-job learning needed to be accompanied by both scientific research and academic study (Flexner, 1910). Although much has changed in the sphere of medical practice since the seventeenth century and the

early twentieth, medical education is still located in the medical workplace where real people, who are ill, have come to be treated for their illness. Today the medical workplace is a large, complex organisation staffed by many different professions and disciplines. Medical students observe and experience limited interaction with patients in hospital; junior doctors are hospital employees expected to provide supervised patient care whilst 'learning on the job'. The complexities of modern medical practice, particularly given due regard for patient safety, autonomy and privacy, have led to a diminution of the centrality of the patient role in medical education (Bell, Boshuizen, Scherpbier, & Dornan, 2009; Bleakley & Bligh, 2008). Despite the realities of modern medical practice in hospitals, the presence of the patient is still a permanent and significant factor in all considerations of medical education.

4.2.3 Relevant medical education curricular frameworks

The workplace provides a diverse and dynamic learning opportunity, as real life problems are encountered and meaningful solutions reached. For the novice, the opportunities for learning can be overwhelming, hence the need for reliance on others with relevant experience and understanding of the novice experience. In postgraduate medical education, educators and regulators have arranged different structures to harness and regulate the environment and its learning potential. Around the world, medical educators have been involved in restructuring clinical workplace curricula. This has been precipitated by changes within the profession as well as societal, technological, economic and political developments. The development of curriculum is a complex and contested arena, even within the defined boundaries of educational institutions, from kindergarten to university, where the primary objective is learning and where degrees of control can be exercised over scope and resources. It is a much more difficult task in the

workplace where education is a by-product of the main activity of the organisation or workplace.

The most influential medical education curriculum development worldwide has been the Canadian, competency-based framework, CanMEDS: Better standards, better physicians, better care (Frank, 2005). This document considers the role of the future doctor and outlines a blueprint for achieving competence in the seven domains it considers essential for the medical professional. CanMEDS formalised the concept of competency-based training (CBT) within medical education; which has not been universally welcomed (Grant, 2010; Mulder, ten Cate, Rienke, & Berkvens, 2010). This contrasts with a long tradition of CBT within workplace-based education. Concern has been expressed about the possibility of competency-based training in medical education becoming a bureaucratic burden rather than a way to harness the potential of the clinical workplace (Grant, 2010). Of equal concern is a view of CBT as reductionist and failing to recognise that the practice of medicine requires more than technical competence, that it requires serious engagement with ideas. Medical education has the responsibility to provide entry into a tradition of thinking and criticism for new doctors that may not be addressed within the CBT arena (ten Cate, 2006).

In Australia, the Confederation of Postgraduate Medical Education Councils developed the Australian Curriculum Framework (ACF) for Junior Doctors in 2006 and, in the United Kingdom; the General Medical Council developed the Foundation program for the first two years of training post-graduation. The ACF is designed to guide junior doctors through their pre-vocational years. It outlines the learning outcomes desired for all pre-vocational doctors by the end of their PGY2 year. It recognises that learning and skill development is a continuous process throughout the pre-vocational period, and that different skills may develop at

different rates throughout this time (Confederation of Postgraduate Medical Education Councils, 2009). The ACF is less prescriptive than the British Foundation Program, which has a regulator-approved curriculum and a program of assessment; and where progress is dependent upon the acquisition of key competencies mapped to the curriculum (Collins, 2010). The Australian Curriculum Framework (ACF) provides a tool for both junior doctors and their supervisors to review what has been learned and to consider future opportunities for learning identified in the framework. The Framework places the site of learning in the medical workplace where the junior doctor is working and learning, it assumes the workplace will provide the learning opportunities and reinforces the statement from *A Guide for Interns in Victoria* that "Your patients will provide the greatest source of your learning.'" Medical Practitioners Board of Victoria, 2007, p.4). Whilst the Framework describes what is to be learned, it is silent on how it is to be learned.

Medical educators in The Netherlands developed a summative assessment tool using an organising framework of competencies that links education and clinical practice together as 'entrustable professional activities' (EPAs). EPA is a critical part of professional work that can be identified as a unit to be entrusted to a trainee once sufficient competence has been achieved (Mulder, et al., 2010). In each EPA a set of competencies are integrated to form a complete aspect of professional practice. This provides an opportunity for the trainee to demonstrate progress towards independent holistic practice rather than the accomplishment of individual skills.

The curriculum frameworks and guides are helpful to both interns and their supervisors as indicators of the scope of what can be learned in the workplace; the day-to-day events in patients' lives are the actual curriculum. Curriculum

guidelines assist the supervisor to transform these clinical encounters into on-the-job learning opportunities.

4.2.4 Clinical supervision

The welfare of the patient is a compelling reason for the close supervision of junior doctors, particularly interns, but it is not the only reason. Kilminster and Jolly's 2000 literature review of clinical supervision defined supervision in medical education as:

> Supervision in medical education is the provision of monitoring, guidance and feedback on matters of personal, professional and educational development in the context of the doctor's care of patient. This would include the ability to anticipate a doctor's strengths and weaknesses in particular clinical situations in order to maximise patient safety (Kilminster & Jolly, 2000 p. 828).

An emerging trend in medical education is the need to give greater prominence to the experiential and interpersonal dimensions of medical supervision (Iedema et al., 2010). Supervision is the main means of supporting and developing learning in the clinical workplace and although supervision has such a vital role in postgraduate medical education, it is probably the least investigated and most under-developed aspect of clinical teaching (Boor et al., 2008; Kilminster & Zukas, 2005). A large postal survey of trainee doctors in the UK found that whilst supervision was considered to be both important and effective, the quality of supervision practice was highly variable (Grant, Kilminster, Jolly, & Cottrell, 2003). Supervision is a complex activity but most importantly, it is an interpersonal exchange: the supervisory relationship is probably the single most important factor for the effectiveness of supervision (Iedema, et al., 2010; Kilminster & Jolly, 2000; Kilminster & Zukas, 2005).

Clinical and educational supervision is an essential component at all levels of medical education, not just from a teaching/learning perspective but, importantly, for patient safety (Cottrell, Kilminster, Jolly, & Grant, 2002). The role of the supervisor is central to the learning opportunities afforded by the workplace. Much of the literature on the role of the supervisor/teacher focuses on the desirable attributes of the clinical teacher and not on the interaction between learner and teacher. Boor and colleagues hypothesised that, whether or not a clinical teacher is perceived as ideal depends on the interaction of the resident with his/her teacher in the clinical context and they highlight the sparse research attention paid to that interaction in the literature. Research from The Netherlands reported the importance of supervisors being aware of, and understanding, the impact of their actions and behaviours on the learning of junior doctors (Boor, et al., 2008). Supervisors should be aware of when and why they influence a resident's learning process (Teunissen, Scheele, et al., 2007). The reality however, is that most supervision of junior doctors is carried out by registrars, who are themselves also learning and requiring supervision (Hore, Lancashire, & Fassett, 2009).

4.3 Theoretical foundations for studies of on-the-job learning

4.3.1 Learning from experience

Research on workplace-based learning is much informed by experiential learning theory (Billett, 2001; Boud & Garrick, 1999; Lave & Wenger, 1991; Teunissen & Wilkinson, 2011). Learning from experience or experiential learning became part of educational discourse through the work of John Dewey (1859–1952) particularly in relation to his work in the development of pedagogy, the science of teaching (Ehrlich, 1998). In his *Experience and Education* (Dewey, 1938), Dewey identified the variable value of experience: that genuine learning comes through experience

does not mean that all experiences are equally genuine and equally produce learning. For Dewey, it is not the quality of the experience that is important but the importance of the experience to the learner: unless an experience is examined and reflected on, it has no intrinsic educative value. This idea, of examination of and reflection on experience, has informed the work of many subsequent educators and citations for their work can be found throughout the medical education literature (Boud, Cohen, & Walker, 1993b; Boud, Keogh, & Walker, 1995; Brookefield, 1995; Kolb, 1984; Schön, 1987). Associated with this is the notion that it is how the learner acts, in relation to the experience, which determines the quality of the learning. In particular, Boud et al. identified a set of propositions that underpin a theory of learning from experience (Boud, et al., 1993b) that reflect the propositions put forward by John Dewey more than half a century before (Table 4.1)

Table 4:1 Two educationalists: Two sets of propositions

John Dewey Propositions about learning	**David Boud et al.** Propositions about learning from experience
• learning is not the passive reception of information • the learner forms mental images by using things, not by being told about them • much learning is unconsciously absorbed from the environment; and • learning occurs through purposeful interaction with the environment cited in (Kierstead, 1981).	• experience is the foundation of, and stimulus for, learning • learners actively construct their own experience • learning is a holistic experience • learning is socially and culturally constructed; and • learning is influenced by the socio-emotional context in which it occurs (Boud, Cohen, & Walker, 1993a pp.8–16)

These two complementary sets of propositions serve as a useful framework for considering the on-the-job learning of junior doctors. The propositions reflect what is now called a 'constructivist' view of learning, although this term came into use some years after the publication of Dewey's ideas. Constructivism concerns "a family of theories but all have in common the centrality of the learner's activities in creating meaning" (Biggs, 1996a, 1996b; Crotty, 1998). For constructivists, the learner learns through making their own sense of the world rather than just acquiring knowledge 'ready made' from others.

> Basic learning processes are inner happenings or experiences the learner has when engaged in learning. These inner happenings will occur, whether the learner is in a group, listening to a lecture, or reflecting on her own experience (Griffin, 1987 p.4).

As Griffin (1987) notes, these perspectives identify learning as a personal internal process, a process that is provoked by experiences such as interaction with others, with new ideas and with the environment. The learner is actively involved in making personal sense out of these experiences.

Experience and the way experience can be utilised for learning requires intention and intervention. The model of experiential learning developed by David Kolb (1984) requires the arrangement of a series of related experiences in a particular sequence to maximise the learning potential of the particular experience.

Kolb's cycle of experiential learning describes a series of actions comprising:

- The actual experience
- Observations and reflection on these
- Development of generalisations and abstract concepts
- Testing the implications of the concepts in new situations (Kolb, 1984).

Figure 4.1 is an adaption of the cycle to explain the relationships between the actions graphically.

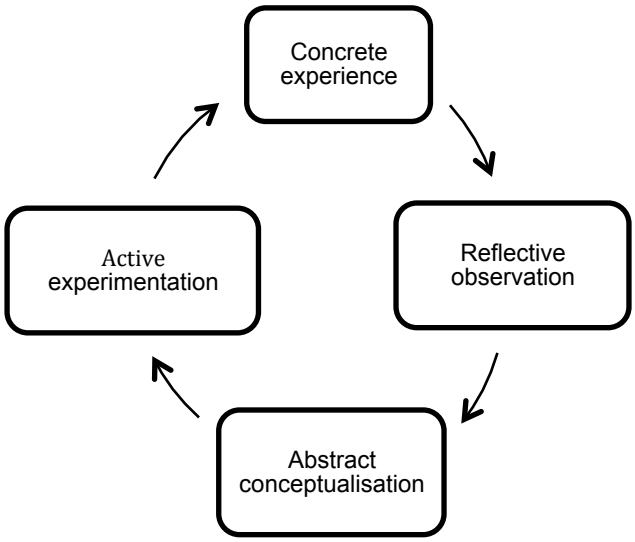

Figure 4.1: Kolb cycle of experiential learning

The events identified by Kolb, when undertaken by the learner constitute the 'inner happenings' described by Griffin (1988). As Kolb's cycle of experiential learning directs us to note, the workplace provides a venue where new experiences and new perspectives on knowledge skills and attitudes are encountered. To 'learn on-the-job', the learner must be an active participant in the 'job' that is to be done, active in accomplishing the task and active in the thinking/learning processes involved in that accomplishment. The tasks encountered in the workplace are likely to be more complex than those tasks encountered in the formal learning settings away from the job. Additionally, learning in the clinical workplace results from the spontaneous interaction of a number of elements and this makes the development of curriculum for use in the pre-vocational clinical setting challenging.

The literature on work-based learning (WBL) explores the relationships between two fundamental human activities, working and learning. These relationships are often in a state of tension because the types of knowledge, the values and the logic of the workplace are not necessarily compatible with a learner orientated environment (Evans, Guile, & Harris, 2011). The demands of the workplace can often be at odds with the learning needs of the worker. Work and learning both involve the interplay between highly complex individual, group and organisational processes. The history of learning in and through work in apprenticeships and professional internships can be traced in accounts that go back centuries. These historical forms portray a 'pride in practice' as well as the economic exploitations that are associated with some forms of workplace learning (Evans, et al., 2011). Workplace-based learning is situated in theories of adult learning and, importantly from the perspective of this thesis, in experiential learning.

Learning in the workplace is experiential learning. Much of the learning that occurs in the workplace is informal, in that it does not arise from a carefully planned curriculum and it is not dependent on a teacher–learner relationship. It is dependent on encountering relevant experiences and the opportunity to process those experiences for the learning they may contain. Workplace learning in the case of postgraduate medical education is equally dependent on the guidance and support of experienced practitioners who can assist in the interpretation of the learning opportunities to form medical practice knowledge through reflection and discussion. This poses particular challenges for those whose task it is to train and educate learners in the workplace. The challenge lies in the ability to initiate, recognise and support the 'inner happening' that is learning and the occasions that give rise to it. This reinforces the idea that supervision is the key pedagogy of medical education (Boor, et al., 2008; Kilminster & Zukas, 2005) and that the role of the supervisor is central to the learning experience.

4.3.2 Learning from the context

The work of Jean Lave and Etienne Wenger is frequently referenced in the medical education literature (Bleakley, 2006; Iedema, et al., 2010; Kilminster & Zukas, 2005; Sheehan, et al., 2005) and it has a particular focus on the role of the sociocultural aspect of learning. For Lave and Wenger, learning is conceptualised as occurring through membership of a particular community, usually a community within a workplace or discipline (Bleakley, 2002, 2006; Lave & Wenger, 1991; Wenger, 1998). Their theory of situated learning is a useful perspective on the process of workplace learning in the clinical setting where individuals of different disciplines and different levels of responsibility form the community that is involved in patient care. However, as Lave and Wenger emphasise, the community is not merely where learners acquire clinical knowledge and skills that can best be developed within the practice environment and where they absorb the culture of the medical profession: the clinical environment is also primarily about providing care to patients.

Furthermore Lave and Wenger understand that the increasing engagement and participation in the day-to-day activities of the community also involves the development of a professional identity. The learning process is seen as the increasing engagement and participation in the day-to-day activities of the community and it includes the development of a professional identity. In this way, learning is viewed as a social practice rather than dependent on curriculum or educational objectives; learning is a product or outcome of a social process rather than an internal and individual process. Engagement with colleagues in a joint activity is a key aspect (Sheehan, et al., 2005; Teunissen, Scheele, et al., 2007). Theorists from this position are focused on making explicit the learning that arises through engagement in a community of practice (Swanwick & Morris, 2010). Critics

of Lave and Wenger's work, whilst finding the concept of legitimate peripheral participation useful in understanding why some novice workers did or did not become full participants, noted the failure to identify the two-way direction of workplace learning (Fuller & Unwin, 2002; Fuller & Hokinson, 2005). Empirical research demonstrates that experienced workers also learn through their engagement with novices. This finding indicates that bringing in newcomers is a valuable strategy in enhancing ongoing learning in a community of practice (Fuller & Unwin, 2002; Fuller & Hokinson, 2005).

The medical education research around communities of practice has encouraged medical educators to focus on, and enrich, the learning context through the recognition of the sociality of the workplace and the consequent contribution that the broader health team can bring to the education of junior doctors.

4.3.3 Intentionality

While recognising the key role of the learning context, including the community of practice, I am most interested in the individual learning process. Billet (2001) draws attention to the individual by adding the concept of intentionality to the individual–environment dynamic. He argues that the interaction with the workplace environment is not sufficient: there must be more than opportunities afforded by the environment. The individual, in addition to their knowledge and history, must bring a level of deliberation to their activity (Billett, 2001). Workplaces offer opportunities for learning through the learners' participation in the workplace, thus the process is dependent on a form of reciprocity. A duality is located in what the workplace offers to individuals and, on the other, how the individual elects to engage with what is on offer. The quality of the learning process is determined by the extent to which the learner engages with the opportunity (Billett, 2004).

Illeris (2006) discusses how intentionality, or the purpose ascribed to the learning, influences the type of learning that ensues, and then provides a description of the learning processes, what Griffin (1987) calls the 'inner happening' of learning, by describing the mental processes that constitute this 'inner happening'. Illeris (2006) identifies these mental processes that are associated with learning as purposeful and argues that the purpose is context dependent. He then groups these mental processes into four types. Illeris's four fold typology sheds light on the process of construction implied, but not described, by other constructivist learning theorists (Illeris, 2009).

Illeris distinguishes four types of learning that are activated in different contexts, imply different kinds of learning, and require more or less mental activity on the part of the learner. These four types of learning are cumulative, assimilative, accommodative and transformational or expansive learning (Illeris, 2003, 2006, 2008, 2009) and are summarised in Table 4.2. Underlying these types is the assumption that the learner builds up or constructs his or her learning as a series of mental processes and that these processes exist in the brain as mental schemes or mental patterns.

These four types of learning are different to each other in scope and nature; they are in response to different situations and contexts. Cumulative learning is most likely to occur in early childhood, and in educational institutions such as medical school; transformative learning is highly significant (to the learner) and occasioned by an event that is personally relevant.

Assimilative and accommodative learning are both more likely to occur in formal and informal learning settings, particularly the informal setting of the workplace.

Table 4.2: Typology of learning (Illeris, 2009 pp12–14)

Type	Description
Cumulative	Something new, that is not part of existing knowledge, is added to the learner's understanding. The learning is mechanical and is recalled automatically in specific situations. This type of learning requires little mental energy, it merely increases the amount that is known.
Assimilative	This is the most common form of learning. Where new learning is linked in or 'hooked' onto existing learning, it results in a gradual increase in capacity or capability. The characteristic of assimilative learning is that existing mental schemes are enlarged in such a way that it is easy to assimilate and recall the scheme or pattern whenever one is orientated towards that particular field. Prior mental schemes are not challenged or altered.
Accommodative	A powerful form of learning where knowledge is encountered that is difficult to fit into any existing scheme or pattern, something unexpected, something that requires effort to accommodate that seems interesting or important. It may mean existing mental schemes need to be broken down and reformed. This type of learning requires more mental energy than the preceding types, and is more likely to be retained as part of one's mental furniture. It becomes knowledge that can be recalled and applied in different contexts.
Transformative/ Expansive	Similar in description to both expansive learning (Engeström, 2010), and transformative learning (Mezirow, 1991). This type of learning is highly significant to the learner and implies change in the individual. It is characterised by a restructuring of multiple established schemes and patterns to a significant degree. It represents a reorientation of self that results after a process of review, reflection and recognition of a change in oneself. It is both profound and extensive on both an emotional and cognitive level and demands considerable mental energy.

The accommodative and transformational dimensions of learning indicate a dynamic relationship between the learner, the 'teacher', the content and the context in which the learning takes place.

All four types of learning in the Illeris typology are descriptions of processes that take place within individuals and that are triggered by external situations. The framework reflects Illeris's background as a psychologist and does not take into account other perspectives informed by different disciplines. Whilst his descriptions of the four levels of learning may help teachers understand how particular learning experiences lead to particular thinking patterns, they do not inform educational practice to the same degree as the work of Ference Marton and Roger Säljö (1976).

4.3.4 Student approaches to learning

The empirical work of Marton and Säljö (1976) and Säljö (1981) identified variations in student approaches to learning and how student approaches to learning influenced learning outcomes. Illeris has little to say about the facilitation of learning other than to say that this is the role of the teacher, helping and supporting the participant's learning processes (Illeris, 2006). This underlines the theoretical nature of Illeris's work which lacks the applied dimension that is present in the work of educational researchers and educational practitioners.

Like Illeris, Marton and Säljö found that learners' intentions were influenced by their perceptions of the learning requirements. This section discusses an additional framework for understanding the factors that influence the learning processes. Billett identified learner intentionality while Illeris identified the learners' purpose. Both focus attention on the learner and what the learner does within the workplace. Research on student learning also shows that learner intention influences learning outcome. The relevance of the framework developed by educational psychologists Ference Marton and Roger Säljö (1976) lies in its original intention to discover how

students learn in order to inform how university teaching could be improved, and it is the applied nature of this discourse that provides a useful context for this thesis. As with the Illeris typology (2009), there are elements that help us understand the dynamic and structural elements of learning and how it can best be facilitated.

Marton and Säljö (1976) explore the relationship between what is to be learned, the learner and the learning environment: in this case, students studying at university. Their work involved interviewing their students about how they approached a particular task (examining a text) and why they approached the task in the way that they did. Their purpose was to understand why variations in learning outcomes occurred when students undertook the same task within the same context. This work proposed a link between how the students' perceived the learning task (the dynamic element) and how they approached the task (the structural element). Their research established that, if the students saw the learning task as one of reproducing what they had been taught, they employed a surface approach to learning whereas, if they perceived the task as requiring understanding, they employed a deep approach to learning. In the former, students skimmed the surface of the subject memorising what was required for later reproduction, a similar description to what Illeris (2009) terms cumulative learning. In the latter, students engaged with the subject matter in a way that would enable them to understand, incorporate and apply the subject matter (Marton and Säljö, 1997) this finding reflects the Illeris definition of accommodative or expansive learning. Table 4.3 shows that both typologies, one generated by Illeris and the other by Marton and Säljö, use similar descriptions to distinguish between the different types of learning.

Subsequent empirical research showed that students' approaches to learning and perceptions of their learning environment had an effect on the quality of their

learning (Trigwell and Prosser, 1991; Prosser and Trigwell, 1998). The students' approach to learning is determined by what they perceive the task to be, what the assessment task requires of them and how they experience the content. The students organise their response in relation to these stimuli.

Table 4.3 Comparing two perspectives on learning

Levels of learning (theoretical – universal)	**Conceptions of learning*** (empirical – university students)
Cumulative	Increasing one's knowledge Memorising and reproducing
Assimilative	Applying
Accommodating	Understanding
Expansive	Seeing something in a different way
Transformative	Changing as a person

Illeris 2006 Marton and Säljö 1976.

Trigwell and Prosser's (1991) research gives real potency to the teacher to influence the students' approach to learning through their design of the learning context and the tasks set for students to undertake. The students' approach to learning is influenced by what they perceive is required (Ramsden 1992). The concept of deep and surface approaches to learning has informed a number of research projects designed to increase understanding about student learning,

particularly in higher education. An inventory, by Noel Entwistle (1997a) designed around these concepts was developed for researchers, and teachers to use in assessing student approaches to learning in many disciplines and settings, *The approaches to study skills inventory for students* (ASSIST). This was based on Entwistle's earlier research with his colleagues on student approaches to learning (Entwistle & Tait, 1990).

The Entwistle inventory was subsequently adapted for use in a Canadian study of medical students' and residents' approaches to learning in the clinical setting. The Canadian study (Delva, Kirby, Schultz, & Godwin, 2004), a large quantitative, survey based study, examined the different approaches to learning of a group of clinical clerks and residents to determine the correlation between approaches to learning and perceived workplace climate, and the influence of gender, age, location, residency program and level of training on measured outcomes.

A modified version of ASSIST was then developed to study the approach of learners to learning in the clinical workplace environment (Kirby, Knapper, Evans, Carty, & Gadula, 2003) and the modified version was used in this Canadian study.

Kirby and colleagues' (2003) study identified three workplace climate factors as having a particular impact on the way learners approached learning in a clinical, workplace environment. One of these related to degree of choice or independence, defined as the perception of the degree of control over the tasks set and how these were to be done. The three work-place climate factors were 1) perceptions of good supervision, 2) perceptions of control/independence, and 3) the extent to which the workload was perceived as heavy. Items indicating that supervisors who were understanding, saw things from the trainees' perspective and took their ideas

seriously were seen to provide ‘good’ supervision. The key findings of this study are summarised in Table 4.4.

Table 4.4: Defining features of approaches to learning

Intention	Approach	Outcome
To cope with course requirements	Surface approach Studying without reflecting on either purpose or strategy Treating the course as unrelated bits of knowledge Memorising facts and procedures routinely Finding difficulty in making sense of new ideas presented Feeling undue pressure and worry about work	Reproducing
To understand ideas for yourself	Deep approach Relating ideas to previous knowledge and experience Looking for patterns and underlying principles Checking evidence and relating it to conclusions Examining logic and argument cautiously and critically Becoming actively interested in the course content	Transforming
To achieve the highest possible grades	Strategic approach Putting consistent effort into studying Finding the right conditions and materials for studying Managing time and effort effectively Being alert to assessment requirements Gearing work to the perceived preferences of lecturers	Organising

Good supervision and choice independence were positively associated with a deep approach and negatively associated with the surface/disorganised approach to learning. Perception of a heavy workload was significantly correlated with a surface/disorganised approach to learning. There was no evidence in this study that trainees were adopting the strategic approach identified in the Entwistle model

(1997a). Delva and her colleagues (2004) used the Kirby and colleagues survey (2003) for their research with similar results, as shown in Table 4.5

Table 4.5: Defining features of approaches to work in the clinical setting

Perceptions of workplace climate	**Approaches to work**
Heavy workload: having to cope alone	**Surface/disorganised**: Feeling overwhelmed by work. Survey item: 'At work I find it difficult to organise my time. effectively. Often I find I have to read things without having a chance to really understand.' 'My workload is too heavy'.
Supportive/receptive: help is available and colleagues are understanding	**Surface/rational:** Preference for order, detail and routine. Survey item: 'When I have a task to do at work, I like to know precisely what is expected.' 'When I learn something new at work, I put a lot of time into memorising important fact'. 'In my work I am always able to get help and advice'.
Choice/independence: I have control over what I do and how I do it	**Deep:** Integrative approach that leads to personal understanding Survey item: 'I have a lot of choice in what I do'. In my position one of the main attractions for me is to learn new things. I find it helpful to 'map out' a new topic for myself by seeing how ideas fit together'.

Whereas previous research on approaches to learning in medical education had focused on pre-clinical experiences (Delva, et al., 2004), this study conducted in 2004, canvassed residents. It involved over 1500 respondents and established a relationship between approaches to learning and perceptions of workplace climate. Thus the 2004 study demonstrated that previous research on the relationships

between approaches to student learning and perceptions of learners of their environment was relevant to learning in the clinical workplace (Delva, et al., 2004).

Delva and her colleagues (2004) study of residents in training found that most take a deep approach to learning; fewer took a surface/rational approach. Some trainees, particularly when feeling overworked, adopted a surface/disorganised approach for that particular time. Whilst the study found no causal relationship between other factors and approaches, studies of university students have found that students adopt a less effective approach to their learning when they are overwhelmed by course demands (Ramsden, 1992).

Delva (2004) concluded that where trainees perceived a supportive, receptive workplace, and a climate that encouraged choice and independence they exhibited a deep approach to learning, where the perception was of a heavy workload clinical trainees adopted a surface disorganised approach. The researchers noted that approaches to learning may change with maturity or mastery and that further research was indicated to determine whether educators can encourage more effective approaches to learning by attending to the workplace climate (Delva, et al., 2004).

A number of studies of student learning research found that the cues and indicators, formal and informal, open and hidden, provided by the learning environment (a combination of setting, teacher, curriculum and assessment) constituted signals that influenced the learners' understanding of the learning task and therefore the way in which they approached it (Biggs, 1996b; Entwistle, 2007; Laurillard, 1993; Martin & Balla, 1991; Ramsden, 2003; Trigwell, Prosser, & Waterhouse, 1999). The cues and indicators that had a bearing on students' approaches to their learning and subsequently on learning outcome included:

- Clear learning objectives aligned with assessment tasks and processes (Biggs & Collis, 1982).
- Feedback that is timely and developmental (Prosser & Trigwell, 1998).
- Teaching that is learner-centred and focused on conceptual development rather than information transmission (Martin, Prosser, 2000).

These same factors, clear learning objectives, feedback and teaching that is focused on conceptual development rather than information transmission have also been found to play a significant part in effective programs for junior doctors (Balla, 1998).

4.4. Summary of the chapter

This chapter has provided a broad introduction to the nature of medical education research and the clinical context in which it takes place. The pivotal role of the medical supervisor and the place of curriculum in the pre-vocational medical education arena were discussed. The second part of this chapter discussed theories of workplace learning and adult and experiential learning that are especially relevant to the task of studying the working and learning experiences of junior doctors. As such the chapter acts as a foundation for the discussion of intern on-the-job learning. The next chapter will present a selection of research studies of junior doctors who are learning on-the-job.

Chapter 5: Qualitative studies of junior doctor learning

5.1 Introduction to the chapter

This chapter reports on a number of qualitative studies of junior doctor experience. The studies were selected through reviewing the health professional journals, following up citations and key authors, ancestry searching and a specific MEDLINE search. In all 37 studies were reviewed.

5.2 Search strategy and inclusion criteria

Two searches were conducted with the primary aim to consider studies of the intern experience that qualitatively explored the perspectives of the interns themselves and that reported their descriptions of their first years of practice. Initially, an unstructured approach to searching the literature was conducted, through:

- Regular review of medical and health professional education journals, both prior to and during the doctoral study.
- Ancestry searching (Haig & Dozier, 2003).
- Citation searching and following key authors that complemented the journal reviews.

Only studies were included which conformed to the following criteria:

- Published during the past two decades
- Qualitative methods
- Studies that involved junior doctors in their first to third year of practice.
- Studies that explored the junior doctor experience from the junior doctors' perspective

- Studies that reported the workplace learning experience.

Seventeen articles were identified in this way.

An additional structured MEDLINE search using Ovid was conducted to broaden and deepen the literature base. Structured searching in this area is challenging, as there is no internationally fixed nomenclature for the first year of practice post graduation. Nor do all jurisdictions require a generic pre-registration period of training (Wijnen-Meijer, Burdick, Alofs, Burgers, & ten Cate, 2013). In North America and some European countries, medical school graduates move straight into vocational training. In Australasia and in the UK graduates first undertake general experience before specialisation. Differences in nomenclature resulted in the inclusion of studies that considered the experiences of junior doctors in their first to third year post-graduation. The MEDLINE Ovid search was conducted in March 2012 using the following keywords:

Intern OR
Interns
Pre-registration house officers
Foundation years
Junior residents
Junior doctors
Pre-vocational

The MEDLINE search resulted in 4000 citations. The inclusion criteria were the same as for the initial search and studies were excluded by title and abstract, then by full text as required. The search was further refined to eliminate studies on procedural or skills training, as my research was concerned with learning through working as a doctor in the care of patients. Twenty studies were identified, making

a total of 37 articles. The earliest qualitative research report on junior doctor learning in the work place was published in1996.

Most of the 37 studies came from the United Kingdom and the US, together accounting for 20 of the reports. Australia was the next largest contributor accounting for six of the studies. There were only two studies published prior to 2000 and both were conducted in the US. Most of the studies were published in the later part of the decade 2000–2010, suggesting a recent trend of increased interest in research into the experiences of junior doctors.

Table 5.1 Studies by year of publication

Year	Nos.
1996–1997	2
2000–2005	11
2006–2010	16
2011–2012	7

The data for these studies was collected mainly through individual semi-structured interviews and focus group interviews; in two studies interviews were combined with observations of junior doctors at work.

Table 5.2 Number of studies by country

Country	Nos.
Australia	6
Belgium	1
Canada	1
Denmark	2
Ireland	2
Netherlands	2
New Zealand	2
Scotland	1
United Kingdom	12
United States	8
Total	37

One large UK survey, with 1400 Pre-Registration House Officers (PRHOs) participating, was included here, as content analysis was used to determine emerging themes from one open-ended question in the otherwise quantitative survey. Sample sizes in these studies ranged from 10 to 1400 junior doctors. Most frequent were studies with a sample size of between 20 and 30 participants.

Table 5.3 Thirty-seven studies by sample size

Nos. of participants	**Nos. of studies**
>30	19
30-50	12
50 +	6
TOTAL	**37**

5.3 Features of included studies

Table 5.4: Summary of studies on the learning and working experiences of junior doctors

Source	Aim of study	Participants, Data Collection & Analysis	Main Findings
(Lichstein & Young, 1996) US	Determine usefulness of critical incident reporting in facilitating reflective learning.	Reports from students, 34 residents and physicians were collected over a ten-month period. 98 narratives were analysed to determine themes. Frequency of themes and meanings given to the theme by the participants subsequently analysed.	Writing the narratives revealed the nature of the learning experienced by the participants. The most frequently described events, and also revealing the **deepest level of learning were, of non-biomedical dimensions**. Also of value was the opportunity to **share interpretation of events** with others.
(Marks, Baskin, Lovejoy, & Hafler, 1997) US	Study intern perceptions of their learning during a rotation on a short stay unit.	10 interns participated in semi-structured interviews at conclusion of rotation. Data was analysed using thematic analysis.	Two main factors contributed to learning, a) clustering of patients with similar conditions and b) the attention of the consultants. The teamwork in this innovative program was also noted and appreciated by the interns.
(Hannon, 2000) Ireland	Study interns learning needs and their perception of how they were helped to acquire competencies and professional characteristics.	95 graduate doctors were surveyed and interviewed. SPPS was used to analyse the questionnaire data. Interview data analysed qualitatively into themes and matched to questionnaire results.	Ninety-one reported not prepared for all the skills required of an intern. **Formal education and training during the year was poor**. They experienced some development of their skills and characteristics over the course of the year.
(Williams, Cantillon, & Cochrane, 2001a) UK	Study the clinical experiences and supervision experienced by PRHOs undertaking a general practice rotation as part of the PRHO year.	12 PRHOs undertaking general practice rotations as part of their PRHO year were interviewed at the beginning and end of the year, and following return to hospital work after the GP rotation. Qualitative evaluation techniques were used.	All PRHOs valued the experience, particularly the individualised training received, the interlinking of theory with practice, sense of ownership of and responsibility for patients. The GP rotation was seen to foster self-directed learning skills.
(Williams, Cantillon, & Cochrane, 2001b) UK	Describe the experience of how the doctor-patient relationship of newly qualified doctors varied from their undergraduate expectations of the relationship.	24 newly qualified doctors, across ten diverse sites, participated in semi-structured interviews. Verbatim transcripts were analysed using grounded theory techniques.	Differences in the doctor-patient relationship were described as being more authorative and perceived as a product of the setting. They also reported a changed perception as to what a 'good doctor' was.
(Paice, Moss, Heard, Winder, & McManus, 2002) UK	Study relationship between PRHOs and their consultants.	1400 PRHO's survey. Two researchers used content analysis responses to one main open-ended question with subsequent questions to identify themes.	I**mportance of formal appraisal or review by consultants set the tone for a productive relationship**. Positive relationships equated to a positive view of medicine as a career.
(Pearson, Rolfe, & Smith, 2002) Australia	Examine the self-reported influences on intern prescribing practices.	10 interns interviewed in two hospitals. Verbatim transcripts analysed using ethnographic techniques.	Interns perceive that **undergraduate learning 'lies dormant' until taught in an appropriate context.** Learning something **"theoretically is very different to putting it in place in practice"**. Interactive bedside teaching was seen as most effective.
(Hesketh, Allan, Harden, & Macpherson, 2003) Scotland	Study graduates' own perceptions of their development across their first year.	57 PRHOs were interviewed at end of their first year followed by a questionnaire based on collective responses. Data was analysed using NVivo.	PRHOs emphasised the need to develop generic skills such as **communication, teamwork and ability to cope with responsibility necessary for working in the 'real world**'. Practical skills were rated highly but not noticeabley developed.

NOTES: PRHO Pre-Registration House Officer (UK); FY1 Foundation Year 1 and FY2 Foundation Year 1&2 (UK); WBA work based assessment

Table 5.4: Summary of studies on the learning and working experiences of junior doctors, continued

Source	Aim of study	Participants, Data Collection & Analysis	Main Findings
(Schulman-Green, 2003) US	Determine how house staff, in the absence of formal training, learn to provide palliative care through education from physicians and other hospital staff, **and by on-the-job learning**	20 house staff were interviewed. Verbatim transcripts were qualitatively analysed using ATLAS software for coding and analysis.	House staff learnt **little to nothing through formal education,** to varying degrees from attending physicians and **mostly on-the-job and through mistakes**.
(Prince, Van De Wiel et al. 2004) The Netherlands	Explore junior doctors' opinions about the transition from student to practitioner	17 recent graduates participated in focus groups. Abridged transcripts of videotaped sessions. Two moderators reached consensus on relevant topics and reports were read and verified by participants.	Participants characterised **transition to house officer as the most crucial encountered so far.** Of significance was increase in responsibility, workload and work content, relationships with patients and health care workers and feelings of uncertainty.
(Smith, Morris, Francovich, Hill, & Gieselman, 2004) US	Develop understanding of the relationship between experience, concepts, contextual variables, and learner behaviour in a teaching clinic	Researchers, trained in ethnographic techniques, over the course of two years, observed 13 residents and 12 supervisors. Analysis comprised discovery of significant events, establishing categories and identification of key factors leading to 'break-down'.	Exposure to 'breakdown' offered a critical moment and opportunity for reflective learning. **An effective response to 'breakdown' required the presence of direct engagement with patient,** responsibility matched to authority, tools matched to task, values matched between co-participants and expectations matched to capacity.
(Kendall, Hesketh, & Macpherson, 2005) UK	Determine which factors help or hinder learning of junior doctors in their PRHO year.	40 middle grade trainees participated in semi-structured interviews about their PRHO year. Transcripts were analysed using grounded theory techniques.	Factors that enhance the learning; environmental support, recognised as a valuable team member, being stretched but not over stretched. Limiting factors fractured work hours and limited time with patients.
(Lack & Cartmill, 2005) Australia	Identify and explore the characteristics interns find helpful in their supervision by registrars	18 interns participated in individual semi-structured interviews. Notes of the interviews were subject to content analysis by two researchers.	Whilst overall interns viewed supervision by registrars positively areas for improvement were noted. Important to address as study found that **registrars were central to the success or failure** of the rotation as a positive learning experience.
(Sheehan, et al., 2005) New Zealand	Explore factors that encourage interns' active participation within clinical rotations	17 interns participated in interviews and focus groups. Data from interviews was categorised under themes by the researchers using inductive analysis and grounded theory techniques.	The factors that encouraged participation were, taking responsibility, fitting in with the team culture; positive relationship with supervisor, positive interactions with other staff. A barrier to participation came from the learning behaviour of the intern.
(Deketelaere, Kelchtermans, Struyf, & De Leyn, 2006) Belgium	Study the interaction between intern characteristics, training setting characteristics and the interactions between these two	46 interns and eight supervisors were interviewed, data was collected through shadowing, individual interviews and focus groups. Data was analysed thematically and case studies were constructed.	Six components of the learning experience were identified. • Intern needed to redefine and reposition themselves during the experience. • Tension between working and learning • Attitude of the supervisor evaluator versus coach • Culture of the training setting work orientated versus training orientated • Intern's attitude passive versus reactive • The nature of the learning process informal versus informal
(Brown, Chapman, & Graham, 2007) UK	Explore reasons why some junior doctors view their training as a valuable period in their development and others as a year to be endured and survive	237 PRHOs and 166 supervisors completed interactive questionnaires. Case study methods were used and each stage of the data collection informed the next phase.	Lack of support and supervision are key issues in determining success or merely survival. Authors argue for introduction of apprentice style supervision..

NOTES: PRHO Pre-Registration House Officer (UK); FY1 Foundation Year 1 and FY2 Foundation Year 1&2 (UK); WBA work based assessment

Table 5.4: Summary of studies on the learning and working experiences of junior doctors, continued

Source	Aim of study	Participants, Data Collection & Analysis	Main Findings
(Lawson, et al., 2007) Australia	Explore intern view of the nature of the skills, knowledge and professional attributes required of them and their level of preparedness for the next stage of their training	A case study drawn from semi-structured interviews with 10 interns. Two qualitative researchers developed a coding framework. The case study was a part of a larger Australian Medical Education Study.	Taking responsibility for patient care was a dominant theme. Interns identified the **tension that exists between being ready for responsibility and needing to have the degree of experience** to be ready.
(Teunissen, Scheele, et al., 2007) The Netherlands	Investigate how residents learn in the clinical workplace	51 residents participated in focus group interviews. A grounded theory approach was used to analyse the transcriptions of the group discussions.	Learning starts with **participating** in the work related activities of their day. The learning is precipitated through observation, **interpretation, construction of meaning, reflection and the codification** of their knowledge.
(Brandt & Nielsen, 2008) Denmark	Study of how group supervision may help junior doctors recognise the learning potential in difficult on-the-job situations.	8 junior doctors participated in intervention and responded to qualitative and quantitative evaluation questions.	Study illustrated the learning potential of **shared reflection** regarding difficult interactions. Respondents reported improvement in co-operation, professional and management skills.
(Cantillon & Macdermott, 2008) Ireland	Determine the factors that contribute most to intern learning in the general practice setting.	46 interns and their supervisors were interviewed about experiences in hospital and GP settings. Transcripts analysed by researchers, themes identified and subsequently verified by all participants.	Interns described how **greater individual responsibility** for patient care experienced in the GP setting led to better learning opportunities.
(Gome, Paltridge, & Inder, 2008) Australia	Study of interns' own assessment of their preparedness for general medical rotation pre and post the rotation.	25 interns. Pre and post questionnaires where interns were asked to comment on differences between their pre and post responses. Statistical analysis and qualitative analysis of results was conducted by the researcher and verified by an independent reviewer.	The educational experiences most valued by the interns were **peer driven education sessions and informal registrar teaching.** Formal consultant teaching and on-line learning were perceived as being least useful.
(Henriksen, Ringsted, & Pederson-Ring, 2008) Denmark	Explore the value to PRHOs of mandatory educational seminars.	Focus group discussions with 20 junior doctors. Content analysis of transcripts conducted.	Four key benefits to junior doctors, social aspect, **sharing experiences**, utility where they learn new tools, **sense of recognition**. Value seen to be that of facilitating and supporting development of both clinical competence and identity as a doctor.
(Kroll, Singleton, Collier, & Rees Jones, 2008) UK	Investigate junior doctor experience of, and response to, medical error	38 junior doctors FY1&2 interviewed. Transcripts were entered into NVivo. Analysis followed grounded theory techniques.	A **norm of selective disclosure** was found. This led to a loss of potentially valuable learning opportunities. Explanations for error were largely individually focused, thus impeding these trainees from reporting, discussing and learning from the event.
(Stewart, 2008) UK	Determine what influences a junior doctor's response to a judgement call within the clinical setting	21 PRHOs took part in audio-recorded interviews. Transcripts were analysed using NUDIST and included sorting and labelling the data into categories. Extensive sorting and analysis led to the development of diagrammatic representations.	The decision as to whether to contact a senior was a highly complex matter. This study illuminated the complexity of the judgement to call for help. **Cultural knowledge was more useful than codified knowledge.** The need to make the call was precipitated where a problem was multi-faceted and a multiplicity of consequences was at stake.
(Ackerman, Graham, Schmidt, Stern, & Miller, 2009), US	Identify and study the most critical events in the lives of interns	41 residents. Grounded theory used to analyse residents' written accounts of low point, high point and a patient conflict event in their working experiences.	High points were characterised as events developing confidence and connections; low points were more generally dispersed across the experience. Patient conflict arose through negotiation of the patient–doctor relationship.

NOTE: PRHO Pre-Registration House Officer (UK); FY1 Foundation Year 1 and FY2 Foundation Year 1&2 (UK); WBA work based assessment

Table 5.4: Summary of studies on the learning and working experiences of junior doctors, continued

Source	Aim of study	Participants, Data Collection & Analysis	Main Findings
(Kennedy, Regehr, & Baker, 2009) Canada	Determine the pressure on trainees to be independent workers and not ask for assistance unless absolutely necessary	88 junior doctors recruited from emergency and internal medicine rotations. Data from observations and semi-structured interviews were analysed using grounded theory techniques.	Pressure by supervisors and desire on the part of the trainee to be an **independent practitioner may not be in the interests of patient safety**. Paying attention to level of workload and **self and team evaluation** may improve patient safety without compromising the development of independent practice.
(Roberts, 2009) UK	Develop theoretical understandings of doctors' transitions and their relationship to medical performance	Focused interviews with 37 FY1 doctors formed part of a larger study. Analysis of the verbatim interview transcripts followed an iterative process of description, analysis and interpretation.	**Transitions are critically intense learning periods**. The immediate requirement to deliver patient care delivered a transformative experience. The extent the **learning culture of the setting** recognised the transition the more positive the learning experience.
(Balmer, Master, Richards, Serwint, & Giardino, 2010) US	Study the context and meaning of contemporary bedside teaching rounds	Observations of the medical team and interviews with sample of 16 interns plus 25 other members of the medical team.	Whilst '**bedside round**' is embedded in the language the activity itself occurs infrequently. It is more of a **'ritual' or 'sacred cow'** rather than a commonplace or regular activity.
(Brennan, et al., 2010) UK	Study first year experience with focus on transition from student to junior doctor and the effectiveness of their preparation for the transition	31 new graduate participants. Interviews, and audio diaries used to collect data. Qualitative data analysis software package was used to analyse the data thematically.	Severe stress experienced by many, contributing to this was extent of their responsibility, and dealing with uncertainty. There is a need for **preparation for the reality of workplace-based learning.** Study explores the experience of PGY1s; it does not focus on the nature or quality of their on-the-job learning other than to note the need for better preparation for learning on-the-job.
(Iedema, et al., 2010) Australia	Identify the types of supervision events, their frequency and quality in a rural hospital setting	5 junior doctors, 5 registrars, 2 consultants. Data was collected via junior doctor diaries over two weeks transcribed and analysed using both quantitative and qualitative methods.	**Supervision** must be both structured and dynamic, providing forum for discussion and reflection and **navigation between 'hands on' and 'hands off' approach.**
(Bearman, et al., 2011) Australia	Study of experiences and developing professional identify of interns in three Australian states	30 interns & 6 supervisors interviewed. Grounded theory techniques used to analyse data. Two key themes identified: internship as participation and as progression.	Important to balance support from colleagues and supervisors with i**ncreasing independent responsibilit**y. Strength of prevailing view of internship as part of a natural progression along medical education continuum.
(Bernabeo, Holtman, Ginsberg, Rosenbaum, & Holmboa, 2011) US	Study of the experience and impact of frequent transitions on residents.	97 participants, mix of residents, nurses, supervisors & ancillary staff . Focus groups. Grounded theory technique used to analyse data.	Challenges the value of **frequent rotations as residents come to value flexibility and efficiency over relationship building** and deep system knowledge.
(Claridge, 2011) UK	Assess educational value of ward rounds since introduction of Foundation Years Program	33 Foundation year doctors completed a survey. Small discussion groups convened following survey to discuss results.	Ward rounds remain a useful but underutilised learning opportunity. Time constraints, increasing patient numbers, and changes to team membership are main barriers to learning.

NOTE: PRHO Pre-Registration House Officer (UK); FY1 Foundation Year 1 and FY2 Foundation Year 1&2 (UK); WBA work based assessment

Table 5.4: Summary of studies on the learning and working experiences of junior doctors, continued

Source	Aim of study	Participants, Data Collection & Analysis	Main Findings
(Kilminster, Zukas, Quinton, & Roberts, 2011) UK	Investigate the effects of transitions upon the medical practice of junior doctors entering clinical practice from student to doctor and from generalist to specialist clinical practice. The former aspect is of interest to this thesis	10 first year junior doctors were interviewed. Interview transcripts were analysed using qualitative methods and considered in the light of other data gained through survey, literature and policy documents.	T**ransitions may be reframed as critically intensive learning** periods. To make the most of this learning opportunity, structure and protocols could be developed to enhance and enlarge this window of opportunity.
(Nothnagle, Anandarajah, Goldman, & Reis, 2011) USA	Examine the residents' learning culture, particularly in relation to self-directed learning	Semi-structured interviews with 10 residents. Verbatim transcripts were analysed for major themes and higher order interpretations.	**Patient care central** to learning but tension found between service and learning. **Concept of self-directed learning valued** but not practised. Preference for formal didactic teaching of which there was little.
(McKavanagh, Smythe, & Carragher, 2012) UK	Determine junior doctors' view of value of consultant input into their workplace-based assessment	8 FY2 doctors participated in focus groups following completion of survey by 219 FY2 doctors. Focus group verbatim transcripts were analysed for themes and compared with the survey results.	The junior doctors did not feel that the consultants were keen to undertake WBA; most of the assessments were conducted by other doctors in training reports of doctors at same level and who were friends. Overall the **WBA process was not a positive contributor to their learning experience.**
(Sheehan, et al., 2012) New Zealand	Reveal and chronicle the informal and tacit learning of junior doctors in the workplace	27 interns across three sites participated in qualitative group interviews. Key agreed points to emerge from the data were recorded on large sheets of paper and discussed by participants. Analysis comprised comparison between sites then emergent themes, in particular references to identity formation were noted.	Contributing to learning and development as a doctor were: **Concrete tasks** – technical skills, acute care and being 'on the spot'; **Identity formation** – becoming an employee, teamwork with other professionals, difficult communications and recognising self-limitations, being seen as a doctor'; **Project management**– involving coordination of patient care, teamwork and liaison, developing time-management and prioritisation skills.

NOTE: PRHO Pre-Registration House Officer (UK); FY1 Foundation Year 1 and FY2 Foundation Year 1&2 (UK); WBA work based assessment

5.4 Literature Synthesis

The first year of medical practice is frequently described as a rite of passage (Bearman, Lawson & Jones, 2011; Brennan, Corrigan, Allard, Archer, Barnes &Bleakley, 2010). The notion of rite of passage seems particularly apt as it suggests initiation, testing, and proving oneself ready and fit to join, all aspects of the experience of the first year of practice for the junior doctor. The junior doctor experience described in the studies reported here was similar across all the countries in which the research was conducted. In considering these studies five key features were identified:

- Transition into the workplace and the role of the junior doctor
- Preparedness for the realities of the workplace
- Learning through patient care
- Supervision, appraisal and feedback
- Shared experience, discussion and reflection

5.4.1 Transition into the workplace and role of junior doctor

The transition from medical student to practising doctor is naturally marked by anxiety, insecurity and trepidation as it involves movement from a known sphere of engagement into a new sphere, with different players, processes and responsibilities (Kilminster, Zukas, Quinton & Roberts, 2011; Lawson, Bearman & Jones, 2007; Roberts, 2009). Transition from student to worker may also mark a move from economic dependence to economic independence, away from family and into fully adult relationships, and thus for many this is a period of personal transition as well a professional one. So, at a stressful time in their lives, these young doctors entered a world where they felt their performance to be under continual scrutiny by their peers and senior colleagues whom they perceived as making continuous judgements on their capabilities (Brown, et al., 2007). These

young doctors were expected to take responsibility for patients allocated to their care and the realisation of their responsibility led to anxiety about their level of preparedness in a range of clinical domains (Bearman, et al., 2011; Brennan, et al., 2010; Brown, et al., 2007; Roberts, 2009). One junior doctor in Denmark commented:

> [In my experience I have] good medical knowledge, social and clinical skills. However there is no gradual build up of responsibilities, no guidance in learning to work independently and in taking decisions (Prince, Van De Wiel, Van Der Vleuten, Boshuizen, & Scherpbier, 2004 p. 328).

An Australia intern described a similar experience:

> There's a big difference between your actual clinical knowledge and then your application of it … So you can actually find (something) out as a med student but then when you've actually got to act on it…it's a big difference … (Lawson, et al., 2007 p. 8).

A major research project in the UK exploring transition and its impact on performance noted a number of key factors present during periods of transition. Two of these aspects were specifically relevant to the move from medical student to first year of practice.

> 1) Every transition involves a critically intense learning period (CILP) in which doctors have to engage with the particularities of the setting and establish working relationships with the doctors and other professionals who work there. Therefore doctors can never be prepared in advance because learning practice and performance are inseparable.
>
> 2) Trainee doctors in transition recognise that they are learning and expect to underperform at the beginning. Other professionals may recognise this;

> however, employers and regulatory bodies do not recognise and/or accommodate these aspects in their expectations of trainee doctors' performance. (Roberts, 2009 p. 24).

The realities of transition are discussed in the literature, and the potential for a heightened learning experience, but in practice the clinical setting is seldom sufficiently flexible to modify demand for individual preparedness. A number of junior doctors reported feelings of unpreparedness for the reality of the workplace (Brennan, et al., 2010; Hannon, 2000; Lawson, et al., 2007). One study identified the potential of transition as a powerful opportunity for learning. Transitions do allow for intensive learning through engagement with the particularities of a new setting and different working relationships, but this is only possible when the settings are able to recognise and value and support the opportunity (Kilminster, et al., 2011).

5.4.2 Preparedness for the realities of the workplace

Whilst the overt focus of junior doctor learning during the first year is patient care and the development of clinical skills and knowledge, studies found that it was first necessary to learn about the environment and the people in it. The junior doctors reported significant learning in the domain of professionalism which included the more generic competencies required to work in the 'real world': skills associated with working in a team, accepting and coping with increased responsibility, learning that they had to be more pro-active in their professional development and in looking after themselves (Ackerman, et al., 2009; Hesketh, et al., 2003; Lichstein & Young, 1996; Sheehan, et al., 2012). The transition period was a time of stress as the junior doctors coped with uncertainty and increased responsibility for which their undergraduate experience had not prepared them (Brennan, et al., 2010; Hannon, 2000; Lawson, et al., 2007; Prince, et al., 2004). There was considerable

evidence presented in the studies that junior doctors lacked generic skills and that these were essential both to negotiating entry into working teams and for working as a productive team member. Some junior doctors felt ill prepared for on-the-job learning and lacked the skills required for self-directed learning (Brennan, et al., 2010; Hannon, 2000; Hesketh, et al., 2003). One study, in particular, identified interns as reporting that they were ill prepared for becoming an employee, had difficulty making relationships with other professional colleagues and in recognising self limitations (Sheehan, et al., 2012).

Junior doctors emphasised the need to develop generic skills such as communication, teamwork and the ability to cope with responsibility as being necessary for working in the 'real world' (Brennan, et al., 2010; Hesketh, et al., 2003; Lichstein & Young, 1996). The other area of significant new learning was the domain of professional responsibility. Junior doctor acceptance by their work team, and their confidence in accepting responsibility; all contributed to their awareness of professional behaviour and their identity as a doctor (Brandt & Nielsen, 2008; Williams, et al., 2001a).

The practice of the non-clinical generic skills of communication and teamwork were deemed to be essential for effective on-the-job learning. The ability and opportunity to share the interpretation of events with others was seen to be essential. Learning starts with participating in the work-related activities of the day and is precipitated through observation, interpretation, construction of meaning, reflection, and codification of their knowledge (Brandt & Nielsen, 2008; Henriksen, et al., 2008; Lichstein & Young, 1996; Sheehan, et al., 2012; Teunissen, Scheele, et al., 2007).

One particular study examined critical incidents as a precipitator to deep reflective learning (Smith, et al., 2004). The study asked junior doctors to write a brief report of a critical incident. These reports were subsequently used as a tool for shared reflective learning. Subsequently, the reports and the shared discussion were analysed for themes. Smith and colleagues (2004) studied the critical incidents and found that to become learning moments, the incidents required the presence of direct engagement with a patient, responsibility matched to authority, tools matched to task, values matched between co-participants and expectations matched to capacity (Smith, et al., 2004).

5.4.3 Learning through patient care

The 37 articles listed in Table 5.4 reported on the aspects of caring for their patients that led to learning by junior doctors. That is not to say that the demands of the clinical setting did not get in the way of learning, they did. Tension between patient responsibility and learning, time constraints, increasing patient numbers and changes to team membership presented barriers and reduced the learning potential of the clinical workplace (Claridge, 2011; Nothnagle et al., 2011). There was a constant tension between service and learning (Claridge, 2011; Nothnagle, et al., 2011).

On-the-job learning was provided through a combination of direct engagement with patients, responsibility matched to authority and competence, tools matched to task, and it was seen as helpful when colleagues had shared values about patient care and teamwork (Deketelaere et al., 2006; Sheehan, et al., 2005; Smith, et al., 2004). Junior doctors perceived that their undergraduate learning lay dormant until it could be utilised in an appropriate context (Hesketh, et al., 2003). In one study they reported learning little through formal education: most of their learning they

attributed to learning on-the-job and through their mistakes (Schulman-Green, 2003).

An Australian study placed participation in shared responsibility for patient care at the centre of the intern learning experience (Bearman, et al., 2011). However, the demands of the hospital system for the junior doctor to see and treat as many patients as possible in the shortest possible time is unlikely to provide the calm atmosphere for deliberate, reasoned consideration of what is to be done, or reflection on what has been done and the way it was done (Nothnagle, et al., 2011). The extent to which the junior doctor is treated as a full team member or as a novice with limited capacity, also influences the learning climate (Deketelaere, et al., 2006; Kendall, et al., 2005; Sheehan, et al., 2012).

This perception of the capacity and role of the junior doctor in the medical team is important because many of the reports from the junior doctors in these studies identify the responsibility they feel, or have, for patients greatly increases the potency of the learning outcome (Lawson, et al., 2007; Prince, et al., 2004; Sheehan, et al., 2005). In addition to being granted responsibility for patient care, the sense of being valued team members was seen as important to learning and to acceptance as a legitimate team member (Henriksen, et al., 2008). Kendall and colleagues illustrated their article with a number of quotations from junior doctors describing how acceptance by the staff and workload affected their learning; “Feeling a valued member of the team”. “Being stretched but not over stretched”. (Kendall, et al., 2005 p. 621).

The opportunity afforded by taking responsibility often occurred through the absence of a more senior team member (Bearman, et al., 2011; Lawson, et al., 2007). In the absence of more experienced staff, the capacity of the intern was

tested as was their capacity to participate, engage fully in the work and make decisions (Sheehan, et al., 2005). The process of deciding to take responsibility or to ask for help was also an important precipitator for learning (Iedema et al., 2010). The decision as to whether to contact a senior was a highly complex one, in which cultural knowledge was more useful than codified knowledge. The need to make the call was precipitated where a problem was multi-faceted with a multiplicity of consequences at stake, hence the need for the exercise of considered judgement (Stewart, 2008).

The issue of responsibility is a vexed one. Whilst a powerful precipitator of learning, it must be balanced with issues of patient safety. Trainees were often reluctant to ask for help as they wished to demonstrate their independence and also the desire not to 'bother' their seniors thus patient safety could be compromised (Kennedy, et al., 2009; Stewart, 2008). One study reported that a reluctance to disclose errors on the part of trainees meant that many valuable learning opportunities were missed. Learning was maximised when errors were formally discussed and constructive feedback offered. Disclosure of errors on the part of junior doctors required a supportive team climate to encourage the junior doctor to see that this would be treated constructively; frequent staff changes and lack of continuity between teams mitigates against the development of a climate of trust, and the reporting of error (Kroll, et al., 2008).

5.4.4 Supervision, appraisal and feedback

Changes in the way we conceptualise learning in the clinical workplace have focused attention on the practices of the supervisor and the nature of supervision. Ideas about workplace-based assessment, learning in communities of practice, and formative, timely and ongoing feedback have entered the medical education space (van der Vleuten & Schuwirth, 2005; Wass & Archer, 2011). These ideas

are a direct challenge to the traditional modes of assessment and training of junior doctors and this is apparent in the research into the junior doctor experience that is reported here. Whilst it is argued that the apprenticeship form of supervision no longer exists, (Bleakley, 2002), elements of the expert/novice relationship remain. Junior doctors are supervised by those more experienced than themselves and the supervisory relationship is expected to contribute to the junior doctor's learning. The supervisor is also largely responsible for the formal assessment, performance appraisal and formal feedback to the junior doctor. These studies demonstrate that there is considerable variation in the efficacy of the one-on-one supervisory relationship as one productive of learning (Deketelaere, et al., 2006; Paice, et al., 2002). Lack of support from supervisors and the absence of supervision of their work were identified as a barrier to learning (Brown, et al., 2007).

The centrality of the supervisor to the learning process of junior doctors is emphasised in numerous reports, many of which quote the junior doctor specifically,

> A lot of medicine kind of depends on who you have as your seniors. And if you have good seniors you'll become a good doctor (Lawson, et al., 2007 p. 11).

> It is the registrar that makes or breaks a term, rather than the consultants or the particular ward where one is placed (Lack & Cartmill, 2005 p. 71).

Fourteen of the 37 research reports discussed in this review specifically address issues related to supervision, teaching, appraisal, assessment and feedback. Formally, the responsibility for these functions lies with the senior consultant. In reality, the experience of the junior doctor is that supervision is dispersed within the medical team and its effectiveness is dependent on the personal characteristics of the supervisor and their commitment to their teaching role

(Brown, et al., 2007; Claridge, 2011; Iedema, et al., 2010; Lack & Cartmill, 2005; Marks, et al., 1997).

One particular study, using both quantitative and qualitative methods and involving over 200 junior doctors in the UK, found that the junior doctors felt their consultants were reluctant to engage in work-based assessments but that when they did the result was invaluable. Similarly, these junior doctors reported difficulty in arranging meetings with their consultants (McKavanagh, et al., 2012). Junior doctors in these studies tended to rely on their peers and their near peers in the medical team for their support and learning in the everyday situation in the clinical setting but valued the interest and input of their senior consultant when it was made available.

Whilst most of the studies of supervision have focused on the consultant as the supervisor, the interns work more closely with their immediate supervisor, their registrar. A small Australian qualitative study of 18 interns found that interaction between interns and their registrars played a large role in determining interns' work satisfaction and learning opportunities (Lack & Cartmill, 2005). The study's aim was to identify the behavioural characteristics of registrars that interns found helpful in their working relationships and workplace learning. Like similar larger studies; three categories of characteristics were identified,

- Personal attributes and attitudes
- Teaching and supervising skills
- Communication, team-working and interpersonal skills

  (Iedema, et al., 2010; Jolly, Bird, McGrath, & Sutton, 2010; Kilminster & Jolly, 2000)

The teaching and supervising skills and attributes identified in the Lack and Cartmill study (Lack & Cartmill, 2005) included the capacity to make time to review

patients with the intern; value the intern's time, suggestions and contribution; to establish ground rules and protocols at the start of the rotation; and to be organised, punctual and thorough. Subsequent research has added weight to our understanding of the significance of the registrar to intern learning; the frequency of interactions between intern and registrar in relation to patient care create trust in the registrar's knowledge and subsequent advice (Dent et al., 2006; Gome, et al., 2008; Pearson, et al., 2002).

Bedside teaching and the teaching round have been the cornerstone of medical education in the clinical setting but seem to have fallen victim to the changes that have occurred to hospital delivery of patient care.

> I think time is always the big thing because our rounds are not just teaching rounds, they're work rounds. There's always kind of this voice in the back of your head, especially as the senior who's responsible for making sure that things are running smoothly, that time is encroaching … the clock is always in your head. Resident. (Balmer, et al., et al., 2010, p.1110).

Increased workloads and shorter patient stay time have had a deleterious effect on this practice reducing it to a ritualistic formula of allocating tasks, with little discussion; this is not without merit, but it can no longer be seen as the main vehicle for clinical teaching and learning (Balmer, et al., 2010; Claridge, 2011).

5.4.5 Shared experience, reflection and discussion

The junior doctors reported that discussion with peers, members of the working team and supervisors contributed significantly to their learning (Gome, et al., 2008; Henriksen, et al., 2008; Lichstein & Young, 1996). In one such study, (Lichstein & Young, 1996) conducted in the US with interns and medical students, team members of a particular general medical unit reported on the experiences of the

participants engaged in a monthly reflective writing and discussion session. Team members were asked to write brief narratives about 'my most meaningful patient'. After writing about their patients, the participants presented a brief synopsis to the group. The study was chiefly interested in the content of the narratives but also reported on the participant's reactions to the group presentations and discussion; where they had an opportunity to share with each other their interpretation of critical events (Lichstein & Young, 1996). The authors noted that this opportunity for shared reflection enabled the team members to reflect on their experiences: as suggested by Schön (1983), professionals learn when they think back on a project they have undertaken or a situation they have lived through, and they are then able to identify the understandings they have brought to their handling of the case (Schön, 1983). Not only did the junior doctors and students benefit from this exercise, the supervisors reported that "they felt they got to know their learners on a deeper level" (Lichstein & Young, 1996).

As Teunissen and colleagues report (2007), learning starts with participating in the work-related tasks of their day but is precipitated through observation, construction of meaning and opportunity for reflection. The potential role of the supervisor and/or more senior team members in supporting this process is significant (Brandt & Nielsen, 2008; Teunissen, 2009; Teunissen, Scheele, et al., 2007).

5.5 Gaps in the literature

These 37 studies demonstrate the opportunities that the clinical workplace provides for the junior doctor to construct their own knowledge. Providing care for their patients and interacting with their peers and their seniors creates a dynamic and fertile learning environment. The studies identify events and processes that are conducive to learning; many examine learning as part of the overall workplace

system or culture (Bearman, et al., 2011; Nothnagle, et al., 2011; Sheehan, et al., 2012; Teunissen, Scheele, et al., 2007). However, there is a distinctive omission in understanding how the newly graduated doctors approach their learning. Sociocultural approaches dominate the examination of the junior doctor experience and there is less focus on how interns learn from a constructivist perspective (Bernabeo, et al., 2011; Kennedy, et al., 2009; Kilminster, et al., 2011; Sheehan, et al., 2012). This gives rise to some unanswered questions. How do the junior doctors conceptualise their learning and their learning relationships? What activities and actions promote different types of learning?

5.6 Summary of the chapter

This chapter has provided an overview of the findings of 37 reports of research into the working and learning experiences of junior doctors, particularly in their first year of practice.

The key aspects discussed in the reports were the importance of supervision, the dominance of the experience of patient care as the greatest source of learning and the difficulties encountered at the point of transition from student to doctor. The following chapter introduces phenomenography as the research approach adopted for this study.

Chapter 6: Phenomenographic methodology

6.1 Introduction to the chapter

This chapter outlines the phenomenographic approach to research and elaborates the rationale for choosing this approach for my research. It explains the processes used to gather and analyse the data, ways of ensuring the rigour of the work and different applications of phenomenographic research.

6.2 An overview of phenomenography

Ference Marton, one of the originators of the practice of phenomenography, identifies phenomenography as a way of approaching, identifying, formulating and tackling certain sorts of research questions (Marton, 2000). Phenomenography has its etymological roots in the Greek phainomenon and graphein, i e. appearance and description. The combination of these two words makes phenomenography a description of appearances (Marton & Booth, 1997).

Phenomenography is an approach intended for studying learning and understanding (Marton & Booth, 1997). The originators describe it not as a methodology or a theory but as an approach to inquiry into a particular field. Over time, however, it is fair to say that phenomenography has become a methodology and many other commentators refer to it as such (Åkerlind, 2005; Ashworth & Lucas, 1998; Dall'Alba & Hasselgren, 1996). Phenomenography developed as a consequence of research undertaken by a group of educational researchers, Ference Marton and colleagues, at Gothenburg University in the 1970s (Bowden,

1985)1986; Dall'Alba, 1996; Entwistle, 1997). The Gothenburg researchers were particularly interested in why students of much the same abilities, undertaking the same task, produced quite different learning outcomes. Dissatisfied with existing educational research methods that focused on the *what* and *how much of* learning, they explored ways of capturing the *how* and *why* of student learning.

These researchers wanted to understand the cause and nature of the variation they found in their students' learning. They began to collect students' verbal descriptions of their understanding and presentation of a particular text. Collecting and analysing these verbal responses over time led to the discovery that students understood the same text in a number of qualitatively different ways, and, that the variation was largely determined by their understanding of what their teachers required of them (Marton, 1981). The objective of the researchers was to better understand the students' perspective of their learning world, and subsequently to provide knowledge helpful to teachers who wished to improve student learning (Bowden, 1988; Dall'Alba, 1996; Entwistle, 1997; Marton, 1981). Their investigation into the relationship between the outcome and process of learning demonstrated that the two were internally related. This research led to the distinction between deep and surface approaches to learning tasks; this was outlined more fully in the discussion of learning theory in Chapter 4.

In the mid 1980s, Amedeo Giorgi sought to draw a distinction between the Gothenburg researchers' approach of phenomenographic methodology and phenomenology per se. Giorgi (1985) pointed out that the Gothenburg group was carrying out research with a knowledge interest, which was described by phenomenologists as having a *phenomenographic* nature (that is the *mapping* of phenomena, making a picture or graphic of the phenomenon). The term phenomenography was adopted to refer to a research approach for investigating how

phenomena appear to people: the qualitatively different ways in which phenomena are experienced, perceived and reported (Dall'Alba & Hasselgren, 1996).

In contrast, phenomenology aims to capture the richness of experience, the fullness of all the ways in which a person experiences and describes the phenomenon of interest. Phenomenography has a narrower, more specific focus. The phenomenologist wishes to describe the person's life-world, the world in which he or she is immersed and which the phenomenological method brings to light and then extracts the essence of the experience. Phenomenography investigates the ways in which a specific phenomenon is experienced and perceived by a group of individuals and describes the variation in the ways in which the specific phenomenon appears to different people: the focus is on the phenomenon rather than the individual. Individuals are seen as bearers of the fragments of experience, which, when brought together, form a collective picture (graph) of the phenomenon. This has characterised the approach from its inception (Dall'Alba, 1996; Marton & Booth, 1997). Phenomenography is an attempt to capture critical differences in how we learn to experience the world (Marton, 1996).

6.3 Rationale for the use of a phenomenographic approach in this study

In choosing a phenomenographic approach to explore intern on-the-job learning, I was building on an established tradition within educational research. Early phenomenographic studies focused on investigating student learning from the perspectives of the learners themselves (Marton & Booth, 1997; Marton & Säljö, 1984; Ramsden, 1992). The focus of these studies was on the meaning that learning had for the students, the ways in which they approached their learning and what they perceived to be the factors that influenced their approach to

learning. Underlying this research approach was the assumption that awareness of these aspects of learning would be essential to better understand the nature of student learning (Åkerlind, 2003).

Phenomenography has been used previously for studies about aspects of the health sciences. A MEDLINE search in March 2012, for 'phenomenography' found 39 references. Nine of these articles were related to health professional education. Table 6.1 lists a sample of studies using a phenomenographic approach into research in health related issues.

A phenomenographic research approach has a personal appeal for this study as it foregrounds the views of the research subjects themselves. The learners are able to contribute directly to the development of our understanding of their experiences of learning.

> As we identify our students' current understanding and ways of seeing; we can determine where they can be developed. Having knowledge about current and desired understanding is likely to make teaching and educational development more focused and effective (Dall'Alba, 2000 p. 98).

In this present study the focus is directed at learning within the health (hospital) workplace. As in the Gothenburg researcher's endeavours, the objective of the phenomenographic analysis was to better understand the intern's perspective on learning through their work and, subsequently, to provide data that may improve the structure and organisation of the intern experience. The literature focuses more on the sociocultural aspect of the internship rather than privileging learning. Phenomenography by its nature focuses on what constitutes learning and it is therefore an appropriate methodology to explore and understand the phenomenon of intern on-the-job learning. Phenomenography as a research approach has been

applied to a wide variety of contexts, from student learning in the university to the education of health professionals see Table 6.1. A sample of doctoral theses that employed a phenomenographic approach is summarised in Table 6.2 to show the range of sample size, the methods used for establishing reliability and the nature of the research inquiry.

Table 6.1 Sample of Phenomenographic studies into issues in health care and health professional education

Reference	Topic
Mathews, S. and R. Ellis, et al. (2011). "New graduates' conceptions of and approaches to veterinary professional practice, and relationships to achievement during an undergraduate internship programme." *Advances in Health Science Education* **16**.	Conceptions of veterinary professional practice
Han, C. and A. Barnard, et al. (2009). "Emergency department nurses' understanding and experience of implementing discharge planning." *Journal of Advanced Nursing* **65**(6).	ED nurses' understanding and experiences of discharge planning
Yates, C., and H. Partridge, et al. (2009). "Learning wellness: How aging Australians experience health information literacy." *The Australian Library Journal* **58**(3).	How ageing Australians experience health literacy
Larsson, J. and I. Holmström (2007). "Phenomenongraphic or phenomenological analysis: does it matter? Example from a study on anesthesiologists' work." *International Journal of Qualitative Studies on health and Well-being* **2**.	Study of anaesthesiologists' work
Rydeskog, A. and K. Fråndin, et al. (2005). "Elderly people's experience of resistance training." *Advances in Physiotherapy* **7**.	Elderly peoples' response to training

Reference	Topic
Sjöström, B. and L. O. Dahlgren (2002). "Applying phenomenography in nursing research." Journal of Advanced Nursing **40**(3): 339–345.	Nursing research
Ramritu, P. and A. Barnard (2001). "New nurse graduates' understanding of competence." *International Nursing Review* **48**.	Graduate nurse understanding of competence
Lundborg, C. and R. Wahlström, et al. (1999). "Ways of experiencing asthma management: Variations among general practitioners in Sweden." *Scandinavian Journal of Primary Health Care* **17**.	GPs' experience of asthma management

Phenomenography is a qualitative methodology that enables the learners to reflect on their understanding of their experience of learning and ascribe a meaning to it. A phenomenographic analysis of the variation in the interns' accounts of their experience of learning on-the-job will increase our understanding of that experience and enable the interns' supervisors and educators to better meet their learning needs.

6.4 Phenomenographic research method

6.4.1 Data collection

The process for collecting the data in phenomenographic research is a semi-structured interview that uses a conversational style to explore the participant's ideas about a particular phenomenon (Marton, 1986). The interviews are audio-recorded and subsequently transcribed. The transcripts become the object of analysis. The individual, semi-structured interview is a common form of interview in qualitative research. A less structured interview allows room for the respondent

to take a more participative role in the meaning making that constitutes qualitative research (Di Ciggo-Bloom & Crabtree, 2006).

A topic guide rather than a formal questionnaire is used (Marton, 1986). This method ensures that the individual's conceptualisations, captured during the interview, are faithful to the individual's experience of a selected learning phenomenon. In phenomenography, it is also important that the conception of the phenomenon is based on the individual's reflection of a recent experience (Francis, 1996; Marton & Booth, 1997). In a phenomenographic interview, the questions are designed to prompt thoughts about a suggested topic. Marton describes the interview as conversational in tone and comprised of questions as open-ended as possible, leaving it up to the interviewee to choose what aspects of the question to answer (Marton, 1986). The approach allows for the adjustment of questions to take account of previous answers and allows the interviewer to respond to individual differences between the respondents. The dimensions of the topic the respondents choose to describe are in themselves an important source of data, as they may reveal more of the individual's thinking about the phenomenon. Questions are generally prefaced with 'how' and 'why' and follow up questions such as "what did you mean by that?" are used. The intention of the questions is to facilitate the interviewee to reflect on and refine their own understanding. These understandings may not be there prior to the interview but develop as the subject's awareness changes from being unreflective to reflective (Åkerlind, 2005; Bowden, 2000; Francis, 1996; Trigwell & Prosser, 1997).

The researchers described the original 1974 experiment as asking the students to recount how they had been handling the learning task of reading a text and how it appeared to them. They used question such as these:

- Could you describe how you went about reading the text?

- Was there anything you found difficult?
- While reading, was there anything that struck you as particularly important?
  (Marton & Säljö, 1976).

The sample of individuals in a phenomenographic study is selected to maximise variation in the group's experiences. It is not necessarily a representative sample. Unlike other forms of research, it does not result in a full, rich description of the context nor does it attempt to find relations between elements. The sample size does not need to be large but sufficient to demonstrate variation between the experience of the selected phenomena (Trigwell, 1997). The range of sample sizes in a number of phenomenographic studies is demonstrated in Table 6.2.

6.4.2 Data analysis

The first task of the phenomenographer is to identify variations in the way the phenomenon is experienced (Brew, 2010). All the transcripts are considered and the passages that illustrate the variations between individual experiences are selected. Marton describes his own pattern of analysis:

> The first phase of the analysis is a kind of selection procedure based on criteria of relevance. Utterances found to be of interest for the question being investigated are selected and marked. The selected quotes from all the interviews make up the data pool, which forms the basis for the next steps in the analysis. The researcher's attention is now shifted from the individual subjects to the meaning embedded in the quotes themselves (Marton, 1986 p. 42).

Student quotes were selected from the transcripts that delineated "*differences in the learning process accounting for differences in the outcome*" (Marton, 1986). These quotes were then grouped together according to their similarity. Variation between the groups of quotes was examined. At this point, the personal context is no longer

important. The different groups or sets of categories of student descriptions become the focus and are examined for the differences in the phenomenon they are describing. The next stage of the analysis, according to Marton (1986), was to consider all the sets of quotes to articulate a series of possible categories of descriptions. Each group or category represented a different conception or understanding of the phenomenon being studied (Marton and Säljö 1997). These were then ordered to form a hierarchy, starting with the simplest explanation of the phenomenon to the more complex.

The analysis results in an inclusive hierarchical series of categories ordered by degree of complexity, known as categories of description. The naming of the categories is a significant part of the analysis process and needs to meet with specific criteria, as described by Åkerlind:

- each category reveals something distinctive about a way of understanding the phenomenon
- the categories are logically related, typically as a hierarchy of inclusive relationships
- the outcomes are parsimonious, i.e., that the critical variation in experience observed in the data is represented by a set of as few categories as possible (Åkerlind, 2003 p. 55).

The most challenging aspect of phenomenography, for those who are not familiar with the method, is that it focuses on categorising the different variations in understanding, rather than individuals. It has been found that a single person in a single interview can express understandings from several different categories (Marton, 1986). In general, with the hierarchy of inclusive relationships, each new category supplements rather than replaces the lower levels of understanding. This is expanded on in Section 6.4.3

Two phenomenographic researchers (Dahlgren & Fallsberg, 1991) identified seven stages of phenomenographic analysis:

Sequence of activities to identify phenomenographic variation:

1. Familiarisation. The researcher, although in most cases also the interviewer, has to read through the transcripts carefully, to get acquainted with them in detail.
2. Condensation. The most significant statements made by the subject are selected to give a short but representative version of the entire dialogue concerning a certain phenomenon.
3. Comparison. The selected significant dialogue excerpts are compared in order to find sources of variation or agreement.
4. Grouping. Answers which appear to be similar are put together.
5. Articulating. A pre-linear attempt is made to describe the essence of the similarity within each group of statements (stages 4 and 5 may be revised several times before the analysis is assessed as satisfactory).
6. Labelling. Constructing a suitable linguistic to label identify the various categories.
7. Contrasting. The obtained categories are compared with regard to similarities and differences. (Dahlgren & Fallsberg, 1991 p. 152).

Dahlgren and Fallsberg comment:

> slavish compliance to the sequence would be contradictory to the spirit of a qualitative analysis that aims at catching the meaning of people's world of thoughts" (Dahlgren & Fallsberg, 1991, p.153).

These steps serve as a guide to the process but different researchers may move backwards and forwards amongst them and give greater prominence to one more than another as they seek to bring coherence to the emerging picture. These steps have subsequently been widely followed and reported by other researchers, including examples in the health professional education literature (Han, et al., 2009; Rydeskog, et al., 2005; Sjöström, 2002).

6.4.3 Phenomenographic research outcomes

Bowden notes that there are diverse approaches and describes his own approach as *idiosyncratic* (Bowden, 2000). However, there are consistencies in the overall processes, as Dahlgren and Fallsberg (1991) describe. As mentioned above, the outcome of the research is presented as a system of categories of description that aim to capture the essence of the variation in the ways of experiencing the phenomenon. Marton states that phenomenographic studies have found that each phenomenon studied can be understood in a limited number of qualitatively different ways. A limited number of descriptions (historically, this is usually between four to six) will encompass the range of conceptions described by the group. The categories are presented as a hierarchy that illustrate the different levels of understanding held by the participants (Marton, 1986; Bowden, 2000). Each of these categories is logically related and is presented as a hierarchy of inclusive relationships (Åkerlind, 2003). These categories of description are known as the outcome space. This comprises a limited number of categories of description of qualitatively different ways of experiencing phenomena. The categories are usually called conceptions (Trigwell, 1997). The five conceptions of student learning quoted below are illustrative of 'the outcome space'.

One of the earliest examples of a category of description is that reported by Roger Säljö, (Säljö, 1981) describing the variations found in students' conceptions of learning. These descriptions are used by Ramsden (1992) to explain variation in student learning in his book *Learning to Teach in Higher Education.*

Variation in student conceptions of learning

1. Learning as a quantitative increase in knowledge. Learning is acquiring information or 'knowing a lot'.
2. Learning as memorising. Learning is storing information that can be reproduced.

3. Learning is acquiring facts, skills, and methods that can be retained and used as necessary.
4. Learning as making sense or abstracting meaning. Learning involved relating parts of the subject matter to each other and to the real world.
5. Learning as interpreting and understanding reality in a different way. Learning involves comprehending the world by reinterpreting knowledge (Ramsden, 1992 p. 26).

Examination of this hierarchy shows that conceptions 4 and 5 are qualitatively different from the first three. The first three conceptions describe a less complex view of what constitutes learning. Conceptions 4 and 5 emphasise the internal or personal aspect of learning: learning is seen as something you do in order to understand the real world. (Säljö, 1981) makes the point that an important aspect of a set of categories is that they are hierarchical: in other words, students who conceive of learning as understanding reality are also able to see it as increasing their knowledge. Each higher conception implies all those beneath it (Säljö, 1981).

These conceptualisations include both a *structural* element and a *referential* element. When we experience something, it is always experienced as something to which we ascribe a meaning: it has two parts, the experience and the meaning we ascribe to it (Trigwell, 1997). The students experienced learning as acquiring facts and skills, the reason they ascribed to this view was so that they could later apply these facts and skills. Thus in this instance, the acquisition of facts and skills, forms the structural element. The potential application that they ascribed to the learning forms the referential element.

6.4.4 Establishing reliability and rigour in phenomenographic research

There is widespread understanding amongst phenomenographic researchers that an interpretive process can never be objective but will always reflect the data as

experienced by the researcher (Bowden & Walsh, 1994; Marton & Booth, 1997; Sandberg, 1996). Trigwell (2006) notes that phenomenography "does not aim to study an objective reality" so an outcome that '*makes sense*' is seen as the communicative outcome. It is argued that measures of validity and reliability drawn from a positivist stance, which is focused on objectivity, are not applicable to an interpretive and subjective paradigm (Åkerlind, 2005; Dahlgren & Fallsberg, 1991; Sandberg, 1997; Trigwell, 1997). Thus the focus shifts from replicability to the quality of the research and the rigour of its methodology, and to ensuring that the stated research aims are truly reflected in the methods used and the outcomes as presented. In this view, rigour is the extent to which a study is seen as investigating what it aims to investigate, that is the degree to which the research findings actually reflect the phenomenon being studied (Åkerlind, 2005).

The validity of phenomenographic research is generally based on three factors. The first is the logic of the system of categories emerging from the analysis. The categories must be logically distinct and exclusive. A second factor is the correspondence between the results and what is known from previous studies in the field. Finally, the plausibility of the categories may be considered, that is, to what extent they are recognisable as representing actual or possible human experiences (Dahlin, 1999). Rigour is most often established through the use of several researchers to verify codings and reach consensus through discussion. In phenomenographic doctoral theses, this is necessarily more limited than with research teams. Finally, pragmatic tests involve the extent to which the outcome is seen to be useful or meaningful to the intended audience. A series of doctoral studies using a phenomenographic approach were examined to explore the ways in which they had successfully demonstrated rigour in their research. These are listed in table 6.2.

Table 6.2: Examples of Ph.D. theses showing question, sample size and method used to establish rigour and validity

Thesis question	Author/Year University	Sample size	Method for establishing validity
How do academics experience their own growth and development as an academic?	Åkerlind 2003 University of Sydney	28	Interpretive awareness and continuing access to subject group as sounding boards.
How do neonatal nurses conceive of being or becoming competent in their work?	Davey 2002 University of Technology Sydney	20	Usefulness of the research is an important demonstration of validity Discusses how the conceptions can help beginning nurses.
What are the qualitatively different ways in which parents in ECEC services constitute their role in using ECEC services and in shaping ECEC public policy?	Irvine 2005 Queensland University of Technology	26	Provides details of the method (p.116) and the measures used throughout the study to support validity and reliability of outcome.
How do teachers become capable of experiencing teaching in student-focused ways rather than teacher-focused ways?	McKenzie 2003 University of Technology Sydney	27	1. Collective development 2. Individual categories queried by others 3. Independent judges.
What kind of variation is there in adult learners' ways of experiencing their learning at a university? What kind of holistic view can be constituted from adult learners' various ways of experiencing their learning at a university?	Roisko 2007 Tampere University	18	Very full description of each stage from interview to analysis to show adherence to Phenomenographic approach. Acknowledges the critique and discusses it.

6.4.5 Applications of phenomenography

As Table 6.1 shows, phenomenography as a research approach has been applied to issues in health care and to the education of health professionals. Given its history and previous applications, phenomenography is an appropriate methodology to explore and understand the phenomenon of intern on-the-job learning. It is a qualitative methodology that explores the learners' understanding of their experience of learning and the meaning they ascribe to it. A phenomenographic analysis of the variation in the interns' accounts of their experience of learning on-the-job will increase our understanding of the experience and enable the interns' supervisors and educators to better meet their learning needs.

6.5 Summary of the chapter

This chapter has provided an overview of the history, development and practice of phenomenography. It has explained the processes used for data collection, analysis, the presentation of the research outcomes and the methods for establishing validity and rigour in phenomenographic research. Chapter 7 outlines the implementation of the methodology and explains how the research met the Monash University's ethical requirements for the conduct of research involving humans.

Chapter 7: Study design

7.1 Introduction to the chapter

This chapter describes how the research was designed and implemented, drawing upon the phenomenographic methodology or approach described in Chapter 6. It includes the stages of ethics approval, recruitment of participants, the process for data collection and analysis, and the method used for ensuring the validity of the process.

7.2 Overview of the study design

My intention in undertaking this study was to explore learning, a specific form of learning, the on-the-job learning of a group of interns as they provided medical care for their patients. I intended to explore it from the perspective of the learners themselves and to discover how they understood their work contributed to their learning. The study was situated in its particular environment, the medical workplace. Over the period of the study the research questions were refined and elaborated. The final framing of the research questions was as follows.

- How do interns conceptualise on-the-job-learning?
- How do interns experience on-the-job learning?
- How do interns perceive and benefit from the supervision of their registrars?

Phenomenography was used to identify and categorise the intern experience of on-the-job learning over the course of the year. The exploration began with

interviewing graduates from medical school, prior to their first rotation as interns. This first set of interviews discussed their expectations for the coming year and how they conceptualised the role of the intern. The participants were then interviewed again after they had begun their internship and had completed at least one rotation. This interview focused on how they had conceptualised and enacted learning on the job. The third interview, which took place in their final rotation for the year, invited the interns to review their learning over the year.

7.3 Ethics approval

Authenticity of research demands that the researcher involves real people in real contexts. These encounters were conducted in a manner that respected the rights of the individuals involved. These rights included the right to confidentiality, for the dignity of the individual to be recognised, and for truthfulness in the presentation of research outcomes. To ensure that this research was conducted ethically, I made application to the Monash University Standing Committee on Ethics in Research Involving Humans (SCERH) in July 2007. The Application set out the means by which the requirements for approval would be met. The requirements set by the SCERH for ethical approval of a low impact research project involving humans included the following

- Description of the background and potential significance of the research project
- The aims of the project
- The research design (in sofar as it involved interviews with junior doctors)
- The selection and recruitment process
- Details of the explanation and consent process
- Compliance with privacy legislation

- How the data was to be collected
- The storage of data after the completion of the study
- The way in which the results of the study would be published

(Ethics Application, Sections 1–3 — Appendix 1)

The application was approved on the 14th of August 2007. Letter of approval granting permission to proceed is included as Appendix 2. The manner in which the privacy of the participants and data security would be protected is included as Appendix 3.

7.4 Participants in the study

7.4.1 Recruitment

The nature of the research, a study of learning during the medical internship, determined that the recruitment process begin in the year prior to the beginning of the internship. Interns commence their employment in the second week of January. It was necessary to conduct the first interview after the final year medical students had completed their studies (November) and before their internship commenced (January), in order to capture their expectations and their preconceptions of the internship.

All graduating medical students in Victoria were invited to participate in the study. In 2007, there were only two Victorian medical schools with final year students, The University of Melbourne and Monash University. The Postgraduate Medical Council of Victoria (PMCV) invited me to address both cohorts of final year medical students at the Intern Computer Matching Briefing meetings conducted in May 2007. In Victoria, final year medical students apply for positions at accredited hospitals through a computer matching system run by the PMCV. The PMCV holds meetings where the process is od application and appointment is explained to the final year

students and the employing hospitals are able to explain the opportunities and attractions of their respective intern programs. I was able to introduce the study to the students at these meetings and advise that I would be asking for volunteers later in the year.

The actual recruitment commenced after discussion with academic staff at both medical schools. A poster was prepared (Appendix 4) for placement on the electronic noticeboards used by the medical schools to communicate with final year students. Notices were first posted in September at Monash, and October at Melbourne. Additional advertising by Monash Medical School staff was conducted during the *Back to Basics Week*, late in Semester 2, run by the medical school, and also a direct personal email to students. Melbourne University Medical School re-ran the recruitment poster at the end of their examination period. Additional advertising via personal email was conducted by two of the Melbourne University clinical schools. The Medical Practioners Board of Victoria sent an emailed version of the poster to those interstate students intending to gain registration as Victorian interns for 2008. Finally, I approached two regional hospitals to send out recruiting information with the intention of recruiting interns undertaking their internship in a rural setting.

The recruitment information asked that potential respondents contact me by email and provide a phone number. The explanatory statement and consent form were then emailed prior to the volunteer being contacted. The phone call enabled me to explain the study and make an appointment for the first interview. The research study was explained again at the first interview with an opportunity for the volunteer to ask questions. They were then asked to sign the consent form and a signed copy of the explanatory statement was handed to each interviewee. (See Appendix 5 for Explanatory Statement and Appendix 6 for Consent forms).

7.4.2 Participants

A total of 31 final year students volunteered. All the volunteers were accepted as participants. Thirty-one was at the higher end of participant numbers for a phenomenographic study (see Table 6.2). The larger sample size allowed for an anticipated attrition rate.

Fifteen participants were graduating from Monash University, eleven were from The University of Melbourne and four participants from interstate and one from New Zealand. The latter five attended medical schools in Queensland, New South Wales, the Australian Capital Territory, South Australia and New Zealand. Table 7.1 lists these numbers.

Table 7.1: Number of participating interns by university

Melbourne	11
Monash	15
Interstate	4
Overseas	1
TOTAL	**31**

There were 8 male and 23 female participants. This was unrepresentative of the gender balance found medical student populations. However the study was dependent on volunteers who would be undertaking their internship in a Victorian hospital the following year. All the participants fulfilled those criteria. The only way of modifying the gender balance would be through reducing the number; I decided this was unwise as I anticipated some attrition over the twelve months. The age range was 22 years to 33 years, with seven graduates being 25 or older. The majority of participants were 24 years old (14). One participant had completed a graduate

entrant course and two had completed other undergraduate courses before commencing the undergraduate medical course. The remainder of the cohort had commenced their medical studies as school leavers.

Over the course of the study, the participants were allocated to a range of parent hospitals with a spread between city and regional hospitals. Five interns were located for the full year at a regional hospital. The interns rotated through a range of medical units, which included the core rotations plus a range of specialty rotations. Table 7.2 lists the five types of rotations by numbers of interns who experienced these rotations. Two of the interns undertook rural general practice rotations during the year.

Table 7.2: Range of rotations encountered by number of interns

Type of hospital unit experienced by interns	**Nos of Interns**
Medical	61
Surgical	39
Emergency	31
Mixed*	16
General practice	2
TOTAL	**149**

*Mixed rotations: a rotation usually comprised 10 weeks in a hospital unit; it included provision for annual leave, the remainder of time being made up of cover for absent interns and night duty.

7.5 Collection of the data

The main data collection mechanism for this study was a series of three interviews with each participant. Traditionally, the dominant data collection method for a phenomenographic study is the single individual interview (Francis, 1996). For this study, which intended to examine learning in a year-long internship it seemed appropriate to conduct interviews across the year. The first interview was conducted at the end of the medical school program and prior to the interns commencing their internship; the second occurred after completion of the first rotation; and the final interview was towards the end of the year, during the final rotation.

All 31 respondents were interviewed during the first round of interviews. Twenty-eight interviews were conducted during the second round and 26 interviews were conducted during the final round, resulting in 23 sets of three interviews and 8 sets of two interviews. A total of 85 interviews were completed; all interviews were audio-taped and subsequently transcribed. I listened to the audiotapes a further time to check all transcripts for accuracy, with minor adjustments made as required.

The central focus of the interviews was the interns' reflections on their learning experiences in the clinical setting (on the job). Each of the three interviews had a slightly different emphasis in order to capture different aspects of the internship. The first interview, completed by all 31 members of the cohort, served a dual purpose; in that it was an opportunity to meet the participants, explain the research and obtain their informed consent to participate in the project as well as gather general demographic type information. The interview then focused on their expectations of the year and their understanding of the role of the intern. Most of the first set of interviews was conducted in rooms at Monash University or at The University of Melbourne. Two interstate students were interviewed at the offices of the Victorian

Medical Board on the day of their formal registration as doctors. Sixteen interviews were conducted in November, 13 interviews in December, and 2 interviews in January. Box 1 contains the topic guide for the first interview.

Box 1: Guide for interview 1

Could we just start with some basic information?

Which university did you attend?
How old are you this year?
Which hospital will you be attached to?
Can you list your five rotations?

1. What's it like, now you are at the end of all that study?
2. What are you looking forward to most in the coming year?
3. What can you tell me about being an intern?
    What is the role of the intern?
4. How would you describe your learning over the last five years? Get at meaning of learning
6.What can you tell me about learning on the job,
    What does the term learning on the job mean?
7. What do you think will provide the best learning opportunities for you during the coming year?
8. Who do you think will be most helpful to your learning?
9. What will be the biggest challenges you face this coming year? Why will that be challenging?
10. What are you most looking forward to in the coming year?
11. What do you think your main learning will be over this year?
12. What is your thinking about entering a vocational program?
14. Is there anything else you would like to say about the coming year?

Thank you for your time and I'll talk to you next year.

In the second interview (28 participants), the emphasis was on their experiences during the first rotation and the nature of their work as interns. These interviews were conducted with the interns at the hospitals where they were working. All the interns elected to undertake the interview at the end of their working day; for some this meant early morning as they came off night duty. Box 2 contains the topic guide for the second interview.

Box 2: Topic guide for interview 2

How was your first rotation?
What sorts of things did you do during your time on the wards/in the practice?
That was about the doing, now I want you to focus on the learning. What sorts of things did you learn during your time on the wards?
Remember that I asked you to define on-the-job learning last time? How would you describe it now?
In terms of assessment and feedback, how do you think you went as an intern on that rotation?
What feedback did you get about your performance during that rotation?
Formal feedback? Informal feedback?
Were you provided with learning objectives for the rotation, when did that happen?
Who talked to you about what you were expected to learn on the rotation?
What can you tell me about the supervision that you received?
What makes a good supervisor?
And finally, what can you tell me about the Australian Curriculum Framework for Junior Doctors?

Thank you

The final interview (26 participants) conducted towards the end of the internship encouraged the interns to reflect on the year as a whole; these reflections illuminated the different ways in which they interacted with their registrars and how the registrars contributed to their learning. Box 3 contains the topic guide for the third interview.

Box 3 Topic guide for interview 3

How has the year been?
Which rotation did you enjoy the most?
Which was the rotation where you experienced the best learning opportunities?
Why?
Which rotation provided the least learning opportunities?
Why?

Box 3 Continued

Tell me about the supervision you received this year.
Tell me about the feedback you received during the year.
Last time I asked you to define on-the-job learning for me.
How would you describe it now?
How do you think you did?
Who has the best knowledge of your performance over the whole of the year?
Are you satisfied with this method of assessment?
What do you think is the best way for your intern year to be assessed?
What are your plans for next year?
Thank you very much for your help this year, and all the best for next year.

Thank you

Some difficulties were encountered with arranging interviews in the second and third rounds. One intern withdrew from the project prior to the second round of interviews citing that she felt her experience was not representative as she was having a really negative time. She subsequently re-joined and was interviewed in the final round. It was not possible to find a convenient time within the allocated time frame for the second interview with two other interns. Five interns were not interviewed during the final round. The reasons given were that they did not have time, or they had to deal with a family emergency, and three did not respond to messages left on voice mail.

7.6 Analysis of the data

As each of the three interviews were conducted at different stages of the internship and each had a different focus, the transcripts were treated as three sets of data. These data sets were analysed separately, using either phenomenographic techniques for the first set or phenomenography for the second and third set of interviews. The longitudinal relationships between the data were explored with the use of two vignettes, which illustrate the progress of two interns across the year.

Analysis was begun after the second set of interview data had been completed. The second and third sets of interview data, which concerned the interns' current experiences of internship, was analysed first, as these addressed the primary research questions. The expectations of the rotation were revisited while the vignettes were also being constructed. For ease of reading, data analysis will be presented in the following order: firstly, analysis of the preconceptions of internship; secondly, analysis of both the second and third data sets; and finally, the illustrative vignettes.

Before detailing the specific analytical steps, it is worth noting my conventions regarding participants' verbatim quotations in this thesis. It is important in phenomenographic analysis to consider the actual words participants use to describe the phenomena, in order to capture meaning and intention. However, when I present the outcomes of the analysis, the verbatim transcripts have been slightly edited to refine and clarify participants' statements.

7.6.1 Analysis of the graduates' preconceptions of the internship

During the first interview the graduates were asked to describe the intern role and their understanding of on-the-job learning. This aspect of the intern experience was not included in the original thesis plan, but the expectations of the interns revealed during the first interview were of interest and I felt should be included, if only briefly, in the thesis. The analysis of these preconceptions was informed by phenomenographic analysis techniques, that were not, strictly speaking, phenomenographic because the preconceptions related to expectations rather than actual experiences. Phenomenographic techniques were used to analyse data relating to how the participants conceptualised their expectations of internship. In particular, transcripts were read and extracts relating to conceptions of internship

were collated from the data. These were clustered into groups, which were then refined to describe categories of expectations. The transcripts were reread in their entirety and the categories adjusted as required. As mentioned, the analysis was completed after the core, phenomenographic analysis described below, and was therefore necessarily influenced by this latter and more significant work.

7.6.2 Analysis of interns' conceptions of on-the-job learning

The second and third sets of interview data, where the interns described their learning experiences, were the primary source of data for developing the categories of intern conceptions of on-the-job learning. Analysis of the second set of transcripts produced the four key variations in the interns' conceptions of on-the-job learning. Analysis of the third set elaborated and confirmed these variations. The methods used drew from the phenomenographic methodology described in Chapter 6. The transcripts were analysed twice. The first analysis explored the interns' conceptualisations of learning on-the-job. The second analysis, using the same data set, arose from the first analysis and explored the interns' conceptualisations of their interactions with the registrars.

In the first analysis, all the transcripts in a particular set were read in their entirety to establish the scope of the content. They were then read more closely to find statements that indicated the interns' understanding and description of on-the-job learning. All explicit descriptions of *on-the-job learning* were extracted from the transcripts. From this point, it is the descriptions of the phenomenon expressed as *quotations* from the interns that are the subject of the analysis, not the interns who made them, or the general circumstances in which the experience occurred. The quotations (sometimes a sentence, sometimes a paragraph in length) were then transferred to cards and sorted into groups according to their similarities.

Groups of similar descriptions were then considered for the variations to be found between the groups. This enabled the different conceptions of the phenomena to be identified. These different groups were then each given a label or a category of description. This was a lengthy process, described briefly in the findings, and with a detailed discussion and audit trail provided in Appendix 7.

In overview, the analysis involved an iterative process in three stages. Each stage examined the data for similarities and differences then reconsidered the variations to determine the robustness of the categories. There were initially two categories, which were expanded to nine categories in the second iteration of analysis and condensed to four categories in the final iteration. These final categories are presented as a 'hierarchy of inclusive relationships' (Akerlind 2003 p. 87). As discussed in Chapter 6, this means that the higher conceptualisations include the previous conceptualisations, with the highest-level conceptualisation containing all the previous categories.

The interns' emphasis on the role of registrars throughout the transcripts led to the second analysis. The same phenomenographic process was followed to analyse the interns' conceptions of the role the registrar played in their experiences of learning on-the-job. I first focused on the interns' understanding and description of their interactions with the registrars. Next, all relevant quotes were extracted. As the third interview encouraged the interns to reflect on the year as a whole, comparing and contrasting various elements, the data about the intern/registrar interaction was mainly gathered from the third data set. It was not always clear which rotation in particular was being referred to, so quotations drawn from this analysis are, in the main, only labelled in relation to which intern and which interview. Four categories of

description or variations emerged from a consideration of these extracts, which are reported in Sections 10.4 and 10.5.

7.6.3 Two vignettes

The power of phenomenographic analysis lies in its focus on the phenomenon being studied; however, actual individuals experience the phenomenon and the individual experience can further illuminate our understanding. I believed it was important to represent the actual experience of the individual and to do this I returned to the transcripts of two interns to illustrate the phenomenon as it was experienced at a personal level. Two vignettes were developed to present brief narratives that could illuminate the relations between the interns' reported experiences and the categories of description. The term vignette has been chosen, rather than the term case study, as these accounts are used to illustrate the variations in the ways in which the interns experienced on-the-job learning rather than to provide the richly textured description of the whole of the person's experience that one would expect in a case study (McKenzie, 2003). Vignettes are a way of representing the 'situatedness' of on-the-job learning as it appeared to the interns. In relation to phenomenographic research, (Swenson 1997) describes individual cases as being generally useful in clarifying categories and improving the basis for validity and generalisability.

7.7 Establishing the rigour and validity of the research

The methods of establishing the rigour and validity of this research are:

- an audit trail
- asking colleagues to review presentations of the phenomenographic analysis through workshop presentations
- review of the analysis by an independent researcher, and
- responses from individual stakeholders in intern education.

7.7.1 Audit trail

The process of arriving at a category of description for a variation was a lengthy one, which is described in brief here. The analysis involved an iterative process in three stages, examining the data for similarities, and differences in order to reconsider the variations to determine the validity of each of the groups.

The first variation to be noted in the interns' descriptions of their experience of learning on-the-job suggested that their learning was either self-directed or other directed. Further variation was noted on where the interns' attention was focused– on the patient, on themselves or on their supervisor.

This second round of analysis suggested that the extracts be interrogated with two particular questions:

- What do the interns do?
- What are they focusing on?

These two questions resulted in nine sets of variations which, upon further examination of the variations between them, were reducible to four. The transcripts were then re-read to check the validity of the category labels that had been assigned to them and to identify intern quotations that illustrated the meaning of the category. A more detailed account of this process can be found in Appendix 7.

7.7.2 Discussion group/workshop

Members of my doctoral discussion group were asked to read through a selection of transcript extracts and match transcripts to a category of description. The workshop plan is included as Appendix 8. The following year, I conducted a refined version of this workshop, using a similar process, at the ANZAME 2010 Conference held in

Townsville in 2010. The abstract of the workshop is at Appendix 11. In both workshops there was general consensus that the categories of description could be matched to descriptions found in the transcripts and that they illuminated workshop participants' own understandings of the intern experience.

7.7.3 Stakeholder review

Four stakeholders in pre-vocational medical education read the research findings as presented in Chapter 8: Phenomenographic analysis. The stakeholders were:

- a junior doctor who had recently completed his internship
- an intern supervisor
- the Chairperson of an Intern Accreditation Committee
- a senior member of a Postgraduate Medical Council.

Each agreed that the findings fitted within their own understanding and experience of the intern year in Victorian hospitals. The junior doctor commented, "This really reflected my thinking I'm surprised you captured it so well."

7.8 Summary of the chapter

This chapter has discussed the application of a phenomenographic research approach to the research question. It has covered the process and stages of the research project. It includes the recruitment process, data collection and analysis and describes the processes used to establish the rigour of the data and its analysis. The research was conducted in an ethical manner conforming to the requirements of the Monash University Standing Committee on Ethics in Research Involving Humans. The following chapter will present the findings of the research.

Chapter 8: Phenomenographic analysis

8.1 Introduction to the chapter

This chapter presents the phenomenographic analysis. Section 8.2 details the different *expectations* that this cohort of graduates brought to their internship. As outlined in the discussion on methods (Section 7.6.1), these are derived using phenomenographic techniques rather than phenomenography per se. Section 8.3 outlines the variations found in the interns' *conceptualisations of on-the-job learning* and presents the variations as four categories of description. Section 8.4 presents four categories of description showing the variations in how interns conceptualised their *interactions with their registrars*.

Editorial Note

Direct intern quotations have been used throughout the discussion. The quotations have been selected from the interview transcripts and edited where necessary to ensure clarity of meaning. Each quotation is accompanied by a number. This number contains the intern's identifier plus a number indicating which of the three interviews the quotation is drawn from and, where relevant, the nature of the rotation to which the quotation refers. Thus 3/2 General Medical identifies the intern on a master list as Intern 3, quotation as extracted from interview 2,and as referring to a General Medical rotation (it was not always possible or relevant to determine the particular rotation under discussion).

8.2 Analysis of the graduates' preconceptions of the internship

These accounts of the participants' expectations set the scene and introduce the results section of the thesis; they provide a description of the graduates' expectations of the intern year and in particular their understanding of the intern role. Their ideas about the role revealed the way they perceived the internship in relation to patient care and in relation to how they anticipated their own learning would unfold during the coming year. The transcripts of the first interview were analysed to identify their expectations for their internship and their understanding of the intern role. As discussed in Section 7.6, this analysis was completed after the main phenomenographic analysis.

Interns described the relationship between their learning, their patients and their own role. Their expectations had been developed from experiences recounted by previous interns, their own observations of interns at work whilst they themselves were on clinical rotations as medical students, and what they had been told by the clinicians they encountered during these rotations and by their university teachers. These understandings were filtered through their levels of maturity, career aspirations, personal priorities and interpretations of their previous clinical experiences.

In general, the graduates were uniformly pleased to be entering the workforce, putting their student years behind them and beginning their working lives as doctors.

> I think it's a very big step up from being a medical student. 5/1.

> I’m really looking forward to getting into it. I’m well and truly sick of being a student, yeah, and I’m looking forward to being a valuable, contributing member of the team, as opposed to a pleb who’s sucking information from everyone. 4/1.

> Just being able to say, "Hi. I'm one of the doctors”. Actually being the one who's treating the patient rather than being this extra person whose just doing things over and over again to learn. 3/1

The graduates’ enthusiasm to start their new role was clear.

> It's unbelievable to be sitting here and to be thinking in a month's time that I'll be out there in the hospitals as Dr K and I feel excited about that and I think this year's been fantastic in consolidation, building up the confidence, but I'm still feeling a little daunted about the opportunities that are coming before me. Like, there's so much more to learn. 14/1.

> You’re actually looking after patients all by yourself and being a doctor. 9/1.

All the graduates described the role in terms of patient care, learning to be a doctor whilst ‘being a doctor’. They contrasted their role as students in the hospital where their interaction with patients was mainly limited to observation, to the role they expected to fulfil as interns where they would be making a real contribution to the continuum of patient care.

> Just being useful, I think. This year, I've sort of felt like I could do bits and pieces, but I was sort of hanging around, but not really part of the team. So expected to do certain things, but then not getting the follow through, we sort of followed the interns around and helped them out and did a lot of that kind of stuff, but we were still sort of on the outer. They weren't our patients, so to speak. So it will be good for it to be my unit. 3/1.

In summary, transcripts of the interviews with the final year medical students revealed three variations in their expectations that coloured their expectation of the internship; these were:

Variation A	Self-improvement
Variation B	Providing support for the team, and
Variation C	Developing doctor-patient relationships

8.2.1 Variations in the graduates' expectations

Variation A Self-improvement

Overall, participants were satisfied that they were finally getting the opportunity to put into practice what they had been preparing for during medical school; there was also a realisation that it was this practice that would provide their learning. Here, at last, they were about to have the opportunity to assume the professional role and identity for which they had been training and rehearsing.

> A learning doctor, providing care as a doctor, but not quite there yet. So doing all the jobs that I've been taught to do, like putting in catheters and IVs. And I guess picking up ethics and how to deal with them. Picking up role models and hopefully being supported throughout the whole process. 29/1.

Interviewees also saw the role as a time for testing out what they had learned and themselves as medical practitioners.

> I think it will be a good foundation experience. You get to see a lot of medicine. Hopefully learn a lot without really being thrown into the deep end of having to diagnose and manage really complicated problems. 16/1.

> My impression of internship is just an opportunity to really see what you're capable of and learn about your role in medicine as well as learning the basic skills on a day-to-day basis. 2/1.

Their expectation was that at last their work with patients would be of benefit to the patient, would be authentic medical care and not the information-seeking behaviour of students.

This view of the intern role is self–focused with the intention of learning to be a doctor. They expected the learning to arise from their role of caring for patients, observing their seniors and being directed and supervised. They expected to practise existing skills, learn new ones, and pick up professional behaviours through the modelling provided by their supervisors.

Variation B Support the team

This expectation viewed their primary task as that of supporting the patient care team. Not only would their work and learning benefit the patients and themselves but it would also contribute to a system of medical care. The graduates were under no illusions about the workload of the intern, they expected their work would be constant and involve long hours.

> Look, it's hard work. I know that much. But I don't think it's as bad as it used to be. I'm sure it's not as bad as it used to be. So, yeah, it's early starts. Sometimes you have a late night finish, but I think as long as you're organised it will be allright. 3/1.

> So ward rounds, writing all the notes, doing all the path requests and the radiology, chasing up all the results, liaising with the families. Cover, obviously. So a lot of the stuff that goes with cover, fluid balance. Depending on the ward and the hospital, there's often lots of Allied Health liaison stuff to

> happen and meetings and radiology meetings and pathology meetings and intern education. 4/1.

> It's mainly paperwork and being a secretary although you are supposed to be learning to be a doctor but the urgent thing is to have all the paperwork done. Yes you're pretty much a dogsbody to someone else. 24/1.

A significant workload was seen as part and parcel of the intern role and necessary in order to provide support to the team involved in patient care. Their patient care role was described in terms of support for the team.

> It's our job to listen to what consultants and the registrars say, take care of basic management and obviously keep the patient alive, but basically to make sure that what they say needs to happen actually happens…it's the intern's job to actually order those tests and make sure they happen, get the results and then get all that information together and packaged and semi interpreted to feed back to the consultant and say look, this is where they're at. [then] He can then turn around and use his experience to make the complicated clinical decision. 7/1.

These graduates were very clear about their role as that of support for the medical team, performing functions whose purpose contributed both directly and indirectly to patient care. They were describing the medical hierarchy and their place within that hierarchy.

> Even though you're the bottom of the heap in the scheme of things, you're still in the heap. 21/1.

Graduates' perceptions of their low status did not negate their appreciation of the value of their role; it indicated an awareness of the hospital as a hierarchical system.

> You're at the bottom of the ladder. You have your registrars and your consultants so you sort of work for them. The job is mostly administrative;

> writing discharge summaries, writing out medications, writing up things on the ward round, liaising with allied health so that you can get the patients out. 8/1.

> It's the bottom of the hospital hierarchy in terms of the place…but interns are an important part in the hospital process because, without interns, a lot of the administrative things would not get done. 2/1.

Graduates described the intern role as one that enabled and facilitated the process of patient care by performing administrative as well as clinical tasks and they also saw this as providing their learning opportunities.

> I think you learn a lot just day-to-day, even if you are doing a lot of paperwork. 13/1.

> You get to see a lot of medicine. Hopefully learn a lot without really being thrown into the deep end of having to diagnose and manage really complicated problems. 16/1.

> The paperwork side of it can be a very boring job but it's up to you to learn as much as you can from everything you do and not just see it as mundane paperwork. 20/1.

Although this perspective, that of providing support for the patient care team, described the intern role as one of low status performing necessary but routine tasks, it also indicated knowledge of the hospital as a working system of patient care. As well, it demonstrated an awareness of learning about the system, and the need to develop working relationships with the different personnel within the hospital system.

> You're more part of a team that takes care of the patient as opposed to the one-on-one interactions…as an intern you have some responsibility in terms of what you do and how you go about doing it, but you are also still there to learn, so I can just see it as being, sort of, a more steeper learning curve than what the last few years have been. 19/1.

Variation C Relationship with the patient

In supporting the team, these graduates believed they would develop a close knowledge of both the patient and the patient's interactions with the hospital system. They saw the intern role as capable of representing the patients' point of view, as well as their clinical progress, to the patient team. They saw the intern role as that of patient advocate and representative.

> I see it as a sort of liaison officer, the communicator for the patient. Like the advocate for the patient because, even though I might not be fully on top of the medical knowledge of what's going on with the patient, I need to be open and aware and a good communicator for my patient to ensure that they have the best knowledge and understanding of what's going on and why they are in hospital and what we are planning to do; but I also need to be a good communicator to my superiors to ensure that they know what's going on from the patient perspective as well. 14/1.

This idea of representing the patient's interest was held by several graduates and in some ways is a contrast to the administrative function perspective.

> An intern is a junior doctor, their role is in some ways to advocate for their patients because they are the ones on the ground all the time with the patients, and they're kind of representing what's happening back to their next level up, to the registrar and the consultant. 26/1.

A number of graduates described the intern role as pivotal because they saw the role as coordinating and advocating for their patients. Interns were seen as the 'first port of call' as the most accessible to the patient; they saw a responsibility to advocate on their behalf and to present their point of view. Identification of this aspect of the intern role suggested strong confidence and self-belief in their role as doctor despite their awareness of their place in the 'scheme of things'.

> The hospital is like a factory; the interns are like floor people, on the factory floor. They're the people who make the connections between the bosses and the managers of this particular factory and the customer, which is the patient. That's why interns are important because they form some sort of continuity and ultimately, although we don't make the critical decisions, we provide the information that is required to make those critical decisions. 12/1.

8.2.2 Summary of the analysis of graduates' preconceptions of the internship

This cohort of graduates presented as prepared for the year ahead, expecting to be supported by their seniors, aware of their junior 'L-Plate' status and looking forward to becoming contributing members of the medical teams in the hospitals to which they had been assigned.

> I think it will be a good foundation experience. You get to see a lot of medicine. Hopefully learn a lot without really being thrown into the deep end of having to diagnose and manage really complicated problems. 16/1

> [The intern is] the person who knows what's going on, who's sort of monitoring all the time, checking in all the time, sort of having a bird's eye view or trying to keep a patient alive and well. 25/1

Collectively, this first set of data painted a picture of a cohort looking forward to being an intern and having a defined role and legitimacy in the clinical setting. These graduates understood and accepted the status of the intern and were optimistic about making a valued contribution to patient care. Their descriptions of their place within the medical hierarchy suggest they had a shared view that they would be nested inside a supportive and supervised environment. Collectively, this group of graduates painted a comprehensive picture of the internship. Their subsequent accounts of their experiences indicated it was a remarkably accurate one. The three variations found in these preconceptions were:

Variation A	Self-improvement
Variation B	Providing support for the team, and
Variation C	Developing doctor-patient relationships

8.3 Phenomenographic analysis of the interns' experiences of on-the-job learning

This section addresses the central question: how do interns learn on the job? As stated in the section on methods (7.6.1), the interns' stories revealed four variations in the way the interns conceptualised on-the-job learning. The preceding section described the conceptions of the internship held by the interns prior to their commencement in the role. Here, the analysis of their descriptions of their actual learning experiences is discussed and the variations found within these descriptions are charted. The categories in ascending order are:

Variation A	Learning through the intern environment
Variation B	Learning through providing bedside patient care
Variation C	Learning through participation in collaborative patient care
Variation D	Learning through review and reflection on patient outcomes

As stated previously, this an inclusive hierarchy: that is, those interns who conceptualised learning as occurring through Variation D also provided instances where they described their learning in relation to the other three categories. Not all interns experienced learning through reflection and review (Variation D), although all experienced learning through getting to know the environment, as familiarisation with their environment (Variation A), through bedside care (Variation B), and to differing degrees participation in collaborative decision-making (Variations C).

8.3.1 Variations in the interns' conceptualisation of their experiences of on-the-job learning

Variation A Learning through the intern environment

In Variation A, the learning was derived from, and was about, the hospital, environment. It encompassed understanding the role of the intern and the various relationships within the workplace that needed to be negotiated. This conception focused on being an effective intern, acting as directed, responding to instructions arising out of supervision and/or teaching. In this category, learning was dependent on being directed and supervised. Interns were questioned to ensure they understood what was happening. Intern descriptions of learning were suggestive of what Illeris (2006) calls a banking or cumulative view of learning and 'learning by osmosis' (Bleakley, 2002). This conception privileged the working environment and the intern role within that environment. The intern expected to absorb knowledge from simply being within the environment. Learning would occur through gaining knowledge associated with carrying out assigned tasks as well as observing how seniors conducted themselves.

> [Learning is] a means of monitoring and listening during the job, and things that stick in my memory afterwards. 1/2 (Emergency)

> Ward rounds are a learning opportunity. I think you learn by osmosis to a degree. 3/2 (General Medical)

> You can learn it by osmosis and just by watching what other people do. 27/3. (Reflecting on the year as a whole)

The notion of osmosis, a term used by several interns and which appears in the literature, is interesting in that it implies passivity, for example, as a secondary school student, I observed my science teacher place a stick of celery in a jug of water mixed with ink, and the celery cells absorbed the water, effortlessly. However, the interns' stories do not suggest passivity. Rather, they are actively engaged in learning about their environment and their place within it. The working intern is there to learn to be a doctor, through doing tasks or through being taught, in particular, via bedside teaching, or in tutorials. The interns in this study were actively observing and interacting with their environment, the staff, the patients, the hospital's systems, and were discovering the relationships between these entities and making sense of them in order to be able to negotiate the system so that they could carry out their work. However, learning covered by this category was about learning how to work within the hospital system or about modelling others' actions, and was not focused on the patients or patient care. The interns' work and learning in this category was teacher/supervisor directed and dependent.

The interns indicated that the hospital environment, whilst it was familiar from their undergraduate rotations, was unfamiliar as a *working environment* and it was *getting things done,* such as getting patients fitted into the radiographer's list, which presented the challenge.

> I guess the most worrisome thing was being in the hospitals, getting used to the way everything works…just getting your work done and checking your results and making sure you get to x-ray and knowing where it is and what to do and all the little things you need to know as an intern. 6/2 (General Medical)

The process of achieving an urgent X-ray for a patient required being organised, informed and able to negotiate.

> Logistical things, like how to make a proper referral and what you need to do to do particular things. 13/3 (General Medical)

The learning that was being described in these comments was a process of active learning: making sense of a complex system that these interns needed to navigate. The sense was that the environment was the geography of the hospital, the range of people and their disciplines, the hospital system as a whole.

> Well there's the personal aspect of being sort of time efficient and being able to manage your time, being able to prioritise the right sort of tasks to do in the right sort of order and then also being able to be of assistance to others…and then also knowing when to ask for help, when to ask other people and who to ask. 2/2 (Colorectal Surgical)

The content of what was being learned in these examples seemed more often to privilege workplace 'know how' rather than medical knowledge and was an essential stage of learning for becoming a successful intern.

Variation B Learning through providing bedside patient care

In Variation B, the conception of learning was focused on daily management of the patient, the investigations and results, noting patient responses to the management, and reporting outcomes to supervisors. Interns were concerned with the nature of patient illnesses, patient signs and symptoms, the kinds of investigations they required and the relationships between results and management strategies. In this way, interns conceptualised learning from both patient conditions and patients' responses to treatment. An additional layer of learning came through observation of, and support for, supervisors managing patients.

> And you're watching other people and you go 'that worked well'. So when you see someone else deal with it well or do something that worked really well, you go, OK I'll use that again. 12/1 (General Medical)

> Even just observing the conversations, usually in multi-disciplinary meetings, listening to it, it made a lot more sense. 3/2 (General Medical)

In Variation A, the learning was essentially new, learning about the workplace and the work. Here, in Variation B, the learning is about bringing together prior experience and prior knowledge with the new experience and new knowledge. This learning is about the dynamic of medical practice, impacting upon and changing the patient.

A number of the interns indicated they were pleased that they were finally able to reciprocate for the learning that patients had provided to them as students. The learning source was still the patient but the focus was on bedside care:

> …hoping that you get an opportunity to do something and have it be of value to you and to the people that you're doing it for. 16/1

The focus on learning from patients is now more than learning from the patient's signs and symptoms, it is learning from the direct management of the patient.

> I think getting a little bit more involved in clinical decision-making and seeing the outcome of those decisions and hopefully making some good ones [myself]. 27/1.

> I would see a patient, initiate investigations and immediate management, work out my provisional diagnosis and then just go and discuss it with one of my superiors, make sure that they agreed and that my plan was acceptable and then follow through on that plan. Whether the patient needed to be discharged from there or admitted to the hospital for further investigation and treatment, that was always up to me to organise and to follow up. 6/2 (Emergency).

As well as becoming accustomed to the hospital environment discussed in Variation A, in this conception, interns were learning from the patient as a dynamic entity whose condition was likely to change from day-to-day and the changes became as important to their learning as the initial signs and symptoms they had observed previously as medical students. Learning was also precipitated through the management of the patient in collaboration with supervisors. This was, generally, a process of patient investigation followed by a discussion of findings and next steps.

> I got more comfortable with certain signs and things, like abdominal pain and chest pain, things that occurred more frequently I was more comfortable with and sort of knew the sorts of investigations I had to do. What were the important causes I had to rule out? 15/2 (General Medical)

> Making sure that you're understanding and mentally processing, not just doing what you are told, you're actually thinking about it. 28/2 (General Medical)

There was a sense that new knowledge was being evaluated for its usefulness prior to being incorporated into working knowledge that could be applied when called upon. For example, interns were also learning when they should report on patient progress to a senior. The environmental sense-making of Variation A is a necessary precursor to Variation B which essentially encompasses being able to *act* in the hospital environment. However, the learning conditions of Variation B still require direction and supervision. Most frequently, this variation included the process of assembling the relevant information and coming to a tentative conclusion but waiting for the supervisor to evaluate and make the necessary final judgement or management decision.

> So we are constantly going back to the registrar and saying, 'This test has come back with this. I think it's this. What do you think?' Getting quizzed by the registrar, which is a wonderful way of learning. 4/3 (General Medical)

Variation C Learning through participation in collaborative decision-making

Variation C concerns the interns learning through contributing patient information to the patient care team and participating in the management discussions. They learn through sharing in discussion, judgement, and decision-making. Both Variations B and C are concerned with patient care but in this variation C, the interns' interaction with others becomes central to the learning process. The focus of the learning here is the team.

In Variation C, the interns brought their own thoughts and judgements to a discussion about patient care. The learning arose through developing a diagnosis or management plan, consideration of their contribution in the context of their pre-existing medical knowledge, and having their judgement contribute to the decision-making and work of the team, mediated by consideration of the opinion of their supervisor and others. The intern was making a contribution to the patient management process, hearing other ideas, and adjusting their own understandings as an integral member of the team process. The key prompts for learning appeared to be their contributing to discussions about patient care, and consequently discarding, modifying or adapting their knowledge skills and attitudes, followed by acting on joint conclusions. The focus was on participating in the team.

> To be the primary advocate on ward rounds and know, you know, the little things that will influence management in some capacity and for that reason I always felt it my responsibility to at least know personally what is going on every day, how they are functioning, what the blood tests were and also what the patient was feeling generally, and I was essentially the lynch pin in that management, so when the ward rounds came around, when the ward round

> happened, I would explain, this is what's happened, this is what I think we should do – Consultant would say nay or yay and that was to proceed. 6/2 (General Medical)

The intern had become an active contributor to the patient care process; their learning came from their active contribution to the patient care team, from the collaborative consideration of options and cooperative decision-making. The intern was integrated into the patient care team.

> To give the overall picture, because you're the one who spent the most time with [the patient] as a doctor and for that reason it was important for you to be able to flesh out those issues…I've come to realise if you want to be a good intern you need to start anticipating problems in advance and doing things and your consultants and registrars become incredibly appreciative of that, when you, instead of bringing a problem, they say 'Oh this person's haemoglobin is 80, do we need to transfuse?' [And you are able to reply] 'Well I thought we might need to transfuse so I've done A, B, C, D it's all ready, do you want to go ahead?' 6/2 (General Medical)

Variation C encompasses active collaboration with the medical team in patient management and examples can be found to a greater and lesser degree in the accounts of almost all the interns in the sample. Ideas were being considered and reshaped, through sharing them with others, to fit the circumstances. Whilst not explicit this suggests a process similar to that described by Donald Schön as reflection in action (Schön, 1983) in contrast to reflection on action discussed below. Not all rotations provided scope for the intern to act in this way; it was dependent on both the nature of the patients in the ward and the attitude of the supervisor to collaborative patient care and, of course, the competence demonstrated by the intern at that particular time. For example, many of the surgical rotations did not provide contact with patients who were seriously ill; they did not present opportunities for interns to contribute to problem solving and did not require intervention other than

monitoring of their post-operative progress. Additionally, some registrars did not encourage discussion and collaboration. This is indicative of the '*situatedness'* of intern on-the-job learning and suggests that the ability to participate in patient care is as much dependent on the situation in which the intern is placed and the attitude and capacity of the supervisor as it is on the capability of individual interns.

> And the registrar who just worked so incredibly fast and I don't feel there were discussions about patient treatment that really occurred. It was mainly me trying to start it but it always just turned into, 'Oh, the intern is just asking me a question.' So that's why I went away and looked up a lot of the things because I would ask the question and then she would say, 'Oh, you can go and look it up.' 18/3 (Surgical)

Variation D Learning through review and reflection

Variation D concerned the interns learning through reviewing patient management and outcomes, evaluating, making adjustments to management and noting areas for practice improvement. This could be done as an individual or with others. Interns described this process as happening alone in an idle moment, or occurring during conversations with colleagues and supervisors. The focus was on reviewing activities: diagnosis, management, patient outcome, and their own practice. The learning came through consideration of the combination of their skills and knowledge in relation to medicine and to the working environment and the application of judgements and decisions to actual and specific patient care. This process of review and reflection on patient outcomes was retrospective, in contrast to the 'of the moment' learning characterised by the previous experiences, or as Schön (1983) terms it 'reflection-in-action'. In this variation, 'reflection on action' was a key element of the learning. The learning was about the intern recognising their own impact on patient care, and making judgements about levels of competence. It encompassed learning from mistakes, learning to have faith in their own judgements and taking

responsibility for continuing professional improvement. The learning source, in contrast to the other variations, was the interns' own practice.

In this variation, the interns focused on practice improvement and professional development.

> So you get to be responsible for patients almost entirely…you can follow them through until they are discharged. So there are a whole lot of reasons why it's a much better learning experience — why it is the best learning experience I have had. I think the reason is the time. So when something happens, when a patient becomes unwell, when you get an unexpected test result, when you see someone who has something that you have never seen before, there is time to actually have a discussion about it and to — there's also time to think about it and you can actually reflect on some of the things that have happened. 4/3 (General Medical)

> I learnt how to manage heart attacks during the night; I learnt how to manage a patient who was very sick. I remember there was a patient who developed cardiac arrest and developed ventricular tachycardia (VT) during the night, so being able to detect it early and reverse it early before it goes onto a full blown heart attack and I figured that out and I was happy that I picked that up and really managed to control the VT. I was sort of relieved I picked it up that the patient was very sick. 5/2 (General Medical)

These two descriptions fit Schön's identification of reflection in action whereas the quotation below describes reflection on action (1983). Part of this way of learning was interns recognising the extent of their competence and where their limitations lay. The process of learning was an 'internal happening' where the interns sorted, reviewed, evaluated and articulated what they had learned.

> I do find it a helpful process if I am thinking about a patient and what's wrong with them, their management — especially if they are a complex patient — I do find it helpful to sit down and go through things and just take the time because the better you know the patient, and that's in terms of past history and just the whole thing, yeah, it makes your decisions much more sound, I

> think. Yeah, it's good to be able to have the time to sit down and do that, absolutely. 4/3 (Reflecting on the year as a whole)

> The achievements are, I guess, a feeling of not exactly independence but competence, I guess. I don't know everything, but I don't stress out about things all the time. If I need help, I know where to get it. I'm not embarrassed about asking for help. 28/3 (Emergency department)

The learning described in this quotation was about self, the intern's own abilities and competencies, the result being an expansion of self-knowledge as well as medical knowledge, as the interns recognised their own professional competence. Critically, these accounts also articulated *having the time to sit down and think*. The opportunity for active engagement in patient care and subsequent time for reflection was mediated by the environment, as well as by the interns themselves. The learning was influenced by the degree of involvement in the management and this, in turn, was influenced by the nature of the rotation, the intern's level of confidence and the degree of autonomy allowed by the circumstances and encouraged by the supervisor. Interns are taught at the commencement of the intern year, that it is important to recognise their limitations, to be ready to ask for help and to never let over confidence jeopardise patient care. However, as practitioners they need to be able to judge and recognise their own developing competence.

The four variations described above provide a structure of intern learning, to which the following section returns.

8.3.2 The outcome space of intern learning

In the variations described in Section 8.3 and 8.3.1 above, Variation A is a form of preliminary learning: that of becoming sufficiently aware and knowledgeable about the environment to be able to work within it. Variations B, C and D are each

related to the interns work as doctors, that is, their learning arises from their practice. The four conceptualisations include a *structural* element, the activity that precipitated the learning, and a *referential* element, which is the meaning that the interns ascribed to the activity. This is commonly called the *outcome space* in phenomenography.

The structural element derives from the type of activity. The activities (structures) associated with each type of variation in learning are as follows.

Variation A Familiarisation with the environment as on page 124,

Variation B Providing bedside patient care as on page 127,

Variation C Participating in decision-making about patient care as on page 129,

Variation D Reflection and review of practice in relation to patient care as on page 132.

The referential element is the learning arising from the activity. Thus, each variation leads to a specific aspect of learning.

Variation A, to learning the processes, procedures of medical practice in the hospital system

Variation B, to learning about the patient as a dynamic entity whose condition is affected by treatment and environment, whose condition changes on a continual basis

Variation C, to learning to synthesise, evaluate and coordinate diverse forms and sources of information into patient management and treatment plans

Variation D, learning to evaluate and improve their own practice in the light of its impact on others (patients and colleagues).

The four categories of description of interns' conceptions of on-the-job learning illustrate how both the task undertaken by the interns and the way they approach the task — where their focus lies — demonstrate variations between the conceptions of the phenomena of intern on-the-job learning. On-the-job learning involves different levels of learning influenced by the particular situation encountered by the intern and the level of confidence the intern feels with that situation.

The period of time encompassed by the internship provides opportunities for different levels of learning to occur and the range of rotations encountered can provide different learning opportunities.

As in all phenomenographic research, the outcome, expressed as a set of categories of description, does not apply to a particular individual but the way particular phenomena may be experienced. In this case, it is possible that all the interns might conceivably learn in all the ways described by these categories; in that the nature of the variation is related to the particular situation, the structural and the referential dimensions apparent to the intern at a particular stage of development. These stages, and their structural and referential elements, are listed in Table 8.1.

The variations and their corresponding structural and referential aspects can be explained by the particular context in which the intern finds herself/himself, that is in a given rotation, the learning and practice opportunities afforded the intern, the degree of confidence the intern has in their own competence, and how much autonomy and/or support is provided at that time. For example, not all rotations will provide the structural elements necessary for the intern to participate in decisions about patient management.

Table 8.1: Structural and referential elements of the categories of intern on-the-job learning

Variation	**Structural aspect** Intern activity	**Referential aspect** Intern learning
A: Learning through the intern environment	*familiarising with* the environment and the role	The focus of the intern is on absorbing processes and procedures.
B: Learning through providing bedside care	*monitoring and reporting* on the patients	The focus of the intern is on the transition to medical practice through *engaging with physical signs and changes in the patient* under supervision
C: Learning through collaborative decision-making	*participating* in patient management decisions	The focus of the intern is on *collaboratively exercising and testing their medical judgements*
D: Learning through review and reflection	*reflecting on and reviewing* own practice	The focus of the intern is on assuming professional responsibilities

The four variations in the interns' conceptualisations of on-the-job learning reveal the way implicit aspects of the intern context influence on-the-job learning. The intern encounters a different context in each rotation, which engenders different situations, which, in turn, require the intern to approach the situation in different ways. These contextual elements are created by the nature of the rotation itself such as:

- .the nature of the rotation — the opportunities for bed-side care;
- the degree of involvement in medical decision-making – opportunities for participation;
- the degree of responsibility experienced by the intern — engagement and involvement — which is also dependent on time in internship; and
- the ability of the intern to review patient outcomes, appraise their own performance — reflect and learn from their own practice.

The first three of these elements relate to the work context — the rotation, the degree of involvement in medical decision-making, the amount of autonomy allowed the intern, which was determined by the attitude of supervisors and the nature of the rotation — and fourth is determined by the intern's ability to engage in reflective practice and to receive feedback on that practice much as the obtain feedback about their practice from patient outcomes. These are graphically represented in Figure 8.1.

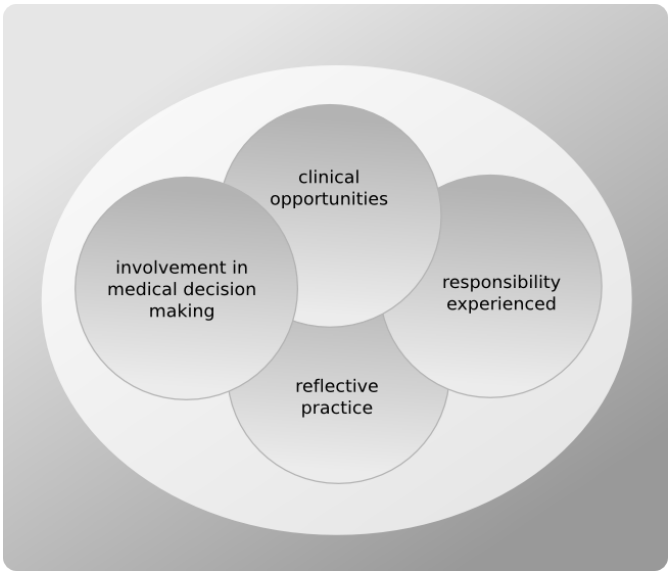

Figure 8.1: Contextual elements that influence the nature of the interns' learning

8.4 Phenomenographic analysis of interns' conceptions of their interactions with their registrars

The previous phenomenographic analysis presented the data relating to the interns' experience of, and approaches to, on-the-job learning. In the analysis process, variations were detected between the ways the interns experienced the interaction with their registrars and the ways in which the interns perceived their registrars contributed to their learning experience. The interns' accounts of their experiences describe the powerful impact of the registrar on this experience, as illustrated in the following extracts:

> Our registrars, we dealt with them all the time. They were our bosses, our immediate bosses. It's very dependent on who your registrar is and how they treat you, the sort of advice they give you; the sort of instructions they give you; even the simple things. I had a very relaxed and reassuring registrar who was very helpful. That made for a good rotation. 6/3

> If you have someone that you can't get on with, who doesn't give you opportunities, who just isn't interested in your learning, than you're stuck for ten weeks in a bit of a hole. 20/3

The interns' accounts revealed how central the registrar was to intern learning. Nominally, the Head of the Unit, usually a senior consultant or Visiting Medical Officer, was responsible for patient management and junior doctor supervision; in reality, this was mostly delegated to the registrar who was present in the medical unit or department in an ongoing capacity. The registrar figured much more often in the interns' accounts than did the consultant. It was clear from the data, that the registrar undertook patient management, directed the work of the intern, supervised the intern–patient interaction, and also provided informal teaching with more formal tutoring sessions in some instances. This was not always the case: some interns

had experiences where the registrar assigned to their unit only provided a minimal manager function.

Analysis to explore the interns' conceptions of the intern–registrar interaction followed the same phenomenographic process as that used to establish variation between intern conceptualisations of on-the-job learning. The analysis identified four variations in intern conceptions of the registrar role.

Variation A The manager conception — the role of the registrar was to assign tasks and to check the intern's work through questioning and answering the intern's questions.

Variation B The teacher conception — the role of the registrar was teaching the intern around issues that arose out of patient care.

Variation C The partnership conception — the role of the registrar was working collaboratively with the intern discussing patient care and making management decisions together.

Variation D The mentoring conception — the role of the registrar was to encourage and empower the intern to exercise their own diagnostic and management skills within the supervised environment.

These variations are outlined below, followed by discussion of the phenomenographic outcome space.

8.4.1 Variations in how the interns conceptualised their interactions with their registrars

Variation A Registrar as Manager:

In Variation A, interns described the registrar's attention as focused on managing and supervising patient care rather than on teaching or encouraging learning. The interns' viewed their registrars as focused on their getting the job done, getting it done quickly and getting it right. Registrars were concerned with directing work, checking work through questioning and responding to the interns' queries about patient care.

> Our registrars, they were our bosses, our immediate bosses. 6/2

This perception reflected a managerial and administrative function rather than an educational or mentoring role.

> You just tell [the registrar] who you are and what the problem is and then they tell you what to do. They expect to get the information in a really structured way and they don't want any waffling. It's not about your learning. It's about, they're a busy person that's being pulled every which way and they have to kind of triage the information and figure out which patient needs them more at that particular moment in time. 10/3

The registrars were managing the clinical care of their patients and they expected the interns to contribute to this task. From the intern's perspective, this interaction was concerned with ensuring that the intern carried out tasks in relation to patient care, rather than learning.

Variation B Registrar as Teacher:

Variation B concerns the intern's conception of the registrar as a teacher, focusing on learning about issues that arise from routine patient care. The most commonly described instance of the teaching role occurred during ward rounds, where the registrar and the intern would attend the patient together. Consideration of a

particular patient often precipitated a potential teaching moment. The intern provided information about the patient and the registrar would provide additional knowledge about the condition or procedure and ask questions to probe for understanding about the condition and potential treatments. In the situations described within this variation, there was always a clearly defined teacher and learner. The activity was located at the bedside or nearby. The registrar provided information about the patient, the diagnosis, the management, and then checked for understanding through questions.

> She was always keen to use various options to teach me stuff and get me to explore; work out diagnoses and management for each patient. It was just sort of being available to answer questions, mainly as we went along. 1/3

> He had experience and he made decisions and he taught you, he would tell you things and explain things to you. 30/3

These interactions were not always in relation to the patient in their care, frequently the presenting problem was used to precipitate the provision of generalised information about the particular condition rather than a discussion centred on the particular patient.

> If we encountered some kind of management issue on the ward that was difficult, he would give us little mini tutorials. He gave us a lot of teaching really. 10/3

The descriptions of these encounters located the knowledge and expertise with the registrar as in the traditional teacher–student relationship. The difference between Variation A and Variation B lies in the focus of the registrar; in the former, the focus was on directing the work of the intern; in the latter, time was

made to utilise the care as an opportunity to expand the intern's medical knowledge.

Variation C Registrar as working colleague

In this conception the teaching role was blurred and the activity became more collegial. The registrar worked collaboratively with the intern through a discussion of patient care issues. There was still a transfer of knowledge taking place but space was left for the intern to make a contribution to the interaction.

> He just looked at the blood results and said, 'Okay, so what does that mean, what would you do about it? Also how would you diagnose…?' Which is really good because it makes you think. Sometimes, as an intern, you don't do a whole lot of thinking because a lot of what you do is administrative. 13/3

The registrar encouraged and welcomed input from the intern, provided space for the intern to initiate plans and engaged more in conversation than in questioning. This activity was always patient centred in that it related to the patients in their care at the time. There was also a sense of shared responsibility.

> I think once you've mastered the basics it became more collegial, because essentially you are talking with a colleague. 6/3

> Then you get to discuss your plan and it's not just them telling you what they think about the patient. You have made the decisions and then you can understand from their feedback what was good and what needs to be added. 21/3

> Mostly, I think it was so that the registrar had the time to work through the case and work out what was going on with the patient, it was couched in terms of our learning. But I think the ultimate aim of the procedure was for patient management not just our learning. 27/3

These comments were describing more than an expansion of the teacher role; instead they revealed a significant shift in the relationship between the intern and the registrar. The first quote describes the relationship as collegial; the overall tone of all three are of a collegial interaction, indicating that the intern was able to make a contribution, however limited, to both care and medical decision-making.

Variation D: The registrar as a professional mentor

This final conception of the registrar relationship included more than patient care or teaching. In particular, this conception encompassed encouraging and empowering the interns to exercise their own judgements within the bounds of supervision. Like the interactions described in Variation C, the registrar encouraged the involvement of the intern in medical decision-making. However, in Variation D the registrar encouraged the interns to recognise their own emerging professional competence and future role. The examples that illustrate this conception recognised the intern's competence and demonstrated willingness for the intern to contribute more broadly to patient care.

> (The registrar would) encourage me in the path I was taking, in terms of my job and my responsibilities. And empowering me — reminding me that I had the skills to do it, the ones that I had been learning over the year and at university and I was in a place where I could exercise what I knew and what I had at my disposal. 1/3

> He gave me a lot of encouragement and he sort of put high expectations on me but because I was sort of his colleague, rather than his junior, it made me really want to perform for him. I was doing things that I never thought that I would do in an internship. I would be talking to him about the patients and saying, 'This is what I'm doing, this is what I want to do,' and he would say, 'Yes,' and we would nut things out together. 14/3

Professional development was achieved through mentoring the junior into the behaviours appropriate within the medical profession. One perceived outcome of this relationship was to build confidence through acknowledging competence.

> Registrars are probably the tops for medical knowledge and organisation and just kind of overall guidance in terms of when you kind of question medicine or if you are not sure about things… During the period when I was doing applications for next year he helped me a lot, just in terms of how to play the game and how the medical system works…I got a lot of professional development him. 7/3

The registrar behaviour described within this conception was one of empowerment. The registrar was able to see the intern as a junior colleague, sharing the responsibility and decision-making for the patients in their care whilst at the same time acknowledging the competence of the intern. The intern was enabled to recognise their own competence and the distance they had travelled along the medical education continuum.

8.4.2 The outcome space of intern–registrar interactions

The four variations above characterise the interns' different perceptions of registrar supervision and teaching and are presented as a hierarchy of registrar supervision activities. The hierarchy is inclusive: each description incorporates the proceeding conception. As with the previous set of variations (approaches to on-the-job learning), there is a structural and a referential dimension to the categories. The structural element is the supervisory relationship/interaction between the intern and the registrar, and the referential element is the learning purpose ascribed to the relationship by the intern (Table 8.2).

Table 8.2: Structural and referential elements of the categories of the intern/registrar relationship

Variation	Structural dimension Activity	Referential dimension Learning
A: Registrar as manager	Intern is directed by registrar	Intern learns through being assigned tasks and ensuring they are completed
B: Registrar as teacher	Registrar teaches; intern asks questions	Intern learns through transmission of medical knowledge about patient care
C: Registrar as working colleague	Registrar and intern work together	Intern learns through contributing to decision-making in patient care
D: Registrar as professional mentor	Registrar guides intern through broader understanding of what it means to be a doctor	Intern learns through reflecting on professional development with registrar

In the clinical setting, supervision is more than supervising the work of a junior; it involves a more experienced doctor sharing knowledge, demonstrating procedures, correcting misconceptions, evaluating performance and providing feedback on tasks and decision-making. The registrar is responsible for patient care along with the consultant and nursing staff but, as the senior medical staff on the spot, they carry significant responsibility. The supervisory process also involves discussion between supervisor and trainee about patients, consideration of necessary investigations, interpretation of results, planning management and monitoring patient progress. The interns mentioned all these elements, although not all registrars engaged in all these activities. The medical work was coordinated through ward rounds and various

clinical meetings. There was also a performance appraisal element built into the supervisory relationship, explicit for the consultant, but not necessarily required of the registrar. Both consultant and registrar were expected to monitor intern performance and progress and provide both formal and informal feedback. The interns experienced at least five different registrars during the course of the year (one per rotation) and in discussing 'good' registrars would compare one with another. In some rotations, the turnover of registrars was very high; in one instance, the intern was responsible to a different registrar on a weekly basis; this had a detrimental effect on the relationship and negated any learning contribution from the registrar for that rotation.

> I think it works both positively and negatively, I mean one of my registrars would occasionally sit and talk through how things could have been done better or how things should have been done and that was a very positive experience. On the other hand, my registrar for my first three weeks was an extremely uncooperative lady and basically made my experience as miserable as possible by making me feel like an idiot. 9/2.

In describing their on-the-job learning experiences, the interns in this study spoke of the various ways they perceived the registrar impacting on their learning. The learning opportunities identified by the interns occurred mostly through direct contact with their registrars; they also expressed a wish for more contact with consultants than was provided. The interns identified registrars as central to their learning experiences during their first and subsequent rotations and across all specialities. There were some instances of registrars who were not helpful, for a variety of reasons, and this tended to blight the whole rotation experience, particularly in relation to learning; it was still possible to get through the work but the result was usually an unsatisfactory rotation and inadequate learning experience.

> Unfortunately in week two they realised that my registrar wasn't actually registered in Victoria. So I then I had a different registrar every day for the next few weeks. That was a bit messy. It meant that there was no kind of continuity. 26/2

> My second rotation provided the least learning because I had a very unsupportive sort of registrar and an unsupportive team, but at the same time it meant that I had to learn to deal with that. So it was more a personal development — a professional development rather than medical learning. 16/3

> I think it makes it or breaks it, really. If you have someone that you can't get on with, who doesn't give you opportunities, who just isn't interested in your learning, than you're stuck for ten weeks in a bit of a hole. 20/3

> Probably the registrar that I had for the second half of my medical rotation, Chris, he was fantastic. He was really good. It was a medical unit where there were two interns and the registrar we had before him, didn't give us any structure or any guidance. Whereas Chris would start the day with a little team meeting and he would have regular catch-up sessions during the day where we would have what they call a paper round and go through the patients and what we needed to do. If we encountered some kind of management or issue on the ward that was difficult, we would have a discussion. 11/3

These descriptions of the intern–registrar relationship demonstrate how powerful that interaction is in relation to intern on-the-job learning and also to the intern's overall wellbeing and satisfaction with their working life.

8.5 Summary of the chapter

This chapter has discussed the expectations of the intern role that the graduates brought with them into the workplace. The four variations in the interns'

conceptualisations of learning on-the-job were presented, with the associated phenomenographic outcome space, as were the variations in the interns' conceptualisations of their interactions with their registrars.

The following chapter, Chapter 9, presents two vignettes that illustrate the intern experience from two personal perspectives; these tell the story of two individual interns and demonstrate the application of the four variations of intern conceptualisations of on-the-job learning to these interns' individual experiences.

Chapter 9: Vignettes

9.1 Introduction to the chapter

Two vignettes are presented to position the individual experience of two interns with the findings of this research as well as to demonstrate the progression of experience across the year. Each vignette contains excerpts from the intern's description of their internship from the three interviews: those prior to commencing, after the first rotation and towards the end of the intern year. Each vignette is focused on the experiences that the intern identifies as having had an influence on their learning and development. These accounts illustrate the personal dimensions of the variations and how the categories of description (the variations) relate to actual experience. I have employed the term vignette rather than case study as these accounts are used to illustrate the variations in the ways in which the interns experienced on-the-job learning. They are not therefore, the richly textured description of the whole of the person's experience that one would expect in a case study (McKenzie, 2003).

The vignettes also permit understanding of the core data set in a different way. The first interview, conducted in the period between graduation and commencing as an intern, captured their *expectations*; the second interview explored the development of their understanding of the internship based on their *experiences* in their first rotation and the third interview provided an opportunity to *review* their experiences over the year. Each vignettes is in four parts, Introduction, Expectations, Experience and Review. The categories of description are indicated with a shortened label as they occur in the narrative.

A Learning through the intern environment (A Environment)

B Learning through providing bedside care (B Bedside care)

C. Learning through participating in collaborative decision-making (C Participation)

D Learning through review and reflection (D Review)

The vignettes articulate the situations and contexts that the interns felt enabled their learning; the labels are used to illustrate the phenomenographic variations, where they are applicable. They have been applied to the 'expectations' phase although these were not core findings from the data set; and equally, they illustrate the critical role of the registrar relationship. These two individual stories paint a more contextualised understanding of the experience of on-the-job learning, in particular, the progression that happens from graduation to near the end of the intern year.

9.2 Vignette: "Wendy"

Introduction

Wendy applied to a provincial hospital because she preferred to be located in the one hospital for the whole of the year, even though this would mean relocating to a new town and starting from scratch with friendships and support networks. She felt that a regional country hospital would provide a supportive environment for its interns and be a positive learning experience. She had always been interested in specialties within surgery although the type of surgery changed several times during her undergraduate years.

> I still love surgical specialities because I prefer the hands on, like wood-work in school and things like that, I much prefer the sort of hands on than the complicated mental acrobatics. I've moved away from neurosurgery, but still into surgery as a whole.

Her rotations included three surgical rotations, two General and one Orthopaedic, as well as an Emergency rotation and a General Medical rotation.

Expectations

Wendy was most looking forward to being a 'real doctor' as opposed to a medical student and being of real use to a patient rather than just treating them as someone to learn something from. She was not too daunted about the year ahead because she believed the intern was not expected to take full responsibility for a patient with a serious condition,

> It's our job to really listen to what the consultants and registrars say and to make sure that what they say needs to happen, really does happen.

This last quote also illustrates the 'support to the team' theme identified in the analysis of the first interview data set. Wendy was aware that learning as an intern was about much more than just medicine; she listed a range of things she expected to learn, including;

- finding your way round the hospital
- the roles of different people
- the politics of dealing with different people like nurses and allied health staff, for instance (A. Environment)

She was very focused on learning from patient care, and on the transition from medical knowledge to medical practice:

> I guess, it will be similar to learning on clinical rotations as opposed to learning in pre-clinical. You've got that background knowledge, so a lot of

> your learning and the directions you take, are things you come across as you go. [It is] not just learning this is what the diseases are, and this is the name of the drug that you use; but the actual practicalities of OK this is the drug you need to use, these are the doses you need to use and…I mean complications and side effects is another big thing we learn as well not just in terms of lists, but going OK, this is what I actually have. You know when you see something it sinks in a lot better than when you are just reading it, like rote learning and things. As an intern you'll be learning the same sort of thing, you'll always be learning medicine, but I think coming at it from a slightly different angle. (B Bedside care)

She expected that her learning would be much more focused and effective as an intern than it was as a student.

> As an intern you have to be, you are forced to stay interested because you are writing everything down…you're forced to stay in the moment, and to really take in, OK he's ordering this or what ever management decisions the consultant makes, because you're involved in getting the test done and looking at the results. I think it really makes you think about it a lot more, and if there's something that you know that is ordered that you wouldn't agree with, or whatever, I think you are in more of a position to really question and go: Why are they doing that?, like, What is it that they know that I don't, about this? As a student, I think its just easier to be like, oh well they're the consultant and they know everything (B Bedside care)

She expected to be learning more than the practice of medicine.

> I think having a more involved role in the team, in all aspects of the team. Certainly ward rounds, I think they are going to be a much bigger learning opportunity as an intern than it was for me as a student, I'm going to get a lot out of ward rounds in the next year, in a way that I haven't so much in the past as a student. I think as an intern, ward rounds are going to be a much better opportunity and something I'll be quite enthusiastic about going to for a change. Being more involved in what happens on the ward, when you're organising tests, looking at results, this, that, the other. As an intern you'll be doing things, learning as you do things, which is the best way I think to have

> the information sink in, and so I think, because of that, most of the time you spend there, you're going to sort of feel like you're doing something new and useful. (C Participation)

The experience

Wendy's experience was slightly different to what she had anticipated:

> I think it is a lot less difficult than I was expecting but I think in a small hospital like this one, because you know everyone on your team, you're fairly well supported so in that sense it was a lot less threatening. That's why I chose to come to this hospital.

She described orientation processes. The Intern Orientation Program was largely about the hospital in general and managing some common conditions that the intern might encounter, but not about learning.

> We had orientation at the beginning, there were a number of educational sessions on managing conditions, you know, pain management, what to do if a patient's hypertensive or how to manage common things, particularly pertaining to cover shifts, and then there were orientations to the department. We had a very helpful orientation with the nurse business manager about where certain things were on the ward and who were key people. But in terms of actually sitting down and going, OK, so what are your expectations for this rotation and what do you hope to learn, what do we expect you to learn, that wasn't ever something that I found as being formally discussed. (A Environment)

On her first day, Wendy was provided with a handover and an orientation from the previous intern. Here too, there was no discussion of learning or expectations at the start of the rotation. She found the experience challenging to begin with but managed, through being organised, to get on top of it.

> One of the things that I found quite difficult early on was just maintaining in your head, just keeping track of who your patients are, what their background story is and then keeping abreast of all the rest of their test results and investigations. It did get easier as the rotation went on. I found that ability to mentally keep track of however many patients there were and their circumstances. Once I found I'd got my head around being able to do that I kind of found myself better able to manage, to be in a position where I had a really good working knowledge of what the latest results were for each patient, so that when the registrars came out of theatre they'd say, so what's going on with Mrs so and so, and I was able to go through the list and give them an up-to-the-minute update of how each patient was. (B Patient care)

She was aware that her confidence increased during the rotation as she began to interpret patient test results and then take the next step of being able to say, *these are what the results showed, this is what I think's going on, or is this what we would do. (C Participation)*

Discussion with her seniors was a recurring theme. The following kind of interaction began to happen about two-thirds of the way through her first rotation. It also illustrates the collegial interaction described as Category C Registrar as colleague.

> To look at all the results and go OK, this is what is going on with this patient and work out my own plan for them. And then by the time the registrar came out of theatre later that afternoon we talked about everyone. [And she would say] yes you've done pretty much what I would do. And yes, there were a couple of minor changes and questions that I had for her. (C Participation)

The collegial discussions became key for her and her learning.

> And it's the conversations that you have about patients. When it's conversational I guess the information you are getting, it's tailored to your level. Because for example if you have got someone giving a lecture to a room and, like, they are sort of going along they sort of start from whatever level they start and move on, as well as they should, because they are

> teaching everyone, not just you. But I think that when it's in that one-on-one conversation basis, you can sort of skim through. 'Okay, I understand this. But this is the point where I get stuck.' Sort of pick up from there and move on. I guess you have got the opportunity to question and clarify points that you don't understand or things that you think are related and bring up additional things. (C Participation).

During her third rotation she described her view of on-the-job learning.

> I guess taking that step from thinking that you know things, to actually kind of putting into practice and potentially risking a person because of it. But you know, just learning to trust your own examination findings and the decisions that you make. So being put in that position, where I couldn't really afford to just stand there and go, oh yes you know Registrar, what do you think we should do? I had to work out what I knew, it was good. (D Review)

A key component of this reflection was her recognition of her own competence and a preparedness to act on it.

In general, Wendy found the collaborative discussions at the end of the day conducive to both her learning and her increase in confidence as they reinforced her view of herself as a competent practitioner, *'We'd sit down and think about each patient and checking off, you know, this is what we wanted to do, and this is what we've done and this is how it has gone.'* Wendy was conscious both of how much she was learning and also how she was changing because of the increase in her knowledge and the increase in her confidence.

Review

The tone of the interview had definitely shifted by the final interview. When asked, *can you identify a milestone, an achievement?* Wendy responded:

> My key achievement was doing my own dynamic hip screw operation. 'Today, you are doing this one.' I completely wasn't ready for it at all. I was absolutely terrified. The first few moments, drilling the screws in the first couple of times, you have to feel like you are going through a thick outer layer of the bone and then it gives a little bit. Oh, that was the scariest feeling. I was like, 'Oh, my God, I've just gone through her leg.' He sort of talked me through it. It was definitely something that was pushed by him as opposed to me but I really appreciated that he did that because I would never have had the guts to ask, 'Can I just do an operation?' He stood behind me and was like, 'Okay, cut here, do this, da, da, da.' And let me do the operation myself.
> (C Participation)

It was during this orthopaedic rotation that Wendy decided on her future specialisation — orthopaedics.

> It's not a diagnostic challenge. Either something is broken or it's not, it's arthritic or it's not. It's relatively simple in terms of diagnosis. But what really makes a difference is what you do and kind of getting the angles right and getting the rotation right: if someone's got a shortened leg, lengthening it again to make it more comfortable for them to walk. But seeing these patients come back six weeks after a joint replacement and you know they are walking, they're so happy and really just glad to get that part of their life back. That was when I started to look at the specialty a little differently, particularly in comparison to my renal rotation. Once your kidneys are gone, that's it, they're gone. There are very few cases where that function comes back. So it's managing these chronic diseases for people that have little hope of improvement; it's more a case of stabilising them. I guess that's not the sort of medicine that I want to practise. (D Review)

What also stood out for Wendy was her own recognition of her growing confidence in her capabilities.

> I knew before I started that I was going to struggle with just having confidence in the medical knowledge that I do have and to believe, 'Well, actually, you have trained for this, you are qualified. If you think that's what's going on, that

> quite possibly is what's going on.' Just learning to have faith in my own abilities. I'm a lot more confident now than I was at the start of the year. (D Review)

In addition to the possibly pivotal rotation in orthopaedics as discussed above, Wendy identified a number of factors that led to her development over the year.

- being in a small hospital and for the whole year
- being recognised as a staff member across the hospital and not just within her unit for the duration of the rotation
- good working relationships with staff
- being an integral part of the medical/surgical team
- being a participant in the practice of medicine

All of these are illustrated by the following quote:

> Like, I walk down the hospital — through the halls and things and you know most people. Even if you don't know them well, you know them by sight. Everyone says 'Hello', which is lovely but then when it comes around to getting things done or, you know, prioritising things for your patients, you can duck down to the CAT lab and say, 'Oh, you know, can you fit my guy in?'

Wendy was very aware of the part she played in the team and that her learning arose through her participation in, and contribution to, the patient care team. Her reflection on her practice enabled her to see how her confidence and competence had grown over the course of the year. When asked: *And now you've been doing it for 12 months how would you define on-the-job learning?,* she responded:

> I guess learning on-the-job comes in various forms. Certainly there's being in clinic and finding someone with weird symptoms or something, you don't really understand what's going on and then questioning, presenting to a consultant/registrar and them going through it with you. And, 'Oh, it's this and

da, da, da, this is why'. That gets backed up at home, off-the-job learning, to read more about what they have told you. (D Review)

Then there's practical things. There's learning how to go about getting tests and things done, interpreting things with other staff. Then little things, tips and tricks from nurses: how to get IV working again if they are blocked. It comes in such a number of forms. If you are open to it, there's opportunities all along the way. (D Review)

9.3 Vignette: “Mathew”

Mathew was attached to a major metropolitan hospital. His rotations included emergency at a peripheral hospital, general medical at a peripheral hospital and at a rural hospital, and general surgical at his parent hospital and at a rural hospital. In his first interview, Mathew indicated he had not yet decided on a future specialty other than to rule out a career in surgery.

> I've ruled out surgery. I'm interested in everything starting with P. So that's paediatrics, physicians’ training, general practice, pathology, maybe psychiatry.

He was looking forward to

> The rewarding experience of successfully treating or helping people as well as financial and personal independence as a fully qualified doctor.

This last quote also illustrates the ‘self improvement’ theme identified in the analysis of the first interview set.

Expectations

As preparation for the hospital interviews, which was part of the application process, Mathew had researched what the hospitals were looking for in their interns and felt he had a good idea of what was involved in the intern role.

> I can see that interns need to do everything a final year medical student can do, plus do a lot more paperwork. [They need to] be able to negotiate efficiently with superiors and other departments and the patient themselves and their family members.

> I just remember [observing] a couple of interns I was working under during the last few rotations. Putting the right person with the right information, using the

> right words to convey the importance or urgency of the request. Knowing how to frame the request in a way that the radiologist on duty would accept the request. I think next year will be more fulfilling than this year because this year, having been pre-internship, I've been doing similar things to what I'll be doing next year in terms of daily routines and working in the hospitals. (A Environment)

Mathew's focus was on what he would be learning as an intern, managing a patient load, caring for his patients with occasional reference to documented information. He didn't refer to other people such as supervisors or colleagues. He related learning as arising out of his care of patients. He expected his learning would emerge from both his experiences and from his research. His learning expectations were;

- how to manage my time, how to work, sort of workwise in terms of managing my patients
- working out which conditions are more common than others
- which are more urgent and higher on my priority in terms of what must be done and can't be missed out, which I suppose just comes with practice and experience
- finding the research evidence
- following management guidelines; stuff like that. (Predominantly A Environment, with some B Patient care)

Mathew explained how his learning process had evolved over the past six years,

> I think I've been able to come up with what is most effective or works best for me consistently to see and have as much exposure to patients with the conditions that I need to learn about as possible. I find that's the best way for me to learn. I love that it's just a matter of quantity of how many patients I've seen with that. Try to piece together and make linkages and connections

> between different pieces of information that will reinforce all that in my head. (B. Patient care)

He identified the need to learn about his working environment. He used words like 'working out' suggesting that learning is an activity, something you do for yourself, 'You make your own sense of things.'

> My biggest mistakes, I think those might provide the best learning opportunities. I mean, there's a lot to be said about remembering, about being reminded or having very strong memory of particular situations. (B. Patient care)

> Because of the shame, the humiliation, the anger and the guilt that you know you've done something wrong and with that experience behind you, if this whole experience were to be repeated, you could have done something about it or done a better job or responded more appropriately or more differently. (D Review)

The use of negative terms associated with reflection, such as 'shame' and 'humiliation', is notable.

The experience

Mathew's first rotation was in emergency at a peripheral hospital. He was provided with an extensive orientation covering,

> What the hospital's expectations were [of us] and what we should do and not do, what they expected us to be able to do by the end of the rotation; they also mentioned written learning objectives provided in the Emergency Department's booklet and in the 'curriculum framework'.

He was instructed on how to work through a case from history, examination, to investigation, and 'just *working through the system of things*'. He really enjoyed the rotation, there was variety in the cases he saw and he appreciated the breadth of his

exposure. He was made to feel comfortable through the supervision he experienced and the sense that there was plenty of staff as back up.

In his emergency rotation, Mathew was able to manage a patient from admission to the emergency department through to discharge or admission to hospital; although not fully responsible, he was fully involved, confident in the back up he received.

> One of my patients started deteriorating just as I was finishing my shift. I was moving a man with dementia who had a pain in his abdomen. I gave him a dose of morphine for pain relief. And within half an hour his blood pressure plummeted.
>
> I saw that, and then when I noticed I started taking emergency measures for resuscitation and so forth. And on the spot while we were doing all this, my admitting officer was next to me, talking to me and asking me to talk through the causes, questions about hypertension. And I came to the conclusion that it was probably due to the patient's smoking when he was already sick. I learnt to be very careful when administering opioids to people who are not built for it, sick people. (C Participation and D Review)

He saw on-the-job learning as taking advantage of any and every experience.

> As well as learning on-the-job, even learning from watching other colleagues in different situations. And I was often able to catch up with my colleagues in between patients and during tea breaks and they would tell me about the kinds of situations they had had and I found this was quite useful for me as well, as it reinforced what I may have already had contact with. (B Patient care)

This was especially the case where supervisors were concerned.

> Most of the time I didn't feel threatened by them and I thought that if there were ever a situation I wasn't sure of how to proceed I would speak to any one of them and they would be happy to give me advice. (C Participation)

Mathew felt that the contributions of others through informal conversations with colleagues, as well as a targeted collaboration with his supervisor in dealing with an emergency situation, were important precipitators of learning. He described the department (general medical) as collaborative. He described opportunities for discussion and review of the patients seen in the department, not just discussion with specific supervisors about the patients with whom he was directly involved. He was able to identify what he felt were the qualities of a good supervisor.

> [A good supervisor is] one that gives space for the people he supervises to explore.
> Working in health care there are certain boundaries one cannot cross but one supervisor gave space for junior doctors to explore and work independently to some extent. Someone who can provide constructive criticism in a timely fashion. Especially when a patient deteriorates, someone who is able to do a metaphorical 'post mortem' — what works well and what could have worked better. (C Participation)

Review

There were times when Mathew had the opportunity to reflect back on his practice and it was during those times that he felt most '*like a doctor*'. Mathew was surprised by what he found most challenging during the year,

> It wasn't so much the hard skills of clinical judgement and reasoning that I found challenging in so much as soft skills, interpersonal communication, and working with administration and bureaucracy. I found that was more challenging. (D Review)

In reflecting back over his internship he stated:

> I have been exposed to harsh reality. I've also been able to interact with more staff around the hospitals, doctors, consultant, other allied staff, to get an idea of the working environment and the kind of life they lead and what I can expect depending on what career path I chose over the next few years. (A Environment)

Mathew identified his General Medical rotation as having provided the best learning opportunities, because;

> On the clinical side, there was a large variety of patients, encountering, different aspects of management, different areas for investigation. And the soft skills, the whole flow of tasks from patient admission up to discharge and the various factors that might impede this or slow it down. The need for the medical team to communicate well. (C Particpation)

It was during his fourth rotation in a General Medical unit that he 'felt most like a doctor'.

> [I think I felt most like a doctor] when I was mainly responsible for a group of patients, not in the moment itself, but on reflection. For example, when I had independence and autonomy I was making decisions and judgements about patients in the ward and carrying out plans. Yes, independence and autonomy in making decisions and judgements, and carrying out plans, is a key part in that. (D Review)

Overall he felt that the patients precipitated most of his learning

> I felt patients were the driving force behind my learning. I needed to understand their conditions in order to be able to take responsibility for their management. Patients always contribute to the learning process; you observe if this corresponds with what is in the textbook. And you learn from their response to treatment. If they get well, if there are any side effects. That also contributes to my learning. (D Review)

> Having to present a patient to a radiologist and having to take responsibility for a patient in terms of their management, presenting a patient to a consultant in a ward round. Those stand out the most. (C Participation)

While Mathew appreciated the learning opportunities presented by discussions with other staff, he felt it was possible in these discussions to push the decision-making off on to these colleagues and that this could lead to his not taking the responsibility he should, to think through and analyse his patient for himself. He felt that a good registrar would stop this happening,

> A good registrar would encourage me in the path I was taking in terms of my job and responsibilities. And empowering me, reminding me that I had the skills to do it, the ones I had been learning over the year and at university and I was in a place where I could exercise what I knew and what I had at my disposal. (D Review)

Mathew's learning awareness included reflection and assessment both in relation to his medical practice and also in relation to appreciating his own competence and being able to exercise it.

9.4 Summary of the chapter

This chapter has illustrated the variation between the interns' descriptions of their learning experiences and demonstrated how the descriptions of their learning changed over time. The vignettes served to personalise the data.

The following chapter will discuss the thesis findings in relation to learning theory and previous research on intern work and learning.

Chapter 10: Setting the intern experience of on-the-job learning into the context of learning theory and previous research

10.1 Introduction to the chapter

Chapters 8 and 9 presented the findings of my research into the interns' experiences of on-the-job learning. This chapter places the thesis findings in the context of learning theory and previous research on junior doctor learning and development. An overview of the findings are presented, then the following are discussed in turn: graduate expectations; orientation and transition; issues of autonomy and teamwork; learning through review and reflection; the intern–registrar relationship; and the contextual elements influencing learning. Finally, the limitations of this study are outlined, and the chapter is summarised.

10.2 Overview of findings

Dewey (1938) identified the variable value of experience: that genuine learning comes through experience does not mean that all experiences are equally genuine and equally produce learning. Further, he argued, it is not the quality of the experience that matters but the importance that the learner attaches to the experience (Dewey, 1938). This research confirms both the experiential nature of intern learning and the variation in the value of the experience.

The directive contained in *A Guide for Interns in Victoria*, (Medical Practitioners Board of Victoria, 2007) that "your greatest source of learning will be through your

patients" is only part of the story. The phenomenographic analysis of the intern's experiences demonstrated variation in how the interns learnt through patient care and provided an explanation for this variation. The analysis found that the way the interns learnt from their work was influenced by the context in which their work took place and also by the stage of their progression through the internship. Each rotation provided a different set of experiences and contexts for the intern and these influenced the nature of their learning. The interns started their internship believing they would learn to become more competent medical practitioners during their journey through it. Importantly, during their intern year, they found that different contexts provided different learning opportunities and these opportunities afforded different approaches to learning. In particular, where their contribution to patient management was welcomed and valued they were able to learn through collaborative medical practice. Where they were encouraged and supported to examine and reflect on their practice they were able to develop as members of the medical profession, not merely as competent practitioners.

The environmental and socio cultural influences on learning have been identified in other studies, particularly the work of (Bleakley, 2006; Lave & Wenger, 1991 Sheehan, 2005). The centrality of patient care to junior doctor learning is also well documented, namely (Sheehan, et al., 2005; Teunissen, Scheele, et al., 2007). This primarily phenomenographic study, with its multiple analyses, explores intern experiences and their approach to learning and the way learning approach is influenced by context. Phenomenographic analysis has used the variation in the intern's accounts of their experiences to develop a typology of approaches to intern learning that has the potential to enhance the way supervisors provide support and education to their trainees that complements the particular learning attributes of each rotation. These are discussed in Section 11.3 *Implications for practice*. The four variations found in approaches to learning on-the-job encompass a structural

element (the opportunity) that focuses the intern on a particular element and a referential element that describes the learning process of the intern. This is described in detail in Table 8.1 on page 135, *Structural and referential elements of the categories of intern on-the-job learning.*

Essentially the structural element is the intern activity; familiarising themselves with the environment; monitoring and reporting on patients; participating in patient management decisions and reflecting on and reviewing their own practice. These different activities focussed the intern's attention on particular aspects and this focus (the referential element) lead to their learning. The four different foci were —

- Absorbing processes and procedures of the clinical environment
- Engaging with physical signs and changes in their patient
- Collaboratively exercising and testing their medical judgement
- Assuming professional responsibilities such as self review and evaluation

In general, the thesis provides insight into the medical workplace as a learning environment, and how interns 'learn on-the-job' the relationship between the opportunity afforded by the rotation and the 'inner happening' of the intern's learning. Phenomenographic analysis allows us to hear the participants' perspective on their learning experience; it provides a means of listening to, and looking from, others points of view, most particularly the views of learners (Bowden, 1988; Dall'Alba, 1996; Entwistle, 1997; Marton, 1981). Importantly it provides an insight into the mechanisms of learning, the *how* rather than the *what*.

The second significant finding to emerge from the phenomenographic analysis was the variation in the way the interns perceived the registrar role. This study and other studies have highlighted the significance of the role of the registrar/supervisor to the

junior doctor experience (Kilminster & Jolly, 200). The phenomenographic analysis of these intern's experiences revealed a relationship between the way the intern perceived the registrar role and the variation in the way these different perceptions led to different approaches by the intern.

This summary presents the two chief outcomes of the phenomenographic analysis. The chapter continues with a discussion of these findings in the context of previous research on junior doctor learning and relevant educational theory.

10.3 Graduate expectations

The graduates' expectations of internship were considered as three variations:

Variation A	Self improvement
Variation B	Supporting the team
Variation C	Relationship with the patient

Variation A, focused on self, and self benefit. In this view, there would be a simple and linear relationship between work and learning. In Variation B, learning as a member of the patient care team was assumed. Variation C identified learning as arising from the relationship with the patient, and the role of 'advocacy'.

These categories anticipate, but are not the same as, the conceptions derived from experience. In general, the descriptive phenomenographic variations are much more reliant on a range of contextual inputs which the inexperienced graduate does not fully grasp.

Previous research on the junior doctor experience identified entry into the workplace as a time of stress and uncertainty (Lawson, et al., 2007; Roberts, 2009), The interns in this study were interviewed prior to commencing as interns as I was interested in the graduates' preconceptions of the internship and the intern role. The research on student learning identifies the beginning of a new course of learning as a period that:

> Is often characterised by confusion and uncertainty whether the transition is from school to work or even from a previous year of study in the same institution, in which students often have only the slightest idea of what to expect (Ramsden, 2003, p.122).

Several studies have shown that students can spend a great deal of time trying to discover what it is they are expected to learn before they are able to settle down and apply themselves to their studies (Biggs, 1987; Entwistle, 1991; Ramsden, 1986). Clear course learning objectives and assessment requirements can mitigate this confusion (Biggs, 1996b). This was not the case with these graduates as their perception of the intern role was on the whole accurate. There was variation in the aspects of the role on which they focused but, taken as a whole, there was a common and comprehensive understanding of the intern role and that internship meant a time for learning.

The booklet *A Guide for Interns in Victoria* (Medical Practitioners Board of Victoria, 2007) provided learning objectives for the internship as a whole and the *Australian Curriculum Framework for Junior Doctors* (Confederation of Postgraduate Medical Councils, 2006) is a general guide to the content to be encountered during the internship. So to a certain extent these interns were given learning objectives; however, these appeared to be discontinuous with their immediate environment. Generally, the interns demonstrated a clear idea about the nature of the internship in overview — about themselves, their teams and their patients – and they also had an

expectation that they would be actively learning from day one. In some ways, the data was heartening in terms of what the overall expectations might be. This echoes the findings of Lawson and colleagues (2007), who reported that the interns in their study were, for the most part, satisfied with their preparation for clinical practice; this is in contrast to overseas studies which report junior doctors felt ill prepared for on-the-job learning and lacked the skills required for self-directed learning (Brennan, et al., 2010; Hannon, 2000; Hesketh, et al., 2003). On the other hand, it might be expected that those graduates who felt ill prepared would not volunteer to participate in the study.

In general, the data suggests that medical schools are preparing their graduates appropriately for the internship. However, participants' preliminary ideas did not include understanding about the process of learning, nor did the preparatory material circulated to the intern provide clues as to how experience leads to learning.

10.4 Intern approaches to on the job learning

Phenomenographic analysis described the nature of the interns' conceptualisations of learning on-the-job, described in Section 8.3.1, there were four variations. Table 10.1 depicts these.

The interns move through these categories of an inclusive hierarchy, not necessarily in a linear fashion. All experience elements of 'A' in each rotation. All describe experiences that fit category B, most moving on to the collaborative working experience of 'C'. A smaller number of interns described experiences that could be categorised as 'D'. The two interns whose stories are told in Chapter 9 described experiences that illustrated all four categories.

Examination of the variations between individual intern descriptions of learning indicated a relationship between the interns' approaches to on-the-job learning and the particular context of each rotation. Variation in the interns' approaches could be aligned with contextual elements found in different rotations.

Table 10.1 Four variations in intern perspectives on learning on-the-job

Variation	Approach to learning	Focus and activities
A	Learning through acquiring knowledge of the intern environment	Focusing on the tasks to be done and the organisational aspects required for their achievement
B	Learning through providing patient care	Focusing on daily management of patient investigations and results; noting patient response to the management, and reporting outcomes to supervisors
C	Learning through participation in collaborative patient centred care	Contributing patient information and conclusions to the patient care team and participating in the management discussions. Sharing in discussion, judgement, and decision-making
D	Learning through review and reflection on patient outcomes	Alone or in collaboration with another, reviewing patient management and outcome, evaluating, making adjustments to management and noting areas for practice improvement

In particular, the nature of the rotation, the opportunities for involvement in medical decision-making, the degree of responsibility experienced by the intern and the ability

of the intern to reflect and learn from their own practice also contributed to *how* the *'inner happening'* leading *to* learning took place.

10.5 Orientation and transition

Acquiring knowledge of the environment refers to the orientation and transition process that occurs at the start of each rotation (Roberts, 2009). It is not a process restricted to the start of the intern year, although the transition from student to intern may be the most comprehensive (Kilminster, et al., 2011; Prince, et al., 2004; Roberts, 2009). Each rotation presented a new context. There were people, procedures and processes the intern had to negotiate and with which they needed to become familiar in order to work effectively in the particular unit or department. In other words, all transitions to new rotations required 'learning the ropes' of the new context. Kilminster and colleagues (2011) observed that each transition may be framed as a "critically intensive learning period" (Kilminster, et al., 2011) provided those around recognise it as a learning opportunity and provide the appropriate orientation and support. There is a good alignment between the approach to learning illustrated by *Variation A: Learning from through acquiring knowledge of the intern environment* and the requirements of transition in each rotation. The following comments illustrate this:

> I guess the most worrisome thing was being in the hospitals, getting used to the way everything works…just getting your work done and checking your results and making sure you get to X-ray and knowing where it is and what to do and all the little things you need to know as an intern. 6/2 (General Medical)

> Logistical things, like how to make a proper referral and what you need to do to do particular things. 13/3 (General Medical)

The study of doctors' transitions reported by Roberts (2009) and cited by Kilminster, and Zukas (2011) interviewed 37 first year doctors as part of a larger study into transitions and their relationship to medical performance. The study reported that the immediate requirement to deliver patient care whilst making a transition to a new setting could be a positive and transformative experience if the learning culture of the setting was able to recognise the potential for learning. Conversely, a US study of junior clinical staff, including doctors, found frequent transitions had a detrimental effect on the development of professional relationships and deep systems knowledge (Bernabeo, et al., 2011). Both of these findings were supported by data from this study as the interns in this study experienced a variety of rotations during the course of their internship and each one provided its own set of challenges and opportunities. The experiences covered by *Variation A Learning through acquiring knowledge of the intern environment* were common to all the interns. Each rotation required that each intern 'acquire knowledge' of their new environment. The learning process at this stage is both cumulative, that is, new knowledge is added to existing knowledge, and assimilative — new learning is added to existing knowledge resulting in an increased capacity to act in the new environment (Illeris, 2009).

This familiarisation process was necessary to being able to work in the unit and thus to access the learning opportunities afforded by that particular rotation. The *'critically intensive learning period"* was a period of orientation and familiarisation that was ignored by some supervisors, and in these instances the intern was left to navigate the transition on their own. Other interns were actively supported through the process.

> Well, it was a little bit more than a patient handover; I was walked through a few of the paperwork procedures, but it was a lot to take in, in an hour and in

> the first week of my rotation. I had a lot of trouble remembering every bit because there were quite a lot of things that I had to do. 9/2[2]
>
> My registrar was very kind and he helped me, he guided me as well as giving me the encouragement and faith to do things on my own as well, and my consultants, they were quite kind to me as well, they allowed me to do things, which was for me a wonderful experience to know that at least you have some capability even though it is your first job, your first weeks as a doctor. 6/2

These two quotes refer to the experience of the first rotation of the year; they illustrate how the context of each rotation is influenced by the way one of the contextual elements, in this case, the attitude of supervisor/registrar affects the intern. The opportunities afforded the intern to participate actively in patient care has been shown as important to intern learning (Bearman, et al., 2011; Lawson, et al., 2007; Sheehan, et al., 2005; Teunissen, Scherpbier, et al., 2007). Sheehan, et al. (2005) reported other staff and colleagues in the medical unit also determined the degree of access to the opportunities afforded by a particular rotation. This present study indicates how advancement to more significant approaches to learning can be impaired if the interns are not provided with the basic orientation to their learning environment. A sense of inclusion and invitation to participate are necessary precursors for the intern to fully engage with the opportunities to participate as Billett notes, the quality of the learning process is determined by the extent to which the learner feels sufficiently 'at home' in the environment and able to engage with the opportunities offered (Billett, 2004).

[2] As noted in Section 7.6.2, in the third set of interviews it was not always clear which rotation was being referred to.

10.6 Autonomy and teamwork: bedside and collaborative care

The data in this study reinforces our understanding that learning stems from the work the intern undertakes in caring for patients. This is a specific kind of authentic learning that can only occur in the workplace for a worker. The clinical experience of students in the hospital and clinicians in simulations of clinical care does not provide the same authenticity, as the critical element in the workplace is the responsibility for patient care.

> I felt they [the patients] were the driving force behind my learning. I needed to understand their conditions in order to be able to take responsibility for their management. Patients always contributed to the learning process. You learn from their response to treatment, If they get well, if there are any side effects. That also contributed to my learning. 1/ 3

This quotation also highlights the difference between learning from patients as a student and learning from patient care as an intern. For the student, patient care often provides learning through an illustration of conditions and symptoms. For the intern, patient care promotes learning through provision of medical intervention, with subsequent positive or negative impacts on the patient.

These findings are consistent with the findings of Lawson and colleagues (2007) who reported that the interns in their study were, for the most part, satisfied with their preparation for clinical practice. The interns in Lawson and colleagues (2007) study described the tension between being ready for responsibility and needing to have the degree of experience to be ready. Despite this tension, the interns in this present study welcomed this shift in status as it provided the opportunity for them to reciprocate with actual care to the patients who were providing them with learning opportunities. An earlier study found that the interns perceived that their

undergraduate learning lay 'dormant' until they were in an appropriate context, and could put theory into practice and see for themselves the results of their actions (Pearson, et al., 2002).

The data indicated that the range of patients encountered dictated the 'curriculum'. The work of the intern was the starting point, patient progress was the objective; the outcome was influenced by other equally important elements of the context. The learning process aligned with patient management and was supported through help in the 'interpretation and construction of meaning' through discussion about patient management with others, most particularly with the intern's registrar. This research confirms findings by Teunissen that *"work related activities are the starting point for learning. The subsequent processes of interpretation and construction of meaning lead to refinement and expansion of residents' knowledge and skills.*" (2009 p. 32).

The sequence of interviews undertaken for the study demonstrated the interns present learning experiences increased in complexity as the internship progressed. In the second interview (the first opportunity to talk about their actual experience of being an intern), the focus was mainly on 'making sense of the environment', monitoring patients and gathering information, which is mostly encompassed by *Variation A: Learning through acquiring knowledge of the intern environment*. At the third interview and after they had experienced four to five rotations, interns described a more complex set of relationships between themselves, their patients, supervisors, and other staff, and an increasing sense of responsibility and autonomy.

> Well there's the personal aspect of being sort of time efficient and being able to manage your time, being able to prioritise the right sort of tasks to do in the right sort of order and then also being able to be of assistance to others…and then also knowing when to ask for help, when to ask other people and who to

ask. 2/2 (Colorectal Surgical) *Variation B: Learning through providing bedside patient care.*

I've come to realise if you want to be a good intern you need to start anticipating problems in advance and doing things and your consultants and registrars become incredibly appreciative of that, when you, instead of bringing a problem, they say 'oh this person's haemoglobin is 80, do we need to transfuse?' [And you are able to reply] 'well I thought we might need to transfuse so I've done A, B, C, D it's all ready, do you want to go ahead?' 6/2 (General Medical) *Variation C: Learning through participating in collaborative patient care.*

Once interns had 'learnt the ropes', their focus turned to their work and to learning from their management of patients. This aligns with *Variation B: Learning through providing bedside care* and then progresses to *Variation C: Learning through participation in collaborative patient care*. Learning emerged through exposure, investigation and discussions with their seniors. For most interns, this type of learning takes place initially under close supervision, but as the rotations progress and learning through the other approaches such as reflection develop, the intern is given much greater responsibility. This culminates in learning through a measured degree of autonomy. The third type of learning in the typology developed by Illeris, accommodative, best describes this process of learning. New knowledge is encountered, considered, evaluated and, where appropriate accommodated into existing knowledge. The knowledge becomes part of the intern's mental furniture and can be recalled and used whenever required (Illeris, 2009).

The interns found the experience of 'night cover', where their responsibility for patients was more intense, developed their sense of autonomy; this was also found by Lawson and colleagues (2007). This sense of autonomy was generally accompanied by the interns' own recognition of their developing competence.

> I appreciated the night work because I was left alone to decide which patient was sick enough to need other people's attention as well. I was more like a doctor at night and more like a clerk in the day.

> I learnt how to manage heart attacks during the night. I learnt how to manage a patient who was very sick. I remember there was a patient who developed cardiac arrest and developed ventricular tachycardia (VT) during the night — so being able to detect it early and reverse it early before it goes onto a full blown heart attack and I figured that out and I was happy that I picked that up and really managed to control the VT. 5/2 (General Medical).

Night duty and understaffed hospitals provided the greatest opportunity for the interns to experience the autonomy that comes with actual responsibility for patient care. This sense of autonomy was highly valued by the interns and associated by them with a deep learning experience. Some interns experienced night cover early in the year, others later in the year. The extract above is an example where the situation of the particular rotation provided the opportunity for the intern to experience autonomy and exercise responsibility, aspects not found in every rotation.

The allocation of interns to particular rotations is done prior to the commencement of the internship, so it is not possible to match intern competence or stage of development to particular rotations nor are rotations arranged in any of interviews of increasing responsibility. Although appointment of interns to first rotations involving night duty are avoided, this was not always possible in some smaller hospitals during 2008 when this study was conducted. All rotations required the intern take responsibility for patient care, while close supervision was more evident in some rotations than in others. The intern in the emergency department must consult their supervisor before initiating action; this is not the case later in the year for the intern on night cover.

Allowing space for the intern to develop a sense of their own competence required opportunities for them to exercise their own judgement and to take responsibility for their clinical decision-making. The realities of the clinical workplace meant this was not without patient risk. One Canadian study cautioned that this desire for autonomy on the part of the intern may not be in the best interests of patient safety and must be balanced with close attention to self and team evaluation (Kennedy, et al., 2009). A very real tension existed between the needs of the learner and the safety of the patients. The data from the present thesis indicated a small number of examples where the exigencies of hospital staffing provided opportunities for intern responsibility before they had developed the necessary competence. From a learning perspective, responsibility that did not equate with the degree of competence reached did not produce learning or develop confidence.

It is worth pointing out that, to return to Dewey (1938) experience in and of itself, does not promote learning. *Learning from bedside patient care (Variation B)* was most powerful when supported by other approaches to learning, in particular, the feedback and support provided by learning through collaborative decision-making. Learning by the bedside did not of itself provide an opportunity to construct an enhanced understanding of medical practice: the input of others was required. The interns described how working collaboratively with their registrar, with other interns, and with other staff about patient management contributed to their learning. As Wendy points out:

> To look at all the results and go OK, this is what is going on with this patient and work out my own plan for them. And then by the time the registrar came out of theatre later that afternoon we talked about everyone. [And she would say] yes you've done pretty much what I would do. And yes, there were a couple of minor changes and questions that I had for her. *(Variation C: Learning through participating in collaborative patient care).*

Sharing in the discussion and decisions about patients involved the intern in a process of review and evaluation. The discussion required they articulate the situation, consider it, hear other points of view, modify their own if necessary then take agreed action. This 'on the spot' process of evaluating, accepting or discarding ideas led to meaningful learning based on practice and tempered by theory. In many ways, they were learning to calibrate their clinical judgements.

Examples of collaborative practice were found to a greater or lesser degree in the accounts of almost all the interns in the sample. Not all rotations provided the same scope for collaboration; it was dependent on both the nature of the patients in the ward/unit and the attitude of the supervisor to collaborative patient care.

> You are called to assess a particular clinical scenario with a patient. You know whether you are not exactly sure the best way to handle it or what's causing it. It was more a discussion. 28/3

> I guess taking that step from thinking that you know things to actually kind of putting them into practice and potentially risking a person because of it. But you know — just learning to trust you own examination findings and the decisions that you make. So being put in that position where I couldn't really afford to just stand there and say 'Registrar what do you think we should do?' I had to work out what I knew, it was good. 7/3

Some registrars did not encourage discussion and collaboration. This reflected the 'situatedness' of intern on-the-job learning and indicated that the ability and opportunity to participate in decisions relating to patient care was dependent on the situation in which the intern was placed and the attitude and capacity of the supervisor as much as the capability of individual interns.

> The registrar who just worked so incredibly fast and I don't feel there were discussions about patient treatment that really occurred. It was mainly me trying to start it but it always just turned into, 'Oh, the intern is just asking me a question'. So that's why I went away and looked up a lot of the things because I would ask the question and then she would say, 'Oh, you can go and look it up.' 18/3 (Surgical)

This study found that the instances of collaborative learning tended to occur primarily as discussions between two people, the intern and the registrar. The medical team is alluded to throughout the medical education literature but the interns' descriptions of their learning experiences in this study usually described interactions between themselves and their registrar or themselves and a fellow intern and, to a lesser extent, with senior nurses. More actors were present during ward rounds and clinical meetings but not all players had speaking parts. The learning experiences described by the interns usually referred to a conversation between themselves and their immediate supervisor about a specific patient. Whilst it is true that patient care in hospitals involves a multi-disciplinary team, this team is not included in the intern's account of their learning experiences. Bleakley (2006) reports that learning in teams has not generally been adopted either in practice or in the literature.

As expounded in this thesis, the quality of the relationship between the intern and the registrar is of paramount importance to the on-the-job learning experience (Brandt & Nielsen, 2008; Brown, et al., 2007; Lack & Cartmill, 2005; Sheehan, et al., 2005). Whilst these studies highlight the significance of the interaction between supervisor and junior doctor, little attention has been paid to the quality of that interaction (Boor, et al., 2008).

The descriptions of effective conversations described by the interns reflect the constructivist nature of their learning: they are making sense out of, and integrating,

previous knowledge and experience with the experience of the moment: what Schön (1983) describes as reflection-on-action is indicative of *Variation D: Learning through review and reflection.* The supervisor contributes to that process as a partner collaborating in the sense-making rather than passing on the knowledge as a finished product. The interns were able to construct their own understanding of medicine and medical practice through the accumulation of new understanding, integrating it with existing knowledge, evaluating and constructing their own world view of medicine and medical practice, which is what Illeris (2009) calls accommodative learning. The supervisor can play a guiding role in this process identifying and extending the matters under discussion.

It is the authenticity of the context, and the care of patients, that drives intern on-the-job learning. The medical challenges of the clinical workplace focus the intern learner's attention in ways not possible in formal, traditional learning contexts. The interns experienced learning as emerging from a process rather than a single source: observing a team at work, developing a diagnosis, observing a patient's response to treatment, making a judgement or contributing to decision-making. This is in contrast to the way we are accustomed to learn through our schooling and undergraduate experiences, where we rely on the teacher or the text as the source and precipitator of our learning. In the workplace, the learner's actions, the consequences of those actions, the learner's own sense-making precipitates the learning. The workplace provided multiple factors from which to construct meaning rather than the learner receiving meaning as an authorised fait accompli.

> If we had a high number of patients the registrar would be the one to initiate the meeting. This is what the plan is. If there was a bit more time for us to sit down and discuss each patient in turn there might be **more space for collegial discussions**. We didn't consciously sit down to have a brainstorming session but when discussing patients, each of us thought up

ideas and eventually we ended up coming to decisions. 1/3

Workplace relationships can be based on joint enterprise and they rely less on an expert-instructing-novice dynamic, particularly as the intern assumes more and more the role of the autonomous medical practitioner. In the interaction described above, the supervisor–intern relationship is still apparent but the **shared task** of patient care is the dominant element. Learning, as the construction of meaning, constitutes the inner happening (Griffin, 1987), the learning process arises directly from the work of the intern; which is largely supervised work. The interaction with the supervisor is part of the work and contributes to the learning. The conversation that takes place between these two fuels the 'inner happening'. The role of the supervisor is revisited in Section 10.7.

This construction of professional knowledge was precipitated through everyday work activities, the opportunity to think about practice, and through discussion with supervisors and peers. The learning was influenced by the interns' perceptions of their own role and capabilities in relation to the situations they encountered. The supervisor's role in this activity was central. In the workplace, the learning was largely self-directed and occurred as the learner integrated what was being learned, but the skilled supervisor was able to reinforce, correct and support the learner's personal construction of knowledge.

10.7 Learning through review and reflection

On-the-job learning results from the construction of knowledge, based on experience, and this involves evaluation of the experience together with relevant prior knowledge to produce personal meaning. Research on learning in the clinical setting draws on educational research located in the domains of adult, experiential and workplace-based learning (Billett, 2001; Boud & Garrick, 1999; Lave & Wenger, 1991; Teunissen & Wilkinson, 2011). Awareness of learning is an essential component of learning on-the-job. The Kolb cycle (1984) of experiential learning identified the stages the learner goes through when learning from experience: the experience, observation and reflection, development of generalisations and abstract concepts, and testing the implications of the new concepts in new situations (the Kolb cycle is presented graphically in Figure 4.1). These stages are also the stages in a process for constructing knowledge, for transforming the experience into learning.

Reflection on experience is seen to be a crucial aspect of experiential learning; it is how the learner processes and subsequently acts in relation to the experience that determines the quality of the learning (Boud, et al., 1993b; Boud, et al., 1995; Brookefield, 1995; Kolb, 1984; Schön, 1987). *Variation D: Learning from review and reflection* captures the interns' approaches at this level of metacognition. This conception was not found in all the interns' descriptions. A small Danish study of junior doctors illustrated the learning potential of 'shared reflection' (Brandt & Nielsen, 2008). The reflective process helped the junior doctor recognise the learning potential in difficult on-the-job learning situations. It was found that sharing experiences for the purpose of reflection on practice was a support to learning in two further studies (Henriksen, et al., 2008; Iedema, et al., 2010)

Reflecting on experience was often framed as learning from a mistake. The learning arose from the reflection on the action, in order to recognise the mistake and to change future practice.

> You know you've done something wrong and with that experience behind you, if this whole experience were to be repeated, you could have done something about it or done a better job or responded more appropriately or differently. 1/3 (Reflecting on the year as a whole)

As well as learning from mistakes, recognition of their developing competence was a necessary precursor to further progression. Confidence development followed the experience of competence. Confidence without the matching competence can only be seen as a dangerous quality from both the patient's perspective and intern development. For these interns, their recognition of competence was facilitated through reflection and feedback on their own practice. Intern orientation programs place considerable emphasis on the need for interns to recognise their own limitations and to always seek help; this is a necessary part of the learning experience and a vital patient safety consideration. Equally the interns need to be encouraged to recognise their own development as medical practitioners and to have the confidence to exercise their professional judgement when called upon. This can occur retrospectively and requires time and opportunity for reflection, something difficult to find on a busy ward. It also requires constructive feedback from their supervisor about their work and acknowledgement of a job well done whenever appropriate.

The descriptions of learning that contributed to the conception of learning through review and reflection on patient outcomes originated from a specific experience that the intern then thought about, reflected upon and considered in the light of their prior

learning. The outcome of this process was to construct their own knowledge and/or refine their practice.

> When something happens, when a patient becomes unwell, when you get an unexpected test result, when you see someone who has something that you have never seen before, there is time to actually have a discussion about it and there's also time to think about it. You can actually reflect on some of the things that have happened. 4/3

This description of the learning process also reflected the workplace learning described by Illeris as *accommodative learning*. Accommodative learning occurs when a new experience, insight, or information is integrated with existing knowledge or understanding. It may mean existing mental schemes need to be broken down and reformed. The intern is expected to synthesise undergraduate learning with what they learn in practice, on-the-job. This process of accommodation of the new requires a productive thought process, it sparks an 'inner happening' that is dynamic in nature and is likely to be retained as part of one's mental furniture. It becomes knowledge that can be recalled and applied in different contexts (Illeris, 2009).

The data demonstrates that at the highest level of the hierarchy, *Variation D*, learning on-the-job is through reflection, which comprises evaluation of, and judgement on, practice.

> To look at all the results and go OK, this is what is going on with this patient and work out my own plan for them. And then by the time the registrar came out of theatre later that afternoon we talked about everyone. [And she would say] yes you've done pretty much what I would do. And yes there were a couple of minor changes and questions that I had for her and it was good to see how far I'd come. 7/3

This quotation underlines the positive influence of the registrar to intern learning through review and evaluation, reinforcing the intern's judgement and thereby furthering the elaboration of their knowledge. In his vignette, Mathew describes his own realisation of his growing sense of professional competence,

> I think my growing sense of professional competence occurred when I was mainly responsible for a group of patients, not in the moment itself, but on reflection. For example, when I had independence and autonomy I was making decisions and judgements about patients in the ward and carrying out plans. Yes, independence and autonomy in making decisions and judgements and carrying out plans, is a key part in that. Mathew/3.

Mathew is able to recognise his own competence as a developing medical practitioner.

The **learner is changed** through the learning, through increased awareness of competence and confidence. This 'learning through review and reflection on patient outcomes' is '*expansive*' and even at times '*transformational*' (Illeris, 2006), in that the interns are able to recognise their own emerging competence as medical practitioners. In this process the actions of the supervisor to precipitate and encourage this moment are critical.

> This registrar encouraged me in the path I was taking, in terms of my job and my responsibilities. And empowering me — reminding me that I had the skills to do it, the ones that I had been learning over the year and at university and I was in a place where I could exercise what I knew and what I had at my disposal. Mathew/3

This section has discussed learning from reflection on direct experience with and around patients; what was not addressed during the interviews was learning through reading about their patient's conditions and symptoms. This may have been because

the interviews were focussed on patient care and they did not see research as part of patient care. Where reading was mentioned it was associated with a deficiency in the support provided by their registrar:

> And the registrar who just worked so incredibly fast and I don't feel there were discussions about patient treatment that really occurred. It was mainly me trying to start it but it always just turned into, 'Oh, the intern is just asking me a question.' So that's why I went away and looked up a lot of the things because I would ask the question and then she would say, 'Oh, you can go and look it up.' 18/3 (Surgical)

10.8 The intern–registrar relationship

The second significant phenomenographic finding was the variation between the intern's perceptions of the role played by registrars in their learning and the significance of that relationship. The most influential element of the supervisory relationship was providing recognition of the opportunity, the time and encouragement to transform the experience of caring for patients into learning. Four variations were found in the ways the interns described their registrars as managing their work and facilitating their learning.

A The manager conception — the registrar–intern relationship was focused on task allocation, and the interactions were around checking the interns' work, through questioning the intern and answering their questions;

B The teacher conception — the registrar–intern relationship was focused on teaching the intern around issues that arose out of patient care;

C The collegial conception — the registrar–intern relationship was focused on collaboration, with the intern discussing patient care and making management decisions together with the registrar;

D The mentoring conception — the registrar–intern relationship was focused on development, with the registrars encouraging and empowering the interns to exercise their own diagnostic and management skills within the supervised environment, and contributing to their professional development.

'A' encompasses the simplest level of the registrar–intern relationship as described by the interns when reflecting on their interactions with a number of registrars over the course of several rotations. A registrar–intern relationship which demonstrated the qualities described in 'D' would also be exhibiting all the qualities described in 'A', 'B' and 'C'.

Previous research indicates that supervision is the main pedagogy supporting and developing learning in the clinical workplace (Boor, et al., 2008; Kilminster & Zukas, 2005). Clinical and educational supervision is an essential component at all levels of medical education, not just from a teaching/learning perspective but, importantly, for patient safety (Cottrell, et al., 2002). Much of the literature on the role of the supervisor/teacher focuses on the desirable attributes of the clinical teacher and not on the interaction between learner and teacher. Boor and colleagues (2008) hypothesised that whether a clinical teacher is perceived as ideal depends on the interaction of the resident with his/her teacher in the clinical context and highlight the sparse attention paid to that interaction in the literature. Chapter 4, and in particular Section 4.2.4 and again in Section 5.4.4 the roles that supervisors play in promoting learning for junior doctors have been highlighted.

The registrar, as primary supervisor, was well placed to mediate the contextual elements presented in each rotation to ensure that learning took place. The influence of each of the elements varied depending on the rotation. Rotations varied in the mix of patients encountered, the nature of medical care required, the degree of intern participation in medical decision-making expected or allowed. As others report effective supervisors give their supervisees responsibilities for patient care, opportunities to carry out procedures, opportunities to review patients, involvement in patient care, direction and constructive feedback (Kilminster & Jolly, 2000). Additionally, the literature suggests that there are three functions within supervision: educative, supportive and managerial or administrative (Kilminster & Zukas, 2005). These three functions are reflected in the variations found between the interns' conceptualisations of the roles they perceived their registrars played in supervising their work. However, this thesis argues that all three functions are necessary to the learning process. Good management sets the tone and allocates tasks appropriate to the intern's level of competence, and the sharing of knowledge, and the creation of a supportive environment allows the knowledge to be discussed and considered. The functions build upon each other. That is, without good management, the intern is /not exposed to new concepts; without new concepts, the intern cannot contribute to collaborative care and without this contribution, the intern's capacity to review their own clinical judgements is more limited.

Most critically, the registrar is in a position to recognise the opportunities and limitations of a particular rotation's context and to help the intern navigate these elements to get the best learning opportunities that the particular rotation can offer. From the intern perspective, learning was both precipitated and reinforced through the collaborative conversations about patient care — a collegial discussion between colleagues engaged in a joint endeavour was found to be really helpful.

> People who are willing to put in the time to discuss things with you, to sort of talk to you about what you're seeing. I think really the opportunity to be involved, properly involved in patient care because the more you're involved, then I guess it links back to what I just said with the people who are willing to talk to you and explain what's happening. 16/3 (reflection on the year as a whole)

These conversations provided opportunities for the interns to learn new ways of thinking, practising and acting, and to adopt and incorporate these with their prior knowledge in a process of active assimilation and accommodation with new learning that is, they constructed new personal meaning through reviewing, evaluating and modifying old ideas, attitudes and skills and adopting new ideas, attitudes and skills as they encountered them in the clinical workplace. The registrar, with knowledge of the competence of the intern and the opportunities and limitations of a particular rotation, was able to mediate the learning opportunity.

> I think once you've mastered the basics it [the interaction between interns and registrar] became more collegial, because essentially you are talking with a colleague. 2/3

> Then you get to discuss your plan and it's not just them telling you what they think about the patient. You have made the decisions and then you can understand from their feedback what was good and what needs to be added. 7/3

The literature on informal learning in the workplace would suggest the collaborative style described by these excerpts would result in a more effective and satisfying learning and work experience for the interns. This style provides opportunities to learn the teamwork and communication skills referred to by Bleakley (2006) as requirements for interprofessional teamwork and patient safety teams. Two helpful metaphors for learning in the workplace have been identified: 'acquisition' and 'participation' (Sfard, 1998); Bleakley also refers to these in relation to learning in the

clinical workplace learning. 'Acquisition' is equated with knowledge reproduction or where knowledge is transferred from one individual to another. 'Participation' describes collaborative knowledge production as an active process of legitimate engagement in a community of practice (Bleakley, 2006). It is useful to reflect on how the approach of the intern is likely to influence the response of the other.

As with the metaphors, the inclusive nature of the hierarchy may be a more helpful way of thinking about supervision. In *Variation A: Registrar as Manager* the registrar/intern relationship is work-focused:

> You just tell them [the registrar] who you are and what the problem is and then they tell you what to do. They expect to get the information in a really structured way and they don't want any waffling. 10/3

> We dealt with our registrars all the time. They were our bosses, our immediate bosses. It's very dependent on who your registrar is and how they treat you, the sort of advice they give you, the sort of instructions they give you. 6/2

In *Variation B: Registrar as Teacher*, registrars would use the ward round as a extemporaneous classroom when encountering a patient with an unusual or interesting condition and use this as a catalyst for teaching about the condition. Some registrars would run mini-tutorials on an ad hoc or regular basis. These instances were separate from the actual management of the patient and the relationship employed in these exchanges was that of teacher-learner rather than, as in the following variation — partners in the management of the patient.

> Well, you might be having a management discussion and then he would go into teaching you about a particular part of that. Every new patient was kind of a teaching opportunity with him. He would get one of us — either the other

> intern or myself or one of the medical students on the team — to interpret the X-ray or interpret the pathology results, which was really helpful. 11/2

The data indicated there were times when the registrar was described as working collaboratively with the intern discussing patient care issues along the way. From the interns' perspectives the rotations where the registrar was seen to take this role were both productive of learning and enjoyable. These three roles manager, teacher, partner — together fulfil the definitions of supervision proposed in the literature: monitoring, guidance and feedback on matters of personal, professional and educational development (Kilminster & Jolly, 2000). An element of reflection on the part of both supervisor and trainee is also important (Kilminster & Zukas, 2005). Although there may be no explicit teaching occurring, there is learning.

> Then you get to discuss your plan and it's not just them telling you what they think about the patient. You have made the decisions and then you can understand from their feedback what was good and what needs to be added. 21/3

This description of the role is more than an expansion of the teacher role: it represents a shift in the relationship from expert learner to a more collegial relationship where both can work collaboratively to develop and implement patient management strategies. Engagement in the decision-making process involves the intern in articulating a position, then modifying that position in the light of the supervisor's perspective and then, finally, implementing the jointly made management plan.

Where the intern–registrar is seen as a partnership in patient care, the intern is able to achieve **learning through participating in collaborative patient care** and **through review and reflection on patient outcomes**. This represents *Variations C and D* in the interns' descriptions of their experience of on-the-job learning.

> He gave me a lot of encouragement and he sort of put high expectations on me but because I was sort of his colleague, rather than his junior, it made me really want to perform for him. I was doing things that I never thought that I would do in an internship. I would be talking to him about the patients and saying, 'This is what I'm doing, this is what I want to do,' and he would say, 'Yes,' and we would nut things out together. 14/3

Reciprocity is referred to in the literature in relation to the relationship between the intern and the environment (Swanwick, 2005); it is of even greater moment when considering reciprocity between intern and registrar collaborating to provide patient care.

The final variation, *Variation D*: the registrar as professional mentor encompassed the other variations. It was critical and formative.

> [The registrar would] encourage me in the path I was taking, in terms of my job and my responsibilities. And empowering me — reminding me that I had the skills to do it, the ones that I had been learning over the year and at university and I was in a place where I could exercise what I knew and what I had at my disposal. 1/3

In summary, the role of the supervisor is the crucial workplace relationship both for patient care and for intern learning.

> A helpful registrar is one who's available for advice in clinical situations. Advice is more management oriented to a particular patient, whereas a question might just be for interest's sake or for broadening knowledge. But I still think getting advice is a learning experience. You are called to assess a particular clinical scenario with a patient, you know, where you are not exactly sure the best way to handle it or what's causing it. It was more a discussion than a question and answer session. 28/2 (General Medical)

The centrality of the registrar to intern learning has been acknowledged in a number of previous studies. A national Australian study by the PMCV of pre-vocational trainee learning needs found that registrars were perceived as an important and reliable educational resource by the overwhelming majority of pre-vocational doctors (Dent, et al., 2006; Lack & Cartmill, 2005). Data for this thesis, collected in 2008, confirms these findings as the learning opportunities identified by the interns occurred mostly through direct contact with their registrars. The 2008 interns identified registrars as central to their learning experiences during their first and subsequent rotations and across all specialities. There were some instances of registrars who were not helpful for a variety of reasons and this tended to blight the whole rotation experience, particularly in relation to learning. It was still possible to get through the work but the result was usually an inadequate learning experience.

> One of my registrars would occasionally sit and talk through how things could have been done better or how things should have been done and that was a very positive experience. On the other hand my Registrar for another three weeks was an extremely uncooperative lady and basically made my experience as miserable as possible by making me feel like an idiot. 9/2 (General Medical)

The findings of a large postal survey of trainee doctors in the UK found that, whilst supervision was considered to be both important and effective, its practice was highly variable (Grant, et al., 2003). The variability of the quality of supervision found in the UK study was also found in the present study.

The challenge for the supervisor/educator is how to facilitate the intern's construction of professional knowledge as they engage in professional practice. The interns learn through their experiences and they construct knowledge out of those experiences.

The task for the supervisor is to support the intern as novice practitioner, provide opportunities to apply theoretical knowledge to medical practice, provide space for the intern to exercise judgement and action, and to help the intern interpret and construct meaning from the experience. The learning process is most effective through joint thoughtful, reflective medical practice and conversation. Three of the research studies of junior doctor learning discussed in Chapter 5 drew attention to the link between the opportunity to reflect on experience and learning (Brandt & Nielsen, 2008; Smith, et al., 2004; Teunissen, Scheele, et al., 2007). These studies reinforce the idea that reflection is a process shared between the supervisor and the junior doctor. The interns in this study described this reflective process when they were discussing their interactions with their registrars.

The interns' experiences point to the most productive moment of teaching, namely, when supervisors see the opportunity for a collegial exchange, a 'collegial moment' rather than a 'teaching moment'. Privileging the collegial approach to supervision has the potential to empower the intern, while at the same time providing the necessary managerial guidance and provision of supervisory knowledge. When taken to the next level of mentorship, these collegial moments provided professional and career support, in addition to the matters directly related to the current rotation. In some ways, these two blurred together, as when Wendy was provided with the opportunity to perform a dynamic hip screw operation.

> The first few moments, drilling the screws in the first couple of times, you have to feel like you are going through a thick outer layer of the bone and then it gives a little bit. Oh, that was the scariest feeling…He sort of talked me through it. It was definitely something that was pushed by him as opposed to me but I really appreciated that he did that because I would never have had the guts to ask, 'Can I just do an operation?' He stood behind me and was like, 'Okay, cut here, do this, da, da, da.' And let me do the operation myself.

It can be speculated that the approach of the intern and the approach of the registrar are likely to influence the response of the other. The research on student learning indicated a direct and powerful link between teacher approach, learner approach and learning outcome (Entwistle, 1991; Prosser & Trigwell, 1999; Ramsden, 1992). Where feedback to the student was timely and developmental (Prosser & Trigwell, 1999) and the teaching was focused on conceptual development rather than information transmission, the learning will be effective and developmental rather than merely cumulative (Martin, Prosser et al, 2000). It is to be expected that similar links between the approach of supervisor and intern apply in the clinical workplace. A US study found that junior doctor perception of workplace climate (perception of choice/independence, supportive/receptive workplace) was correlated with a deep approach to learning (Delva, et al., 2004). All workplace relationships require a degree of respect and reciprocity between colleagues; this is particularly so if the learning moments between supervisor and intern are to be experienced as collegial moments. It is the quality of the interaction between supervisor and intern that determine the quality of the learning. As discussed in the next section, and as illustrated by Figure 10.1, the intern–registrar relationship is all encompassing and is critical to assist in the navigation of the various other elements that constitute the intern experience.

10.9 Contextual elements influencing learning

Previous studies of junior doctor learning identified a number of factors found to enhance the learning experience. These include being recognised as a valuable team member, being stretched but not over stretched (Kendall, et al., 2005), taking responsibility, fitting in with the team culture (Sheehan, et al., 2012), sharing experiences, and the sense of being recognised as a valuable team member

(Henriksen, et al., 2008). These factors are all present or not depending on the nature of each rotation.

This study found that each rotation experienced by the intern presented different contexts with different learning opportunities and challenges. The influence of each of these contextual elements changed, depending on the nature of the rotation. The interns' approach to their learning changed in response to the kind of challenge or opportunity afforded by a particular rotation. The opportunities encountered in the rotation acted as a catalyst to the learning process.

Four key elements of the learning environment (the nature of the particular rotation) were identified;

- the **opportunities** for bedside care
- the degree of inclusion in the medical team and **involvement** in medical decision-making
- the degree of **responsibility** experienced by the intern, and
- the ability and opportunity for the intern to review patient outcomes, reflect, and **learn from their own practice**

These four elements were in a dynamic relationship with each other and their influence varied depending on the particular rotation. As indicated previously, this dynamic was encompassed and influenced by the relationship between the supervisor and the intern; as indicated by the data, the registrar was most often the key influence in the learning and management of the intern.

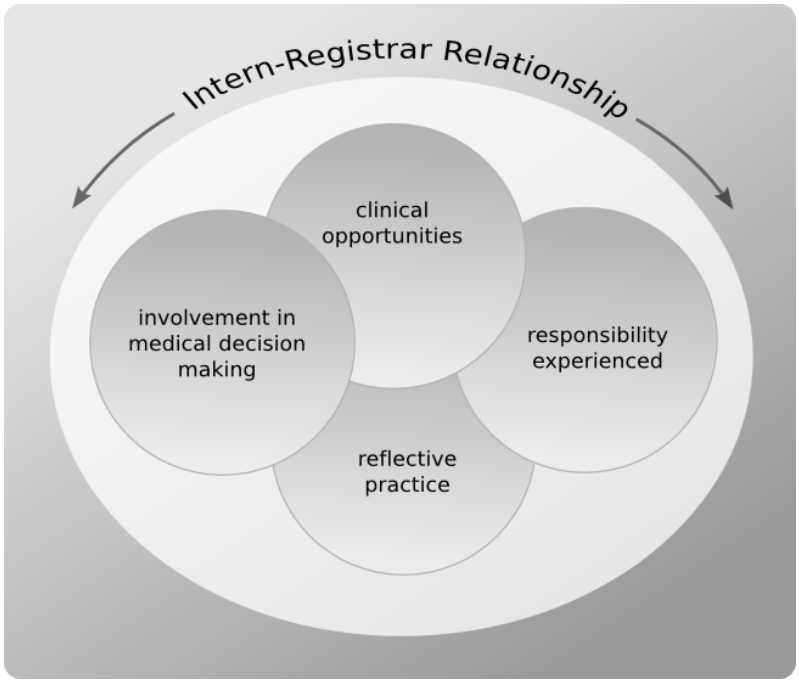

Figure 10.1: Dynamic elements in the context of the rotation

Variation in clinical contexts is a significant feature of the Victorian internship; comprising as it does a series of five ten-week rotations, often in up to three different hospitals over the course of the year. Thus the intern was required to navigate a new environment every ten weeks; these frequent moves between different hospitals increased the number of environments that interns needed to familiarise themselves with. The number of different rotations encountered by the intern can have a detrimental effect on the ability to form positive professional relationships with the multi-disciplinary staff contributing to patient care (Bernabeo, et al., 2011). The junior doctor may come to value flexibility and efficiency over relationship building and deep system knowledge (Claridge, 2011)

The nature of the clinical experiences offered to interns by different rotations was influenced by the type of patients cared for in a particular unit, their acuity and their length of stay. In a general medical ward, the duration of stay was likely to be greater than in a general surgical ward. In a medical ward, patients were likely to require

more active medical care over a longer period, thus providing the intern with the opportunity to participate in a longer continuum of care and to see tangible changes in patient conditions as a direct result of their own interventions. This longer period of patient stay provided interns with the opportunity to reflect on patient outcomes, outcomes for which they had some personal responsibility, an important component for reflection on professional practice.

A rotation in an emergency department provided an opportunity for interns to attend to a diversity of patients and conditions, from the ambulant sick to trauma victims. Patients needed to be attended to promptly and diagnosis arrived at quickly; the intern also had the opportunity to participate in the ordering and interpretation of diverse investigations. The surgical ward offered greater moments of autonomy for the intern since they were responsible for patient care while their registrar was absent in surgery.

The significance of each of these elements was determined by the nature of the situations encountered by the intern, including their interaction with the registrar in each rotation over the course of the year. Each rotation presented a new set of encounters and a rearrangement of contextual elements, with a consequent shift in their relative influence on on-the-job learning. The elements were present to a greater or lesser degree in each rotation and influenced the way the intern responded to and approached the learning opportunities.

The learner's intentions are formed by what they perceive to be the requirements of the task (Ramsden, 1992; Säljö, 1981) The findings of research into university student learning were found to be relevant to a study of junior doctor learning in the US (Delva, 2004). This study (Delva, 2004) concluded that where the trainees perceived a workplace that was supportive and receptive they exhibited a deep

approach to learning; a positive workplace was characterised by a climate that fostered choice and independence. The study further also noted that further research was indicated to determine whether educators can encourage more effective workplace learning by attending to the workplace climate (Delva, et al., 2004).

Both a study that established a relationship between teachers' conceptions of learning as influencing learning outcomes (Trigwell, et al., 1999) and, one on the trainees perceptions of what constituted good supervision, (Delva, et al., 2004) indicate the relevance of these studies to our understanding of ways to improve the learning opportunities for interns. The elements that had a positive impact on learning outcomes were identified as

- Clear learning objectives aligned with assessment tasks and processes (Biggs & Collis, 1982).
- Feedback that is timely and developmental (Prosser & Trigwell, 1998).
- Teaching that is learner-centred and focused on conceptual development rather than information transmission, (Martin, Prosser, et al. 2000).

These three elements are especially relevant to considerations of orientation to a particular rotation and to the nature and quality of intern supervision.

10.10 Limitations of the study

The study sought data on the *process* of on-the-job learning as interns experienced and conceptualised this. The study's method was phenomenographic, focusing on the phenomenon of learning on-the-job and seeking to explore variations in the experiences of a small group of interns. Data was collected in 2008 and, given changes in internship conditions in Victoria since then, this limits its immediate

transferability to present cohorts of Victorian interns. Future research on the education of medical interns in Victoria would need to take into account increased competition for intern positions since these lag the increase in the number of interns applying for these positions: in 2013, for instance, 1157 graduates applied for 698 intern positions (as against 461 graduates in 2008, all of whom obtained an internship in their first year after graduation). Moreover, while the number of intern positions has increased, the number of senior doctors available to supervise interns has not; hence, the pressure on supervisors to provide quality supervision is now greater than it was in 2008. However, the key phenomenographical findings are still relevant to local and national programs, with their emphasis on the criticality of review and reflection and the 'collegial moment'.

A second limitation of the study derives from the population of those who volunteered to take part. That is, the study sought volunteers for a research project advertised as 'about medical education'; this approach may have attracted graduates who had more interest in their learning experiences, and more awareness of these, than those who did not volunteer and this may have biased the study in ways that are not accounted for in the present study. Whilst it is important to note that this was not a representative sample of interns, it was not the individual experience that was examined but the collective experience of intern on-the-job learning. Additionally the composition of the group was not representative of the medical student and intern population as a whole as there was a significantly larger number of female volunteers than male (23 female, 8 male). The study did not seek data related to gender such as female/male registrar relationship or vice versa and no comments related to gender emerged during the interviews.

A third limitation concerns the serendipitous data that emerged, and which could be explored in future research. This concerns data from comments from interns that

were not responses to specific questions but which revealed aspects of the quality and nature of the internship. Thus, the data generated raised other issues, such as the lack of discussion about clear learning objectives related to a specific rotation and its particular learning opportunities. That is, there was a lack of explicitness in the clinical context about learning objectives. With virtually no mention of the Australian Curriculum Framework by the interns except in answer to a specific question in interview 2 where they were asked if this was discussed at all during their rotations. The majority of the responses was negative. This points to future directions for research.

Another example of serendipity data was the insight into the interactions between interns and registrars. This was not part of the original research plan but arose from the interns' spontaneous comments in relation to their own learning. This could be an important and fruitful area for further research. It would be necessary to question several interns about a specific registrar, as in a '360 degree' appraisal process, to determine the true nature and quality of particular registrar roles. The four variations found in the registrar role emerged in conversations as the interns discussed their interactions with their registrar rather than in response to direct questions about the role of the registrar. The present study suggests that the registrar role is also context dependent. The the significance of registrar/intern interaction, as it influences on-the-job learning, is such that it demands further study.

A fourth limitation of the present study is the absence of systematic comparison of the learning opportunities provided by different types of rotations: for instance, between a general medical rotation and a general surgical rotation. This limitation is inherent in the study design, and is balanced against the value of pooling the rotational data, but must be highlighted in any consideration of the findings.

Future studies that seek to refine the findings of the present study would benefit from questioning a representative sample of registrars (by specialty and general ward) aligned with internship variations in their experience with these registrars. Such a study would also need to examine more closely factors in the clinical context that affect the registrar role.

10.11 Summary of the chapter

This thesis presents a number of important findings as outlined in the overview at the start of this chapter. Some findings support previous work, particularly with respect to graduate expectations, orientation and transition, and the tensions between autonomy and teamwork. The first major addition to the literature is the data supporting the critical metacognitive learning through review and reflection. The second significant finding is the identification of four key elements that need to be present in each rotation, and which, in concert, operate to promote effective on-the-job learning. These elements are the opportunities for bedside care, involvement in medical decision-making, the experience of responsibility, and the ability of the intern to reflect on their own performance, thereby assimilating it into their learning. The third significant finding is the primacy of the registrar role in facilitating the intern negotiate these contextual elements and maximise their learning through providing 'collegial moments'. The collegial moment, unlike the teaching moment is sharing medical decision-making. The teaching moment focuses on the transference of knowledge and the education and training of the individual; in contrast, the collegial moment focuses on learning through collaborative decision-making whilst providing patient care.

Chapter 11: Concluding comments

11.1 Introduction

This chapter synthesises my learning as a result of the study and provides the space for me to apply my new and enhanced understanding of intern on-the-job learning to considerations of practice that would improve the effectiveness of on-the-job learning for interns.

11.2 Overview of findings

This study is unique in that the research methodology chosen for the study is one that is expressly developed to produce findings that are directly applicable to understanding and improving learning. Phenomenographic research has made possible significant improvements to student learning in higher education. It was my intention to produce a deeper understanding of on-the-job learning with a view to identifying ways to improve the intern experience. The findings of this thesis can be applied to the improvement of the intern experience through a reframing of the elements of supervision, feedback and the establishment of learning objectives. Phenomenography has been an important contributor to qualitative educational research since the 1970s. It was developed and subsequently used in research that resulted in our understanding of variations in students' approaches to learning. Since then it has been used extensively to explore aspects of learning across all disciplines and in a range of settings. In this instance, it has provided a picture of the intern experience of on-the-job learning and has identified different elements that influence it; it has also highlighted the significance of the supervision by registrars. Consideration of these elements will lead to ideas about how to improve learning, as discussed in the next section.

Three research questions framed this study.

- How do interns conceptualise on-the-job-learning?
- How do interns experience on-the-job learning?
- How do interns perceive and benefit from the supervision of their registrars?

The answers to these questions are closely linked.

How do interns conceptualise on-the-job learning?

This study of intern learning demonstrates the dominance of experience as the primary 'teacher'. The interns attributed their most significant learning to be participation in the work and in the discussions in the workplace. This was enhanced when registrars shared their own thinking, their own diagnostic decision-making as they made decisions and encouraged the interns to join in that process. The interns articulated different forms of learning characterising the context and the opportunities they encountered at any given time.

Variations in the interns' conceptions of learning were determined by the context in which they found themselves and were different in each of the five rotations they experienced across the year. The four variations found in the data were hierarchical in their degree of complexity but were not necessarily encountered in a specific sequence, with the exception of the first conception. Familiarisation with the environment (Variation A) was a necessary precursor to on-the-job learning; getting to know the environment was a necessary feature of each rotation, particularly when change between rotations also meant a change of hospital; hence, until the intern was familiar with the working of their unit their learning in relation to care of their patients was limited. The implications of these four variations are explored in the next section.

How do interns experience on-the-job learning?

Immersion in their work as medical practitioners provided the interns with the materials and opportunities to construct their own knowledge of medical practice. Through involvement in the management of their patients, through providing bedside care, they learned continuity of care, the consequences of interventions and the processes of medical practice. This was particularly the case when the patients they encountered were acutely ill and their condition improved and was followed by discharge from hospital. This was most likely to occur on a general medical ward and this rotation in particular provided a rich learning experience culminating in the opportunity to review the patient's experience and their own role in relation to the patient's progress.

Participating in medical decision-making, the interns learned to develop and trust their medical assessment and judgement. This happened when they were encouraged to contribute to the process and their contribution was acknowledged and valued by the team. Opportunities for reflection on patient outcomes and their own medical practice enabled the interns to learn and improve.

How do interns perceive and benefit from the supervision of their registrars?

Collegial conversations with peers, but mainly with their registrar, used and confirmed what the intern had learnt from patient care. Discussion that encouraged reflection and mindfulness about shared practice provided registrars with the opportunities to share rather than transmit knowledge and to demonstrate procedures; equally and importantly, it ensured an opportunity for the intern to articulate and rehearse what was being learned, as it was being learned, as well as later through feedback and discussion. These conversations also provided

information to the supervisor about the intern's level of development and knowledge that could inform their intern appraisal and feedback to the intern.

It is worth recording some final thoughts with respect to the interactions between the interns' experiences of on-the-job learning and their perceptions of their supervisors. The relationship between the intern and his or her registrar and the nature of the rotation often was a clear determinant in the quality and complexity of the learning that occurs on-the-job. Thus while the extent of the collaboration and the degree of autonomy afforded the intern depends on the capability of the intern, it is equally dependent on the capability of the registrar to assess the intern accurately, to have confidence in their judgement of their junior's work, to establish rapport with the intern and to possess the interpersonal skills needed to work collegially and collaboratively with others. A positive intern/registrar relationship was essential to the success of the rotation; it required respect and trust on both sides. A degree of openness was required so that each could take the measure of the other; in particular, the intern needed to feel safe to disclose their strengths and weaknesses, where they felt competent and where they needed support and guidance. The registrar also needed to be open to receive this information and to be able to act on it in a non-judgemental way to assist the intern transform experience into knowledge. The data indicated that collaboration, and reciprocity between intern and registrar and managed autonomy lead to powerful learning.

The challenge for the supervisor/medical educator is how to facilitate the intern's construction of professional knowledge as they engage in professional practice. How the interns learnt was through their experiences and the knowledge they constructed out of those experiences. The task for the clinical educator was to support the intern as novice practitioner, provide the opportunity for the intern to apply theoretical knowledge to medical practice, provide space for the intern to exercise judgement

and take action, and to help the intern interpret and construct meaning from the experience through collegial discussion. The learning process was most effective through joint, thoughtful, reflective medical practice and conversation.

> If we had a high number of patients the registrar would be the one to initiate the meeting: this is what the plan is. If there was a bit more time for us to sit down and discuss each patient in turn there might be more space for collegial discussions. We didn't consciously sit down to have a brainstorming sessions but, when discussing patients, each of us thought up ideas and eventually we ended up coming to decisions. 1/3

11.3 Implications for practice

This study has direct implications for intern programs. Four ways of enhancing practice are suggested

- enhancing the on-the-job learning opportunities of the rotation
- establishing the parameters of the rotation
- providing feedback to the intern
- developing the supervision role of the registrar

While the data supporting these recommendations are derived from the experiences of Victorian interns, the findings also reflect the literature described in *Chapter 5: Qualitative studies of junior doctor learning*.

11.3.1 Enhancing the on-the-job learning experience

This study confirms the findings of other studies (Bearman, et al., 2011; Lawson, et al., 2007; Sheehan, et al., 2005; Teunissen, Scherpbier, et al., 2007) that the participation of interns in patient care will provide the greatest source of learning and confirms the opening remarks in *A Guide for Interns in Victoria in Victoria*.

> Your role in caring for patients will be your greatest source of learning. (Medical Practitioners Board of Victoria, 2007 p.4).

Often the environment itself is expected to provide the relevant experiences and the intern may not always be aware of the learning possibilities around them. This study identified four variations of learning on-the-job, These variations were in response to the particular contexts encountered by the intern and the degree to which the four elements are present in a particular rotation.

Variation A	Learning through the intern environment
Variation B	Learning through providing bedside patient care
Variation C	Learning through participation in collaborative patient care
Variation D	Learning through review and reflection on patient outcomes

Despite Variations A and B being the expected norm of every rotation it is important for supervisors to be mindful of the value of these and to ensure that these constitute the majority of the interns time and are not diminished by administrative tasks. In addition, providing the opportunities for learning through collaborative patient care as well as deliberately focussing on the role of review and reflection can also support intern learning.

Through examining these variations, this thesis has identified four key elements of the intern learning environment that together contribute to their learning experience provided by each rotation. The four key elements are:

- **opportunities** for bedside care
- inclusion in the medical team and **involvement** in medical decision-making
- **responsibility** for patient care, and

- opportunity for the intern to review patient outcomes, reflect, and **learn from their own practice**

These different elements focussed the interns learning in particular ways —

- Absorbing processes and procedures of the clinical environment
- Engaging with physical signs and changes in their patient
- Collaboratively exercising and testing their medical judgement
- Assuming professional responsibilities such as self review and evaluation

These variations are now discussed in terms of framing the intern experience

Opportunities for bedside care

The data indicated that the range of patients encountered dictated the 'curriculum'. The work of the intern was the starting point, patient progress was the objective; the outcome was influenced by other equally important elements of the context. The learning process aligned with patient management and was supported through help in the 'interpretation and construction of meaning' through discussion about patient management with others, most particularly the intern's registrar. This research confirms findings by Teunissen that, "*work related activities are the stating point for learning.*" (Teunissen 2009) p. 32. On the job learning results from the construction of knowledge based on experience and involves evaluation of the experience and relevant prior knowledge to produce personal meaning guided by discussion with supervisors. It is worth noting that any opportunity for bedside care should optimally include learning as presented through Variations C and D. There are several ways that the opportunities for bedside care can be enhanced. First, the intern can negotiate with the registrar for more access on the basis of previous demonstrated competence. Second, registrars should be encouraged to share responsibility for patients. Third, the clinical environment, and in particular other professionals that

work in it, nurses, physiotherapists, etc. should be welcomed to contribute to the learning of the intern.

Inclusion in the medical team and the decision making process

Supervisors can enhance the learning process when they encourage learning through *participation in collaborative patient care Variation C.* In particular they can

- ensure that the intern attends staff meetings and social events held in the unit
- trigger happenings that lead to learning, (the supervisor to think aloud when arriving at a diagnosis or forming a management plan and asking the intern for their opinion on a planned course of action or judgement call)
- ask interns what they think about a proposed action during the staff meeting
- invite the intern to also think aloud and share their development of a diagnosis
- make the learning explicit through a conversation about the patient's progress and acknowledge the contribution, and its value, made by the intern to the decision making process of the supervisor; and
- ask the kinds of questions that invite opinion rather than fact and lead to discussion about wider issues, alternative diagnosis or management

Encouraging the intern to exercise responsibility

Whist interns report that the absence of supervisors (during night roster, seniors absence, etc.) provides them with opportunities for responsibility these opportunities can also be provided for deliberately, when supervisors

- ask the intern to keep the team appraised of a specific patient's progress
- invite the intern to make the first examination and history taking of new patients; and

- ask the intern, not the registrar to detail patient progress during consultant ward rounds

Opportunity for review, reflection and learning from practice

The realities of the workplace, time pressures, unexpected events, competing demands of the intern's time, all serve to diminish the opportunity for all of the elements mentioned above, but in particular this impact might be greatest on meaningful reflection and the interpretation and construction of meaning. Nevertheless this process is essential for effective learning-on-the-job. There is a range of activities undertaken by the intern in the course of the working day and some of these provide opportunities for reflection, interpretation and construction of meaning if appropriately framed as such. One activity, the writing of the discharge summary, by the intern, to be sent to the patient's local doctor is a useful example. The discharge summary is often viewed as an administrative task, and performed reluctantly and hurriedly. It can be alternatively conceptualised as an opportunity for the intern to reflect on a patient's progress from admission through to discharge the various interventions and changes that occurred along the way and the part played by the intern in that episode of care. By framing the task as an opportunity for reflection the supervisor is authorising that time be allocated for thoughtful work thus leading to learning. The intern is encouraged to recognise their impact on patient care, evaluate their own practice, assess the level of their own competence and learn to have faith in their own professional judgement.

Other ordinary everyday processes to enhance the learning process through *review and reflection on patient outcomes (Variation D) are;*

- sharing with the intern their own review and reflection of the impact of their own action on the outcome of a patient interaction, an adverse event on an administrative or personnel issue;

- asking the intern to identify their learning over the course of particular day, a particular patient diagnosis a staff meeting, or case presentation; and
- collaboratively reviewing the discharge letter for a patient's local doctor as reflection on a patients' management and outcome

These activities provide opportunities for the *collegial moment* and will provide times for interns to recognise their own learning opportunities and capacities. Ideally, feedback will arise naturally out of these collegial discussions around patient care. Discussions about patient management, and about unexpected events, are collegial moments. These are also moments for the intern to learn, the supervisor to appraise, and provide immediate feedback, and for the intern to evaluate their own practice in the light of that feedback.

This section has outlined how the four elements of; bedside care, involvement in team medical decision making, exercising responsibility and review and reflection can fit naturally into the everyday work activities, not all the time, but regularly.

11.3.2 Establishing the parameters of the rotation

The previous section suggested how the four elements (opportunity for bedside care, involvement in team medical decision making, exercising responsibility and review and reflection) can fit regularly into the everyday work activities. This section considers how the type of learning provided by a rotation varies in terms of the extent to which each of these elements is present. The registrar is in the best position to explain the nature of the particular rotation in terms of the type of patient encountered and the degree of participation and autonomy afforded the intern. This explanation should be part of a discussion between the intern and the registrar in the first few days of a rotation. Such a conversation would enable the registrar and the intern to

establish their working relationship, clarify the specific orientation of the rotation and of the learning environment. As discussed, becoming familiar with the environment is the first core mode of clinical learning and it underpins subsequent relationships and learning. If this is not present, then learning is seriously impacted until the intern feels 'at home' in the environment. This is supported by a study of junior doctors in the Netherlands that recommended special attention be paid to the aspects of social integration, particularly the importance of enabling the trainee to establish a basic feeling of 'knowing where you are' and 'how to go about things' as a vital precursor to being able to focus on the learning process (Stok-Koch et al., 2007). Just as clear learning objectives are crucial to student learning so to is clarity as to the nature of a particular rotation and what is expected of the intern in terms of responsibility for patient care and the exercise of initiative and autonomy. Identifying the nature of particular rotations is significant to the establishment of learning objectives and may explain the absence of reference to the Australian Curriculum Framework (ACF) from the intern's descriptions of their learning experiences. The ACF represents a guide to what the junior doctor is expected to cover during the first two to three years post graduation and is a broad framework rather than an explicit set of guidelines. It is also important to note that this data was collected in 2008 when the ACF had only been launched at the end of 2006.

This orientation to the environment and the expectations of the rotation enables an open exchange between intern and registrar at the start of each rotation. At this time, the opportunities and limitations afforded by the particular rotation can be discussed and higher order goals can be established. At this first meeting, the interns can indicate their own aspirations for the rotation. They can also identify those areas of their own practice that are strengths and those that need to be strengthened. Interns can be encouraged to name the challenges they will meet in working on this particular rotation.

This meeting will enable the interns to clarify in their own minds an outline of their professional development for that rotation. Indeed, the intern can develop their own learning objectives, in the light of what the rotation has to offer. The setting of learning objectives will additionally enable the intern to develop the skills of goal setting, reflection and self-evaluation, important factors for professional development. Nothnagle and colleagues (2011) report that junior doctors engage in limited goal setting and report lack of skills in managing their own learning. Despite being immersed in what aims to be a learning culture they lack confidence in their self-directed learning skills (Nothnagle et a., 2011).

This early collaborative discussion and goal-setting serves additional purposes, including:

- providing the intern with a briefing about the nature of their work (bedside care);
- orientating the intern to the way the medical team operates (degree of inclusion in the team and in medical decision making);
- identifying the team's expectations of the intern as team member (degree of responsibility expected);
- clarifying the importance and expectations for self review and evaluation (learning from own practice) as well as establish that feedback on the intern's performance will be ongoing and related to the intern's practice and not restricted to formal appraisal meetings;
- developing the intern's understanding of the learning processes involved in on-the-job learning
- orienting the intern to the collegial nature of feedback, that it is related to and embedded in discussions about patient care; and

- identifying self refection on practice and learning as part of the daily work of the intern/registrar partnership.

The discussion will also inform the registrar about the aspirations and competencies of the intern and assist them in their own role as supervisor of junior medical staff.

11.3.3 Feedback to interns

Learning starts with participating in the work-related tasks of their day but is precipitated through observation, construction of meaning and opportunity for reflection. The potential role of the supervisor and/or more senior team members in supporting this process is significant (Brandt & Nielsen, 2008; Teunissen, 2009; Teunissen et al., 2007). A New Zealand study reported that the more ongoing feedback the intern receives regarding their patient care, the more their confidence increases, as do the opportunities for engaging in joint activities (Sheehan et al., 2005).

Whilst this present study reported the centrality of the registrar to the learning experience of the interns, the literature highlights both the importance of the involvement of consultants and senior staff and the variable nature of this involvement. One particular study, using both quantitative and qualitative methods and involving over 200 junior doctors in the UK, found that the junior doctors felt their consultants were reluctant to engage in work-based assessments but that when they did the result was invaluable (McKavanagh, et al., 2012). Whilst the formal assessment of the interns remains the responsibility of a senior staff member it is the registrar who is involved with the intern in their day-to-day practice.

Feedback to interns that is directly related to the immediate experience of caring for their patients will be more effective in promoting learning than generalised feedback

at set points in time. Common sense suggests that where the intern works in isolation, with little interaction with their registrar or where they have little direct bedside care responsibilities there can be little on-the-job learning. Learning through bedside care indicates that feedback to the intern about their performance should reflect actual practice and should arise out of the intern's current practice in caring for their patients. As Iedema (2010) points out, joint care of patients by supervisor and junior enables the supervisor to know whether junior staff are learning or failing to learn and the junior doctor has the opportunity to discuss their progress, concerns and expectations Iedema (2010). Often the interns fail to see these discussions as opportunities for gaining feedback on their performance, this can be simply remedied by these conversations being concluded with a brief remark such as '*Well done on picking that up*' or '*Need to take the diagnosis process a bit more slowly so you don't miss things*' and '*Thanks for your help today, I think we did well because you now have the skills to be able to pick up where I leave off, its good team work.* Not only do these comments provide information about the intern's performance they are couched in terms that represent a collegial conversation.

11.3.4 Developing the supervisor role of the registrar

An objective of the supervisory relationship should be to engender the collegiality of the professional workplace. As the person with the closest and most frequent contact with the intern the registrar is responsible for establishing the nature of this relationship from the start of each rotation. Just as Boor and colleagues (2008) reported the sparse attention paid to the interaction between supervisor and trainee (Boor et al., 2008) so to there has been little attention paid to the role of the registrar in relation to intern supervision. I was mindful throughout the analysis of the data both of the centrality of the registrar to the intern experience and also to their own junior status. They were also doctors in training, often not that much more senior

than their intern and often new to the role of registrar. More attention needs to be paid to the support, training and mentoring of the registrar in relation to their supervision role in addition to their vocational training.

Many registrars will require mentoring from their own supervisors and colleagues about practices that engender the collegial relationship. The traditional manager/teacher mode of supervision is the dominant model in the clinical workplace, particularly for inexperienced registrars. Currently, professional development programs for clinical teachers, including registrars, focus on the manager and teaching role. The findings of this study indicate that registrar training and development programs should address the importance of the collegial learning relationship between intern and registrar. In addition to the focus on teaching, and role modelling skills, supervisors should be made aware of the importance of the quality of their interactions with their juniors. Development programs need to emphasise the difference between the teaching relationship and the collegial relationship and why the latter is more appropriate for workplace-based learning.

The collegial moment, unlike the teaching moment is about sharing medical decision-making. The teaching moment focuses on the *transference* of knowledge; the collegial moment focuses on *decisions about patient care*. In the decision making process the contribution of the supervisor may be greater than that of the intern, it is not this that precipitates the learning, it is the exchange between two colleagues united in an endeavour to provide optimum patient care. These two partners share and negotiate the best action to take in relation to their patient. What is important is the discussion between two professional colleagues with the shared goal of care of a particular patient. The product of this exchange is the learning that flows from the negotiated course of action between colleagues, the collegial moment. Wherever the collegial moment can occur, on-the-job learning will be enhanced.

11.4 Final thoughts

The data considered in this research has indicated that professional collaboration in the shared care of patients leads to powerful learning. As the literature indicates, experience alone does not ensure learning, it is the extent to which the learner is able to reflect on and make sense of the experience that leads to learning; discussion between colleagues can enable this transformation. Essentially, on-the-job learning enables the worker to learn through their own practice. The quotation: 'Your role in caring for our patients will be your greatest source of learning.' *A Guide for Interns in Victoria (Medical Practitioners Board of Victoria, 2007 p. 4)* and referred to several times in this thesis has proved to be the case. This cohort of interns described their learning as arising from their care of patients.

> Patients always contributed to the learning process. You learn from their response to treatment. If they get well, if there are any side effects. That also contributed to my learning. 1/3

They described their learning as arising from their reflection on their practice.

> When something happens, when a patient becomes unwell, when you get an unexpected test result, when you see someone who has something that you have never seen before, there is time to actually have a discussion about it and there's also time to think about it. You can actually reflect on some of the things that have happened. 4/3

Learning was engendered through the collegial moments they shared with their supervisors.

> Then you get to discuss your plan and it's not just them telling you what they think about the patient. You have made the decisions and then you can

> understand from their feedback what was good and what needs to be added. 21/3

The collegial moment, as described by the interns in this study, occurred within patient–centred, collaborative problem solving conversations. Collaboration requires mutual respect, good communication and goals shared between the partners. A collaborative relationship depends on the registrar/supervisor attributes identified in the literature on supervision (Jolly, et al., 2010; Kilminster & Jolly, 2000; Lack & Cartmill, 2005), as well as the physician competencies identified in the CanMEDS Framework (Frank, 2005). Equally, the intern needs to be well prepared for their role and to exhibit the kinds of traits that will engender a collaborative response from the registrar. This requires the intern to enter the workplace as being competent in basic clinical skills and able to work collaboratively. Interns with these capabilities will encourage registrars to adopt a collaborative style that facilitates the intern's legitimate participation in the decision-making in the workplace.

Finally, the changes indicated by this thesis do not require new programs or more time from supervisors: they do require a change of mindset. Supervisors, registrars or more senior staff can become more mindful of the opportunities already present in the clinical environment for exploiting the 'collegial moment'. Discussions about patient management, and about unexpected events, are moments for the sharing of information and the making of collegial decisions. These are also moments for the intern to learn, the supervisor to appraise and provide immediate feedback and for the intern to evaluate their practice in the light of that feedback. Wherever the collegial moment can occur, on-the-job learning will be enhanced.

* * *

The doctoral thesis represents an apprenticeship in scholarship. Essentially, it is a prime example of learning on-the-job. All that I have learned in this process mirrors

the findings of the research. The experience of following the path of academic rigour, learning from mistakes made, and the opportunity to reflect on the experience and collegial discussion with fellow scholars and students has assisted me in constructing a new and deeper understanding of the phenomenon of on-the-job learning and the role of collaboration in that learning.

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APPENDICES

1. Application for Ethical Approval of a Low Impact Research Project Involving Humans
2. Approval from Monash University Standing Committee on Ethics in Research Involving Humans
3. Statement regarding privacy and data security (Extract from application to the Monash University Standing Committee on Ethics in Research Involving Humans)
4. Call for Volunteers: Recruitment Poster
5. Explanatory statement for Interns taking part in the Research Study
6. Consent to participate in the Research Study (form)
7. Audit trail of phenomenographic analysis of intern conceptions of on-the-job learning
8. Outline of Doctoral Discussion group workshop
9. List of conference presentations made during the course of the candidature
10. Abstract for presentation at ANZHPE 2010 conference

Appendix 1

Application for Ethical Approval of a Low Impact Research Project Involving Humans

(Extract from application to the Monash University Standing Committee

on Ethics in Research Involving Humans)

MONASH University

Appendix 1

Application for
Ethical Approval of a Low Impact Research Project Involving Humans

	DATE RECEIVED		APPLICATION NUMBER
Office use only		*Office use only*	

The following checklists are designed to determine whether your research is Low Impact Research.

These checklists must be completed in full and submitted with the application. Your answers to these questions constitute part of your application.

If you answer YES to any of the following points, your research may involve vulnerable participants, involve invasive research methodology or may involve more complex ethical or privacy issues.

If you answer YES to any of the following, please complete Form 1.
Please place an 'X' in the appropriate box (YES or NO) when answering the following questions.

WARNING

If you answer YES to any of the following, please stop filling in this form and use Form 1. If you answer NO to all of the questions, please continue filling in the Low Impact Research Form.

Are any of the following groups of participants included in the research?

	YES	NO
		Place x in box
Children or young people under the age of 18 **Exception (as of 25 August 2006): Research participants under 18 whose circumstances indicate that they are capable of giving informed consent, e.g. University students aged 17.** For further information please refer to the Form LIR Guidelines.		x
Persons with an intellectual disability or mental impairment of any kind		x
Prisoners or people on parole		x
Children who are Wards of the State		x
Persons highly dependant on medical care		x
Military personnel		x
Persons in dependant or unequal relationships relevant to the research		x

Collectivities / communities		x
Aboriginal and / or Torres Strait Islanders		x
Persons unable to give consent themselves		x
Persons not usually considered to be vulnerable but would be considered vulnerable in the context of this research project		x

Does your research involve any of the following types of activities?

	YES	**NO**
		Place x in box
Collection, use or disclosure of information WITHOUT the consent of the individual whose information it is		x
Causing discomfiture to participants beyond normal levels of inconvenience		x
Deception of participants, concealment or covert observation		x
Examining potentially sensitive or contentious issues		x
Seeking disclosure of information which may be prejudicial to participants		x
Using intrusive techniques		x
Study of or participation in illegal activities		x
Clinical trials, using drugs, diagnostic material, therapeutic devices or techniques		x
Psychology Inventories / scales / tests **Exception (as of 25 August 2006): The use of non-diagnostic psychology inventories which are judged to have minimal risks to participants.** For further information please refer to the confirmed inventory list for low impact research.		x
Radioactive substances / ionising radiation e.g. X-rays, DEXA		x
Assisted reproductive technology		x
Innovative therapy or intervention		x
Use of human tissue samples		x
Derivation or use of human stem cells		x
Human genetic research or gene technology		x
Xenotransplantation		x
Recombinant DNA techniques		x
Toxins / Mutagens / Teratogens / Carcinogens		x

Do any of the following apply to your research project?

	YES	**NO**
		Place x in box
Payment or incentives to any participants **Exception (as of 25 August 2006): Payments or gifts with a value up to AUD$20.00.** For further information please refer to the Form LIR Guidelines.		x
At least one of the researchers is a member of, or has an association with, one of the organisations in which you wish to conduct your research		x
At least one of the researchers has a financial or other involvement in the research (apart from their research role) or may receive a reward, pecuniary or otherwise		**x**
Any other potential conflict of interest (not mentioned above) for any of the researchers		**x**
The research project involves the use of the National Cornoial Information system (NCIS)		**x**

WARNING

If you answered YES to any of the above, please stop filling in this form and use Form 1.

If you answered NO to all of the questions, please continue filling in the Low Impact Research Form.

Section 1 – Project details

Please refer to the Form LIR Guidelines **to assist you answering these questions**

1.1	**Title of project**
Max 10 words ***What are the sentinel events in the construction of a doctor?***	

1.2	**Researchers involved in the conduct of the project**	
Chief Investigator / Co Supervisor *(must be a Monash University staff member)*		
Title: Professor	**Name**: **Brian Jolly**	**Current qualifications** B.Sc (Hon), MA (Ed), PhD
Department: Centre for Medical and Health Science Education & Monash School of Rural Health		**Campus**: Clayton
Full postal address (if external address including international campuses): Room G16, Building 15, Clayton Campus, Monash University		
[redacted]	**Phone 2**:	[redacted]
Email *(MUST be Monash staff email address)*: [redacted]		
Chief Investigator / Co Supervisor *(must be a Monash University staff member)*		
Title: Doctor	**Name**: **Simon Kitto**	**Current qualifications** BA (Hons) Dp.Ed PhD
Department: Rural and Indigenous Health, Monash School of Rural Health		**Campus**: Gippsland
Full postal address (if external address including international campuses): Churchill 3842 Victoria		
[redacted]	**Phone 2**:	[redacted]
[redacted]		

☐	**Student researcher** **Joan Benjamin**	
☐	**Other, please specify**	
Title: **Ms**	**Name**: **Joan Benjamin**	**Current qualifications***(please include all)* : M.Ed; Grad Dip (University Teaching and Learning); B.Ed
Affiliated Institutions ***(if not affiliated with Monash University)*:**		
Department: **CMHSE & School of Rural Health**		**Campus**: Clayton
Full postal address (if external address including international campuses): 147 Miller St, Fitzroy North, Victoria 3068 Australia		
[redacted]	[redacted]	[redacted]
[redacted]		

[redacted]
If student researcher - Student ID number:

1.3	**If applicable, please provide previous Monash University SCERH / Human Ethics application number related to this project**
NA	
1.4	**Proposed commencement and completion dates for human data collection**
What is your proposed commencement date?	*(No less than 2 weeks after meeting date)* *September 6, 2007*
What is your proposed completion date?	December 20, 2009
1.5	**Plain language descriptions**
1.5a	**In plain language, give a succinct description of the background and potential significance of the research project**

The health sector is experiencing a complex set of changes precipitated by changes in the political, technological and demographic influences on health care delivery. Public hospitals in particular need to respond to these rapid changes. The early postgraduate training of junior medical staff, before specialisation, is directly affected as this has traditionally been conducted in the large public hospital system. Role substitution, changes to working conditions and changes in the venues for delivery of health care will impact on the work practices and therefore the learning opportunities of junior medical staff, particularly those in their first year of training. In addition to systemic change in health care delivery, increases in the number of university places for medical training mean additional strain on the hospitals as graduates seek internships and require supervision from a static and already over extended hospital medical workforce.

The 2006 National Prevocational Medical Education Forum stressed the need for urgent research on a number of fronts. It is imperative that medical educators and workforce policy makers understand what work practices are essential to the clinical learning and professional development of junior medical staff before lasting changes to prevocational medical education are made.

This study will explore the question, "What are the sentinel events in the first year of training in the creation of a doctor?" It proposes to identify those work practices and 'on-the-job' experiences of interns that maximise learning and contribute to the t transformation of medical students at the start of their internship to independent medical practitioners at the end of their internship. Additionally the barriers to intern learning and development will be explored and discussed.

1.5b	**Clearly state the aims and/or hypotheses of the research project**

250 words max

This study seeks to provide evidence about which of the many work practices and on-the-job experiences that interns encounter during their intern year provide the most powerful and effective learning experiences and contribute to the transformation from novice intern to registered medical practitioner.

The central question of this research is "*What are the sentinel events in the construction of a doctor?*"

The objectives of the research are:

- To identify the approach that interns take to applying their theoretical medical knowledge to the care of their patients.
- To identify the barriers to learning that may exist during the intern year.
- To identify the ways in which interns learn from their practice (care of patients).
- To identify the ways that interns utilise the knowledge of others (supervisors, allied health personnel, etc) to develop their own practice knowledge.

The outcome of this research is intended to identify a cluster of work experiences and approaches to 'learning on the job' that this group of interns have found helpful and effective. This data may be used to develop a survey to be applied to a larger group of interns to further refine knowledge developed through the longitudinal interviews if such data can be seen to provide additional knowledge. Focus groups of interns may be used if issues identified in the interview analysis require further clarification.

The findings of this study will be made available to Victorian teaching hospitals and the Postgraduate Medical Council of Victoria, which is the body responsible for policy making in this area.

1.6	Type of research - 1

Place x in box

☐	**Staff research**	
☒	**Student research**	**If YES,** *check the relevant box* ***and give full title of degree*** ☐ Undergraduate ☐ Honours ☐ Graduate Diploma ☐ Masters ☒ PhD **Medical Education** ☐ Other
☐	**Class project**	• Please refer to Form LIR Guidelines for important information
☐	**Multi-Centre Research**	• Please refer to Form LIR Guidelines for important information
☐	**Other**	**If YES,** *please give further details*

1.7	Funding of your research project

Place x in box

☒	**Funding will not be sought:** please proceed to Qu 1.8
☐	**Funding will be sought in the future:** please advise SCERH as soon as practicable. Please proceed to Qu 1.8
☐	**Funding has been sought:** please complete the following table and then proceed to Qu 1.8.

If YES, please attach summary submitted in the funding proposal and submit the letter of funding approval / notification

	Name of organisation / funding agency	Application ID (if applicable)	Summary attached (eg 1 page)	Is funding approved? **IF YES – also attach letter of approval / notification** *Place x in appropriate box*		
				Yes	No	Pending
1				☐	☐	☐
2				☐	☐	☐

1.8	Submission of this project to other Human Research Ethics Committees (HRECs)
1.8a	Has <u>or will</u> this project be submitted to other Human Research Ethics Committees (HRECs)?

Place x in box

☒	**If NO,** please go to Section 2
☐	**If YES**, please complete tables below and attach approval letters. You must inform all other HRECs that you are also applying to Monash University SCERH for approval.

Tick the box that applies to your research

☒	**SCERH is the primary HREC**
☐	Another HREC is the primary HREC. If YES, which HREC
☐	There is no primary HREC – all HRECs are equal

Please provide the following information regarding applying to other HRECs

	Name of HREC	Tick box if primary HREC?	Is approval granted and letter attached? *Place x in appropriate box*		
			Yes	No	Comment

1			☐	☐	
2			☐	☐	

If you need more rows please click on a row, go to TABLE on the menu bar and then to INSERT on the drop down menu. Click on ROWS BELOW.

Section 2 – Details about the participants of the proposed research project

Please refer to the Form LIR Guidelines to assist you answering these questions

2.1	**Does your research project involve the direct involvement or participation of human participants?**
☒	**If YES,** please start at Qu 2.2
☐	**If NO,** please consider the use of a different form by using the Human Ethics website

2.2	**Please describe the participants (in groups) involved in your research project**		
	How many people	Group of people involved	Age range
Group 1	30-40	Junior medical doctors in their first year of practice post graduation from an Australian medical school and employed as interns in Victorian hospitals	22-33yrs approx
Group 2	10-20	Victorian public hospital staff with a direct interest or involvement in the learning and work of interns eg, medical supervisors, senior ward nurses, Medical Education Officers and administrators.	Members of the public health workforce
Group 3			
Group 4			

If you need more rows please click on a row, go to TABLE on the menu bar and then to INSERT on the drop down menu. Click on ROWS BELOW.

2.3	**In your research design, do you have any criteria for exclusion from your participant groups? None** **If YES,** please provide full details to explain each exclusion criterion for each group. **If NO,** please specify none and proceed to Qu 2.4.
Group 1	
Group 2	
Group 3	
Group 4	

2.4	**Describe how much time you are asking of participants in each group and when the time will be required**
Group 1	1 X 30 minute interview in Nov/Dec 2007; 1X60 minute interview in Feb/March2008; 1X60 minute interview Oct/Nov 2008.
Group 2	1 X 30-45 minute interview between December 2007 and Dec 2009
Group 3	
Group 4	

2.5	**Will you be offering payment or any other incentives to participants?** ***Please note: To be considered Low Impact Research – the value of the payment or gift must not exceed AUD$20.00.***

Place x in box

☒	**If NO,** please proceed to Qu 2.6	
☐	**If YES, how much and in what form will the payment or incentive take?**	
	Group 1	
	Group 2	
	Group 3	
	Group 4	

2.6	**Recruitment** ***If relevant, include text of poster / advertisement / email*** ***POSTER for interns displayed at events with forms for contact details Attached*** ***Presentations at meetings held by PMCV with PMCV membership***

2.6a	**Will you be using a recruitment method that has already been approved by SCERH (for example, a database of participants or the Undergraduate Psychology Student participant pool)? This recruitment method is for non-sensitive research only.**

Place x in box

☒	**If NO,** please proceed to Qu 2.6b	
☐	**If YES**, please provide the SCERH approval number: (for example, 2006/152) Please also insert the approved standard text – please see the chief investigator or unit coordinator for this text.	
	Group 1	
	Group 2	
	Group 3	
	Group 4	

2.6b	**Please explain how you will select participants in each group.**
Group 1	Participants must to be allocated as interns to Victorian Teaching Hospitals for 2008 and have volunteered to participate in the project.
Group 2	Participants must be involved with Victorian interns in one of the following capacities; clinical supervisor, administrator or manager, educator and have volunteered to participate in the study.
Group 3	
Group 4	

2.6c	**Please explain in full step-by-step detail how you will recruit your participants and invite them to participate?**
Group 1	The Monash University and Melbourne University branches of the Australian Medical Students' Association will be approached to publicise the study in their newsletters and provide details as to how final year students can volunteer. The administrators of the two Victorian medical schools will also be approached to request permission to display posters at the two Graduation/Registration events held at the end of the year. The researcher will attend any appropriate events and venues arranged for final year students at the two Victorian medical schools to display the poster and encourage volunteers.
Group 2	The Postgraduate Medical Council of Victoria has endorsed the study (letter attached) and will assist in disseminating information to potential volunteers. The membership of the Postgraduate Medical Council of Victoria includes all the categories mentioned

	above, with the exception of Nurse Unit Managers. Members of the HMO Managers group will be asked to recruit likely volunteers from among Nurse Unit Managers at their hospitals.
Group 3	
Group 4	

2.6d	**Please explain in detail how you will obtain the contact details of participants.** *If from a public domain source – please identify the source.*
Group 1	Participants responding to the 'call for volunteers' will be asked to provide their contact details to the researcher.
Group 2	Participants responding to the call for volunteers will be asked to provide their contact details to the researcher
Group 3	
Group 4	

2.7	**Does your project involve other organisations?**

Place x in box

☐	**If NO,** please proceed to Section 3
☐	**If YES**, you are required to seek approval from each organisation and provide SCERH with a copy of the signed letter of permission from each organisation. *Please complete table below and attach signed permission letters.* *If pending, SCERH may grant provisional ethical clearance, whereby research procedures may start SUBJECT TO THE RECEIPT BY SCERH of the permission documents.*

	Name of Organisation	Name of person granting permission	Their role in the organisation	Is permission granted and letter attached? *Place x in appropriate box*		
				Yes	No	Pending
1	Postgraduate Medical Council of Victoria	Professor Brendan Crotty	Chairperson	☒	☐	☒
2				☐	☐	☐
3				☐	☐	☐
4				☐	☐	☐

If you need more rows please click on a row, go to TABLE on the menu bar and then to INSERT on the drop down menu. Click on ROWS BELOW.

Section 3 – Procedures for explanation and gaining informed consent

Please refer to the Form LIR Guidelines to assist you answering these questions

Other documents (available at http://www.monash.edu.au/research/ethics/human/researchers/forms-list.html) to assist you include

- How to prepare an Explanatory Statement
- How to prepare a consent form
- The Monash University SCERH complaints clause (in the Explanatory Statement)

3.1	**Procedures for providing explanation to participants**
3.1a	**Will you use a written Explanatory Statement to inform each participant about the research project?**

Place x in box

☐	**If NO,** describe how and by whom the explanation will be given to participants.
☒	**If YES,** please attach the Explanatory Statement and complete the checklist at the end of the document

3.2	**Procedures for gaining informed consent**
3.2a	**Please explain how you will obtain informed consent from your participants. If you are not using a consent form, explain why one is unnecessary or inappropriate.**
☐	Implied consent – the return of an anonymous survey implies consent
☒	Consent form (please attach the consent form to this application)

Please explain the process by which the participants will give consent and how the consent form will be returned to the researcher

All the final year student (intern) participants who volunteer will be mailed or e-mailed a copy of both the 'Consent Form', and a copy of the 'Explanatory Statement'. The signed Consent form will be collected prior to the commencement of the first interview.

All the non-intern participants who volunteer will be mailed or e-mailed a copy of both the 'Consent Form', and the 'Explanatory Statement'. The signed Consent form will be collected prior to the commencement of the first interview.

☐	Other, please specify

APPENDIX 2

Approval from Monash University Standing Committee on Ethics

in Research Involving Humans

Appendix 2

Approval from Monash University Standing Committee on Ethics in Research Involving Humans

Standing Committee on Ethics in Research Involving Humans (SCERH)
Research Office

Prof Brian Jolly
Ctr Medical & Health
Sciences Education
Faculty of Med
Nursing & Health
Sciences Clayton
Campus

14 August 2007

2007/1652 LIR / 2007001652: What are the sentinel events in the construction of a doctor?

Dear Researchers,

The above application for ethical approval for research in low impact research has been reviewed by a Chair of the Standing Committee on Ethics in Research Involving Humans under Section 5.1.19 of the National Statement on Ethical Conduct in Human Research (2007). The Chair has determined the project to be low risk under the Guidelines in Chapter 2.1 of the National Statement, and has approved the research as ethically acceptable. This approval will be ratified at meeting B5/2007 on 28 August 2007. It is possible that issues may be raised by the Committee at that meeting. If you do not hear anything further you may assume that approval for the project is confirmed.

Terms of approval

1. This project is approved for five years from the date of this letter and this approval is only valid whilst you hold a position at Monash University.
2. It is the responsibility of the Chief Investigator to ensure that all information that is pending (such as permission letters from organisations) is forwarded to SCERH, if not done already. Research cannot begin at any organisation until SCERH receives a letter of permission from that organisation. You will then receive a letter from SCERH confirming that we have received a letter from each organisation.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by SCERH.
4. You should notify SCERH immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must contain your project number.
6. **Amendments to the approved project:** Changes to any aspect of the project require the submission of a Request for Amendment form to SCERH and must not begin without written approval from SCERH.

Substantial variations may require a new application.

7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. Please provide the Committee with an Annual Report determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. SCERH should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by SCERH at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

All forms can be accessed at our website
www.monash.edu.au/research/ethics/human/index.html

We wish you well with your research.

[redacted]

Dr Souheir Houssami
Executive Officer, Human Research

Ethics (on behalf of SCERH) Cc: Ms

Joan Benjamin

Postal – Monash University, Vic 3800, Australia
Building 3E, Room 111, Clayton Campus,
Wellington Road, Clayton Telephone +61 3
[redacted]
www.monash.edu/research/ethics/human/index/html ABN 12
377 614 012 CRICOS Provider #00008C

APPENDIX 3

Statement regarding privacy and data security

(Extract from application to the Monash University Standing Committee on Ethics in Research Involving Humans)

Appendix 3

Section 4 – Compliance with privacy legislation – Research involving collection, use and disclosure of information

Please refer to the Form LIR Guidelines to assist you answering these questions

4.1a	**Are you conducting an interview or focus group, undertaking a potentially identifiable or identifiable survey or questionnaire, or using a consent form?**
☒	**If YES,** you will need to complete the Compliance with Privacy Legislation Form (Form P) which is available on the Human Ethics website. Please proceed to Q4.2

4.1b	**Are you conducting an anonymous survey and will have no way of identifying respondents?**
☐	**If YES,** please proceed to Q4.2

4.2	**University regulations require the following procedures concerning storage of data. You should indicate your compliance with these regulations by ticking the following three boxes. Do you agree to comply with each of the following:**
Please check the box if you agree to comply.	
☒ **YES**	Only the researchers will have access to the original data
☒ **YES**	Data will be retained in the Department for at least five years, longer for clinical trials. If the data are to be retained other than within a department or academic unit, a record of their location must be filed with the Head of the unit and a copy with the secretary
☒ YES	Victorian privacy laws require the University to "take reasonable steps to destroy or permanently de-identify personal information if it is no longer needed for any purpose" (IPP 4.2, *Information Privacy Act 2000 (Vic.)*

4.3	**If the above regulations (in 4.2) are not being adhered to, how will information be handled to safeguard confidentiality?**

4.4	**Describe the procedures you will use to protect participants from any distress, embarrassment or other harm that might be caused when the data is reported.**
All data will be de-identified prior to analysis. Illustrative material or participant 'quotations' will be attributed to individuals identified with fictitious names. Case studies used to illustrate the findings will be compilations of details from a variety of interns to build an unidentifiable 'intern'	

APPENDIX 4

Call for Volunteers: Recruitment Poster

Appendix 4

Are you interested in taking part in a research study about interns and their work?
Will you be a Victorian intern in 2008?
If you answered yes to both these questions

READ ON

CALL FOR VOLUNTEERS

To participate in the 2008 Research Study
What are the sentinel events in the construction of a doctor?

WANTED: JUNIOR DOCTORS
WHO WILL BE INTERNS IN VICTORIAN HOSPITALS DURING 2008

You will be asked to commit to three interviews,
Nov-Dec 2007; Feb-March 2008; Oct-Nov 2008

Interviews will be about your learning as an intern
They will be confidential
Your anonymity will be protected

What's in it for you?

- You would be contributing to research in medical education
- You will have the opportunity to reflect on what you are learning and what you have learned
- You will be sent a summary of the research findings

Want to find out more?
Call Joan Benjamin, the researcher on 0419 002 805

APPENDIX 5

Explanatory statement for Interns taking part in the Research Study

Appendix 5

EXPLANATORY STATEMENT FOR INTERNS TAKING PART IN THE RESEARCH STUDY

What are the sentinel events in the construction of a doctor?

What this research is about

Volunteer interns have been asked to participate in a study designed to develop an understanding of how the work practices undertaken by interns on a daily basis during the course of their intern year contribute to the intern's learning to practice competently and independently as a medical practitioner. The study is part of a PhD program undertaken by the researcher (Joan Benjamin) in the Faculty of Medicine, Nursing and Health Sciences at Monash University.

The study will examine work practices, as described by the interns themselves, to determine their educational value. By considering the work experiences encountered by the interns and identified by them as effective in their development as doctors, data will be developed which can inform change in the conduct of the prevocational years. The knowledge developed by this project will assist in any planned re-prioritisation and re-organisation of junior doctor activities on the basis of effective 'learningful' work experiences. A compilation of data will be used to develop case studies to illustrate aspects of the research findings,

Your part in the study

As a participant in this study you will be asked to undertake three interviews:- one prior to commencing your internship, and one each during the second half of your first hospital rotation and during your fourth rotation. The interviews will ask you to describe your experience as an intern and to reflect on the way your experiences contribute to your learning to become an independent medical practitioner. The interviews will each take between 45 and 60 minutes to complete, they will be audio recorded and subsequently transcribed for the purposes of analysis. You may withdraw from the study at any point I would be interested to know your reason's for withdrawal but you are not obliged to provide any. At the conclusion of the study you will receive a summary of the findings.

Protection of your anonymity

You are asked to obtain permission from your supervisor to undertake the interview if it should occur in rostered time. Apart from that, your supervisors and employers will

have no access to any information that is collected by this study except in summary form at the end of the study. The individual transcripts of interviews will be identified by a code and your personal details will be recorded elsewhere.

The approval process for the study

The Monash Steering Committee on Ethics in Research Involving Humans (SCERH) has approved the research plan. The Chairperson of the Postgraduate Medical Council has provided a letter endorsing the value of the study.

What will the data be used for?

The interviews form the field work component for a Doctorate of Philosophy and will be reported in the thesis. Other publications such as journal articles, conference papers and book chapters may follow. The data will be de-identified prior to analysis and will remain so, thus ensuring the confidentiality of any participant's individual contribution to the research. It is intended that the data will prove useful to medical educators and policy makers.

Yours sincerely

Joan Benjamin Graduate Research Student

Centre for Medical and Health Science Education, Faculty of Medicine, Nursing and Health Science, Monash University. [redacted]

If you would like to contact the researchers about any aspect of this study, please contact the Chief Investigator:	If you have a complaint concerning the manner in which this research (number) is being conducted, please contact:
Professor Brian Jolly, Director, Centre for Medical and Health Science Education, Bldg 15 Monash University Vic 3800 [redacted]	Human Ethics Officer, Standing Committee on Ethics in Research Involving Humans Bldg 3d, Research Office, Monash University, Vic 3800. [redacted]

APPENDIX 6

Consent to participate in the Research Study (form)

Appendix 6

Consent to participate in the research study

What are the sentinel events in the construction of a doctor?

I agree to take part in the research study titled above.
I have read the explanatory statement about the research study*, What are the sentinel events in the construction of a doctor?* I will keep this for my records.

I understand that agreeing to participate in this study means that I am willing to:

Be interviewed three times over the course of my involvement in the study

1. After I graduate and before I commence my internship
2. During the first rotation of my internship
3. During the fourth rotation of my internship

I understand that any information that is collected through interview, discussion or observation will be de-identified and that no information that could lead to the identification of any individual will be disclosed.

I understand that this research study is being undertaken by Joan Benjamin as part of a program to obtain a PhD and that the Chief Investigator is Professor Brian Jolly, Director of the Centre for Medical and Health Science Education.

I also understand that my participation is voluntary and that I can choose to withdraw from the project at any time. I understand that the researchers will be interested in my reasons for withdrawal but that I shall be under no obligation to provide reasons or be involved in any further discussions.

Name:

Signature:

Date:

To be collected before the commencement of the first interview.

APPENDIX 7

Audit trail of phenomenographic analysis of intern conceptions of on-the-job learning

Appendix 7

Audit trail of phenomenographic analysis of intern conceptions of on-the-job learning

Developing the categories of description – Intern conceptions of on-the-job learning

Stage 1

The first variation to be noted in the interns' descriptions suggested that their learning was either self-directed or other directed. Further variation was noted on where the interns' attention was focused: on the patient, on themselves or on their supervisor.

Stage 2

This first round of analysis suggested that the extracts be interrogated with two particular questions:

What did the interns do? and

What were they focusing on?

I then selected and grouped examples of statements that illustrated the interns' focus. This resulted in nine descriptive categories. These are shown in Table A1 which includes an illustrative quotation for each category.

Table A1 Nine preliminary categories of description

Category 1

What did the intern do?	Where did the intern focus?
Follow directions and have work reviewed	On getting the job done

You pick up knowledge during the course of doing your job. You page your supervisor. You just tell them who you are and what the problem is and then they tell you what to do.

Category 2

What did the intern do?	Where did the intern focus?
Being there and doing things over and over again	On the doing

Well doing is how you learn really. You can read something in a book, but I suppose you can only really visualise something if it's a practical task. The only way you can really learn it is to actually perform it.

Category 3

What did the intern do?	Where did the intern focus?
Being aware, noticing and answering questions	On learning

A good way to learn how to deal with certain problems, watching them [the registrars], their approach, what they are thinking. I would often ask them, I would ask why?

Category 4

What did the intern do?	Where did the intern focus?
Investigating the patient to understand their condition and reporting on it	On learning about signs and symptoms

Thinking things through, when you have to say out loud what you are thinking.

Category 5

What did the intern do?	Where did the intern focus?
Discussing the patients and patient management	On learning through patient care

You go down to ED, you look at the patient, you have a chat with the ED doctor. You work out whether admission is warranted. You sort of figure out what are the criteria for admission or why we should keep this patient versus not.

Category 6

What did the intern do?	Where did the intern focus?
Watching, questioning, learning, and participating in a team	On learning through patient care in the hospital system

When things are discussed about why this patient is on medication, why this is changing and what we do now.

Category 7

What did the intern do?	Where did the intern focus?
Developed a course of action through collaborative problem solving	On patient centred medical practice

Presenting your patient, advocating a course of treatment, negotiating to get the treatment you have decided on.

Category 8

Developing a course of action through collaborative problem solving	On the patient

Present your case to the consultant and then bounce off them sort of question and answer and having their assistance in fine tuning the plan.

Category 9

What did the intern do?	Where did the intern focus?
Review and reflection on patient care	On own practice

You learn from your day-to-day work. From day-to-day you see how your management would have changed or impacted on the patients. So it's more personal, not like from a book. You remember.

Stage 3

This stage involved a closer consideration of variations and similarities with a view to reducing their number. What did the categories have in common? Closer scrutiny enabled some of the descriptions to be grouped together. These categories were revisited several times; as the transcripts were revisited to check the validity of the

label, quotations were identified that illustrated the meaning of the label. The labels underwent several changes themselves and the categories reduced to 4. The original nine labels were reduced to four variations. Table A2 outlines these variations.

Table A2: Four variations in intern perspectives on on-the-job learning

Variation	Approach to learning	Focus and activities
A	Learning through acquiring knowledge of the intern environment	Focusing on the tasks to be done and the organisational aspects required for their achievement.
B	Learning through providing patient care	Focusing on daily management of patient investigations and results; noting patient response to the management, and reporting outcomes to supervisors.
C	Learning through participation in collaborative patient centred care	Contributing patient information and conclusions to the patient care team and participating in the management discussions. Sharing in discussion, judgement, and decision-making.
D	Learning through review and reflection on patient outcomes	Alone or in collaboration with another, reviewing patient management and outcome, evaluating, making adjustments to management and noting areas for practice improvement.

Variation A encapsulates the first three categories in Table A1, all of which focused not on the patient but on being an intern, being present in the workplace and learning how to work in that workplace.

The next five categories in Table A1 (4,5,6,7,8), all had a focus on patients; a difference was then noted between these categories: this related to whether the

focus was mediated through dialogue with supervisors, where the intern was reporting to the supervisor and the supervisor was directing the intern, as described in categories 4 and 5, or where, as in categories 6,7 and 8, the intern is no longer just reporting and carrying out instructions from a supervisor but is contributing as a participant in a system of care. Thus, categories 4 and 5 were grouped under Variation B, while 6,7 and 8 are subsumed in Variation C.

Variation D is qualitatively different from those preceding it, not only does it incorporate Variations A, B and C, but it relates to the interns' practice rather than the patients' condition.

APPENDIX 8

Outline of Doctoral Discussion Group workshop

Appendix 8

Outline of doctoral discussion group workshop

Doctoral discussion group: Intern approaches to on-the-job learning
July 2010

Workshop Plan

- Presentation of the research study and outcome (20 mins)
- Explain the groups' tasks and distribute materials (10 mins)
- Participants break into groups of 3-4 to analyse a set of vignettes from the interns' stories extracted from interview transcripts and match them to the categories of description identified in the research study (30 mins)
- Groups report on the extent to which matches were possible (10 mins)
- Discussion: What did we learn about facilitating on-the-job learning? (20 mins)

Introduction

Introduce study, methodology and outcome: Categories of description of intern conceptions of on-the-job learnng

The workshop will provide an opportunity to analyse and discuss extracts of research data from a study of work-based learning. The study was conducted as research for a PhD. Work-based learning has taken centre stage in the training and ongoing development of the medical workforce, identifying need for greater understanding of the processes involved in informal learning (Swanwick 2005). Work-based, or on-the-job learning, is conceived of as a sociocultural phenomenon focusing on the relationships and interactions of the workplace (Lave and Wenger 1991) (Billett 2001). This perspective acknowledges the trend towards interprofessional teamwork; systems based patient safety and organisational learning (Bleakley 2006). The medical internship year constitutes an apprenticeship into a professional role and identity within the hospital as much as an opportunity to consolidate and extend clinical skills.

Data was gathered using semi-structured interviews to explore the interns' experiences of learning in the hospital setting, their workplace. The data showed variation in the way interns conceptualised on-the-job-learning and how they approached on-the-job learning. The qualitative research methodology,

phenomenography, was used; this methodology explores the variation in the way individuals' experience the same phenomena. Phenomenographic research has been described as mirroring what good teachers do. It enables an understanding of what students are doing in their learning. Developing knowledge about the current understanding of learners is likely to make teaching and educational development more focused and effective (Dall'Alba 2000). The similarities and the differences between the way people conceive and describe a phenomena are the critical points of interest in phenomenographic research. These different conceptions emerge from the data analysis as categories of descriptions. The categories provide insight into the way interns experience on-the-job learning.

1. Issue for exploration within the workshop

To assess the validity of the descriptions of approaches to learning that emerged from the analysis.

References:

Billett, S. (2001). "Learning through work: workplace affordances." *Journal of Workplace Learning* 13(5): 209–214.

Bleakley, A. (2006). "Broadening conceptions of learning in medical education: the message from teamworking." *Medical Education* 40: 150–157.

Dall'Alba, G. (2000). Reflections on some faces of phenomenography. *Phenomenography*. J. Bowden and E. Walsh. Melbourne, RMIT University Press: 99.

Lave, J. and E. Wenger (1991). *Situated learning: Legitimate peripheral participation.* Cambridge, Cambridge University Press.

Swanwick, T. (2005). "Informal learning in postgraduate medical education: from cognitivism to 'culturism'." *Medical Education* 39: 859–865.

APPENDIX 9

Conference presentations made during the course of the candidature

Appendix 9

Conference presentations made during the course of the candidature

1 **The 13th Ottawa International Conference on Clinical Competence, Melbourne, March 2008**

Poster presentation: What can we learn about *how* interns learn during their first year of practice?

2 **Prevocational Medical Education Conference 2008**

Hobart, Tasmania

Oral presentation: "Expectations & Understandings of On-the-Job Learning: The Intern Perspective"

Summary of abstract

This paper reports part of a study on junior doctor learning during their intern year. The aim of the research is to understand how interns learn on-the-job. Do their expectations and understanding of on-the-job learning and the intern role match the realities they experience in their first rotation? What catalysts and barriers to learning do they encounter?

This paper will discuss data from the first of three interviews. The participants expressed varying perceptions of the intern role and of on-the-job learning. Prior to commencing as interns the students held a variety of views about the role of the intern ranging from "it's a kind of dogsbody role", "you're an information manager"," the role is to make sure things run smoothly." There were also different descriptions of on-the-job learning. "As I work I will encounter new tasks that I haven't done before. I will ask for help from the registrar and other team members". "*Using your colleagues and making sure that you are mentally processing, not just doing what you are told. I think its just using your every day encounters to take knowledge away from*".

3 Pre-vocational Medical Education Conference 2009

Gold Coast, Queensland

Oral presentation: "Intern perceptions of how the registrar influences their learning"

Summary of abstract

Much of the literature on the role of the supervisor/teacher focuses on the desirable attributes that clinical teachers should embody rather than the interaction between learner and teacher. Boor and colleagues[1] hypothesised that whether or not a clinical teacher is perceived as ideal depends on the interaction of a resident with his /her teacher in a certain context whilst noting the sparse attention paid to that interaction in the literature.

Analysis of the interns' experiences of on-the-job learning revealed variations in the way interns perceived the approach of registrars to the intern-supervisor role. Four different approaches to the supervisor/teacher role were identified in the interns' descriptions.

- Checking activities including management plans through questioning;
- Making time to teach around issues that arose out of the routine patient care;
- Working collaboratively with the intern discussing patient care issues along the way;
- Establishing a multi-dimensional collegial relationship.

These approaches reflect "the importance of reciprocal interaction between learner (intern) and workplace environment (internship). The effectiveness of the learning experience was related to the extent to which the intern and the registrar were able to work collaboratively.

---

[1] Boor, K., Teunissen, P., Scherpbier, A., van der Vleutin, C., van de Lande, J., & Scheele, F. (2008). Residents' perceptions of the ideal clinical teacher : A qualitative study. *European Journal of Obstetric & Gynecology and Reproductive Biology, 140*, 152-157.

4 ANZAME 2010

Townsville, Queensland

Workshop presentation (Appendix 11)

5 ANZAHPE 13

Melbourne, Victoria

Oral presentation: "How do interns learn on-the-job? Implications for Supervisors

Summary of abstract

This qualitative research analysed the experiences of thirty interns at Victorian hospitals interviewed three times across their intern year.

Four qualitatively different ways of experiencing on the-job-earning emerged from the interns' accounts. Following the phenomenographic tradition these descriptions are presented as an inclusive hierarchy, D being the most inclusive.

A. Learning through acquiring knowledge about the intern environment.

B. Learning through providing patient care.

C. Learning through participation in collaborative patient centred care.

D. Learning through review and reflection on patient outcomes

Sources of learning were found to be:

- Discussion and conversation with seniors and peers about patient care;
- Navigation of the complex system that comprises the hospital workplace;
- Managing patients with same or similar conditions over a period of time;
- Participation and interaction with others regarding decisions about medical care; and
- Recognition of own limitations mediated by recognition of own competence.

APPENDIX 10

Abstract for presentation of workshop at ANZHPE 2010 conference

Appendix 10

Abstract for presentation at ANZAME 2010

Presentation Title: *Intern approaches to on-the-job learning*

Introduction/Background

This workshop will provide an opportunity to analyse and discuss extracts of research data from a study of work-based learning. The study was conducted as part of a PhD. Work-based learning has taken centre stage in the training and ongoing development of the medical workforce, developing a need for greater understanding of the processes involved in informal learning (Swanick 2005). Work based, or on-the-job learning, is conceived of as a socio-cultural phenomenon focusing on the relationships and interactions of the workplace (Lave and Wenger 1991) (Billett 2001). This perspective acknowledges the trend towards interprofessional team-work, systems based patient safety and organisational learning (Bleakley 2006). The medical internship year constitutes an apprenticeship into professional role and identity within the hospital as much as an opportunity to consolidate and extend clinical skills.

Data was gathered using semi-structured interviews to explore the interns' experiences of learning in the hospital setting, their workplace. The data showed variation in the way interns conceptualised on-the-job-learning and how they approached on-the-job learning. The qualitative research methodology, phenomenography, was used, this methodology explores the variation in the way individuals' experience the same phenomena. Phenomenographic research has been described as mirroring what good teachers do. It enables an understanding of what students are doing in their learning. Developing knowledge about the current understanding of learners is likely to make teaching and educational development more focused and effective (Dall'Alba 2000). The similarities and the differences between the ways people conceive and describe a phenomena are the critical points of interest in phenomenographic research. These different conceptions emerge from the data analysis as categories of descriptions. These categories provide insight into the way interns experience on-the-job learning.

Purpose/objectives

- Explore the intern experience over the course of the intern year.
- Learn how the interns conceptualised and approached on-the-job learning.
- Identify the factors that enhanced learning.

Issues for exploration within the workshop

To explore the research outcome, variations in the way interns experience on-the-job learning, for the light that it can shed on the phenomenon of on-the-job learning in the hospital setting more generally.

To assess the validity of the descriptions of approaches to learning that emerged from the analysis.

Workshop Methodology

Presentation of the research study and outcome (20 mins)

Explain of activity and distribute materials (10 mins)

Participants break into groups of 3-4 to analyse a set of vignettes from the interns' stories extracted from interview transcripts and match them to the categories of description identified in the research study (30 mins)

Groups report on the extent to which matches were possible (10 mins)

Discussion: What did we learn about facilitating on-the-job learning? (20 mins)

References:

Billett, S. (2001). "Learning through work: workplace affordances." *Journal of Workplace Learning* **13**(5): 209-214.

Bleakley, A. (2002). "Pre-registration house officers and ward based learning: a 'new apprenticeship' model." *Medical Education* **36**: 9-15.

Bleakley, A. (2006). "Broadening conceptions of learning in medical education: the message from teamworking." *Medical Education* **40**: 150-157.

Dall'Alba, G. (2000). Reflections on some faces of phenomenography. *Phenomenography*. J. Bowden and E. Walsh. Melbourne, RMIT University Press**:** 99.

Lave, J. and E. Wenger (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, Cambridge University Press.

Swanick, T. (2005). "Informal learning in postgraduate medical education: from cognitivism to 'culturism'." *Medical Education* **39**: 859-865.